

Electrical Sector Solutions

# Volume 11: Vehicle and Commercial Controls

**EATON**

*Powering Business Worldwide*

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## Dimensions, Weights and Ratings

Dimensions, weights and ratings given in this catalog **are approximate and should not be used for construction purposes**. Drawings containing exact dimensions are available upon request. All listed product specifications and ratings are subject to change without notice. Photographs are representative of production units.

## Terms and Conditions

All prices and discounts are subject to change without notice. When price changes occur, they are published in the *Eaton Corporation Price and Availability Digest* (PAD). All orders accepted by Eaton's electrical sector are subject to the general terms and conditions as set forth in Appendix 1—Eaton Terms & Conditions.

## Technical and Descriptive Publications

This catalog contains brief technical data for proper selection of products. Further information is available in the form of technical information publications and illustrated brochures. If additional product information is required, contact your local Eaton Products Distributor, call **1-800-525-2000** or visit our Web site at **[www.eaton.com](http://www.eaton.com)**.

## Compliance with Nuclear Regulation 10 CFR 21

Eaton products are sold as commercial grade products not intended for application in facilities or activities licensed by the United States Nuclear Regulatory Commission for atomic purposes, under 10 CFR 21. Further certification will be required for use of these products in a safety-related application in any nuclear facility licensed by the U.S. Nuclear Regulatory Commission.

## WARNING

The installation and use of Eaton products should be in accordance with the provisions of the U.S. National Electrical Code® and/or other local codes or industry standards that are pertinent to the particular end use. Installation or use not in accordance with these codes and standards could be hazardous to personnel and/or equipment.

These catalog pages do not purport to cover all details or variations in equipment, nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the local Eaton Products Distributor or Sales Office. The contents of this catalog shall not become part of or modify any prior or existing agreement, commitment or relationship. The sales contract contains the entire obligation of Eaton's electrical sector. The warranty contained in the contract between the parties is the sole warranty of Eaton. Any statements contained herein do not create new warranties or modify the existing warranty.



Powering Business Worldwide

**Eaton Corporation is a global leader in power distribution, power quality, control and automation, and monitoring products.**

At Eaton, we believe a reliable, efficient and safe power system is the foundation of every successful enterprise. Through innovative technologies, cutting-edge products and our highly skilled services team, we empower businesses around the world to achieve a powerful advantage.

In addition, Eaton is committed to creating and maintaining powerful customer relationships built on a foundation of excellence. From the products we manufacture to our dedicated customer service and support, we know what's important to you.

## Solutions

Eaton takes the complexity out of power systems management with a holistic and strategic approach, leveraging our industry-leading technology, solutions and services. We focus on the following three areas in all we do:

- Reliability—maintain the appropriate level of power continuity without disruption or unexpected downtime
- Efficiency—minimize energy usage, operating costs, equipment footprint and environmental impact
- Safety—identify and mitigate electrical hazards to protect what you value most

## Using the Eaton Catalog Library

As we grow, it becomes increasingly difficult to include all products in one or two comprehensive catalogs. Knowing that each user has their specific needs, we have created a library of catalogs for our products that when complete, will contain 15 volumes. Since the volumes will continuously be a work in progress and updated, each volume will stand alone. Refer to our volume directory, MZ08100001E, for a quick glance of where to look for the products you need. The 15 volumes include:

- Volume 1—Residential and Light Commercial (CA08100002E)
- Volume 2—Commercial Distribution (CA08100003E)
- Volume 3—Power Distribution and Control Assemblies (CA08100004E)
- Volume 4—Circuit Protection (CA08100005E)
- Volume 5—Motor Control and Protection (CA08100006E)
- Volume 6—Solid-State Motor Control (CA08100007E)
- Volume 7—Logic Control, Operator Interface and Connectivity Solutions (CA08100008E)
- Volume 8—Sensing Solutions (CA08100010E)
- Volume 9—Original Equipment Manufacturer (CA08100011E)
- Volume 10—Enclosed Control (CA08100012E)
- Volume 11—Vehicle and Commercial Controls (CA08100013E)
- Volume 12—Aftermarket, Renewal Parts and Life Extension Solutions (CA08105001E)
- Volume 13—Counters, Timers and Tachometers (CA08100015E)—Available in electronic format only
- Volume 14—Fuses (CA08100016E)—Available in electronic format only
- Volume 15—Solar Inverters and Electrical Balance of System (CA08100018E)

These volumes are not all-inclusive of every product, but they are meant to be an overview of our product lines. For our full range of product solutions and additional product information, consult Eaton.com/electrical and other catalogs and product guides in our literature library. These references include:

- The Consulting Application Guide (CA08104001E)
- The Eaton Power Quality Product Guide (COR01FYA)

If you don't have the volume that contains the product or information that you are looking for, not to worry. You can access every volume of the catalog library at Eaton.com/electrical in the Literature Library.

By installing our Automatic Tab Updater (ATU), you can be sure you always have the most recent version of each volume and tab.

## Contact Us

If you need additional help, you can find contact information under the Customer Care heading of [Eaton.com/electrical](http://Eaton.com/electrical).

## Product Selection Guide



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**E31 eSM—Multiplexed Keypad**



**E30 eSM—Multiplexed Rockers**



**E32 eSM—Multiplexed Rockers**



**E33 eSM—Sealed Multiplex Rocker Switch Units**



**eVu—Electronic Vehicle Display**



## 1.1 E31 eSM—Keypad Multiplexed Switch Module

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| Application Description           | V11-T1-2 |
| Features and Benefits             | V11-T1-2 |
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## 1.2 E30 eSM—Multiplexed Rocker Switch Units

|                                   |          |
|-----------------------------------|----------|
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| Application Description           | V11-T1-5 |
| Product Selection                 | V11-T1-5 |
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## 1.3 E32 eSM—Multiplexed Rocker Switch Units

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| Application Description | V11-T1-8  |
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| Product Selection       | V11-T1-9  |
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## 1.4 E33 eSM—Sealed Multiplexed Rocker Switch Units

|                                   |           |
|-----------------------------------|-----------|
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| Application Description           | V11-T1-12 |
| Features and Benefits             | V11-T1-12 |
| Product Selection                 | V11-T1-13 |
| Wiring                            | V11-T1-13 |
| Technical Data and Specifications | V11-T1-13 |
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## 1.5 eVu—Electronic Vehicle Display

|                         |           |
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| Application Description | V11-T1-15 |
| Features                | V11-T1-15 |
| Product Selection       | V11-T1-15 |
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## Product Description

Because your vehicle is continuously exposed to nature's elements, we offer the latest in Eaton's multiplexed line of switch product, the E31 Keypad eSM. Eaton's E31 Keypad eSM multiplex switch module offers a flexible and sealed solution for high-density switch requirements in severe environments. The keypad can be configured with any graphic/switch, as well as with customer-defined illumination. For customers requiring additional switches, expansion modules can be used with no requirement for additional CAN nodes. For additional product flexibility and differentiated operator control the E31 Keypad eSM is designed to communicate with E32 rocker expansion modules.

## Application Description

Great for specialty vehicle, construction, and agricultural equipment markets. The eSM product is especially suitable for severe environmental applications and where there is a desire to move to a multiplexed solution to simplify wiring and control requirements. Typical applications are:

### Target Market Segments:

- Tractors
- Wheel loaders
- Refuse vehicles
- Concrete mixers
- Street sweepers
- Mining equipment
- Emergency vehicles
- Transit buses

## Contents

### Description

E31 eSM—Keypad Multiplexed Switch Module

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| Technical Data and Specifications ..... | <b>V11-T1-4</b> |
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## Features and Benefits

### Key Features

- Fully compliant with J1939/CAN 2.0b messaging
- IP68 degree of protection from front and rear of module
- Rocker and keypad expansion module capability
- Exceptional illumination characteristics
  - LED backlighting of icons
  - Four color daylight-visible indicators per switch
  - Message-controlled dimming and flash rates
- Large switch surface area and alignment ridges for ease of gloved hand use
- Exceptional tactile and audible feedback of switch actuation
- Electrical/mechanical life to over 1,000,000 cycles
- 9–32 Vdc operating voltage
- Immunity per SAE J1455/1113
  - Power disturbance
  - Radiated immunity
  - Radiated emissions

### Advantages

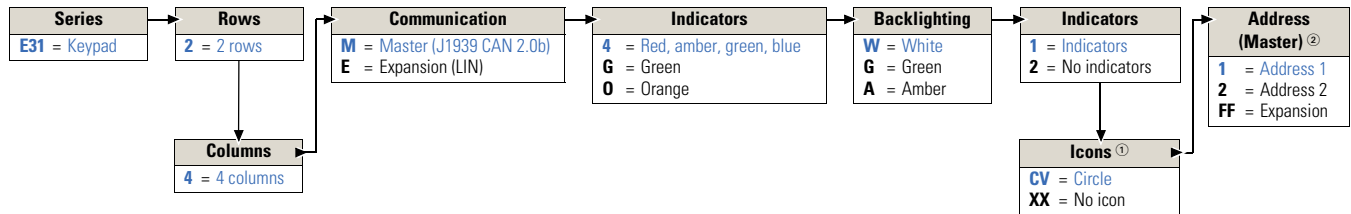
- Reduced assembly labor due to ease of installation, allowing for mounting and connection of eight switches at one time as opposed to individually
- Reduced wire harness complexity; uses one harness to a controller, reducing wiring, connection point, and controller requirements
- Reduced harness size offers an overall reduction in weight, improving operational efficiency of the equipment
- Increase in life-cycle over traditional electromechanical switches
- Front, rear, and panel sealing for harsh environments

## Catalog Number Selection

### How To Order—E31 eSM—Keypad Multiplexed Switch Module

To determine complete catalog number, start with the appropriate control type and add the appropriate code letters and/or numbers.

**Example:** E31 2 4 M 4 W 1 CV 1



## Product Selection

### Master

#### E3124M4W1CV1



#### E31 Keypad eSM Master Module, 2X4

| Basic Part | Indicators Colors       | Backlighting | Icon Graphic | Address | Catalog Number |
|------------|-------------------------|--------------|--------------|---------|----------------|
| E3124M     | Red, amber, green, blue | White        | Circle       | 1       | E3124M4W1CV1   |
|            |                         |              |              | 2       | E3124M4W1CV2   |
|            |                         |              | None         | 1       | E3124M4W1XX1   |
|            |                         |              |              | 2       | E3124M4W1XX2   |
|            | Green                   | Green        | Circle       | 1       | E3124MGG1CV1   |
|            |                         |              |              | 2       | E3124MGG1CV2   |
|            |                         |              | None         | 1       | E3124MGG1XX1   |
|            |                         |              |              | 2       | E3124MGG1XX2   |
|            | Orange                  | Amber        | Circle       | 1       | E3124MOA1CV1   |
|            |                         |              |              | 2       | E3124MOA1CV2   |
|            |                         |              | None         | 1       | E3124MOA1XX1   |
|            |                         |              |              | 2       | E3124MOA1XX2   |

### Expansion

#### E3124EGG1XXFF



#### E31 Keypad eSM Expansion Module, 2X4

| Basic Part | Indicators Colors       | Backlighting | Icon Graphic | Address | Catalog Number |
|------------|-------------------------|--------------|--------------|---------|----------------|
| E3124E     | Red, amber, green, blue | White        | Circle       | FF      | E3124E4W1CVFF  |
|            |                         |              | None         |         | E3124E4W1XXFF  |
|            | Green                   | Green        | Circle       | FF      | E3124EGG1CVFF  |
|            |                         |              | None         |         | E3124EGG1XXFF  |
|            | Orange                  | Amber        | Circle       | FF      | E3124EOA1CVFF  |
|            |                         |              | None         |         | E3124EOA1XXFF  |

### Notes

① Contact Eaton sales for custom graphics.

② For use of multiple masters on 1-system. (Address 3-8 available as special order.)

## Technical Data and Specifications

### Master Module Wiring Harness

The interconnection between the master module and the controller uses a minimum four-wire harness with an additional two pins associated to expansion module interconnection. Wire sizes of 16–20 AWG can be accommodated with the Deutsch connector shown in the mating connector information.

#### Master Wiring Harness

| PIN | Function |
|-----|----------|
| 1   | Vbat     |
| 2   | Common   |
| 3   | CAN (+)  |
| 4   | CAN (–)  |
| 5   | Common   |
| 6   | LIN      |

### Message Structure

Each CAN message contains 8 bytes of data. The first data byte is used to define the type of data carried in bytes 2 through 8. This difference compared to common J1939 message structure allows a single J1939 PGN address to support all of the data needed for switch status, LED status, system status, wake ON change, dimmer level, and all other data used by a master and expansion.

#### Expansion Wiring Harness

| PIN | Function |
|-----|----------|
| 1   | Vbat     |
| 2   | Common   |
| 3   | LIN      |
| 4   | LIN      |
| 5   | Common   |
| 6   | Vbat     |

### Mating Connector Information

Deutsch DT Series connector

6-pin connector: DT06-6S

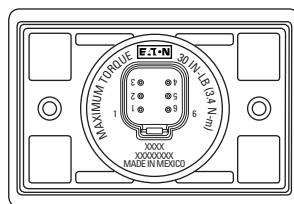
- EP11 (Black–Master)
- E008 (Gray–Expansion)

6-pin wedge lock: W6S

Female terminal:  
0462-201-16141  
(16-18-20 AWG)

Hole plug: 0413-217-1605

Crimper: HDT-48-00



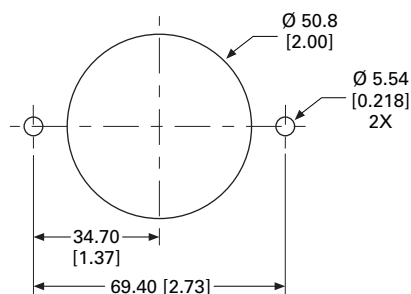
### E32 and E33 Rocker Expansion Modules

The Keypad eSM master module is capable of supporting Eaton's E32 and E33 product line of rocker eSMs. The E32 and E33 product line is an above-panel-style rocker switch module that contains any combination of rocker or indicator functionality with no additional CAN node requirement to the system. Similar to the keypad, the rocker module offers icon graphic illumination with up to four center indicator bar LEDs for status or mode. This product is also fully functional to support dimming and flashing capabilities through software command.

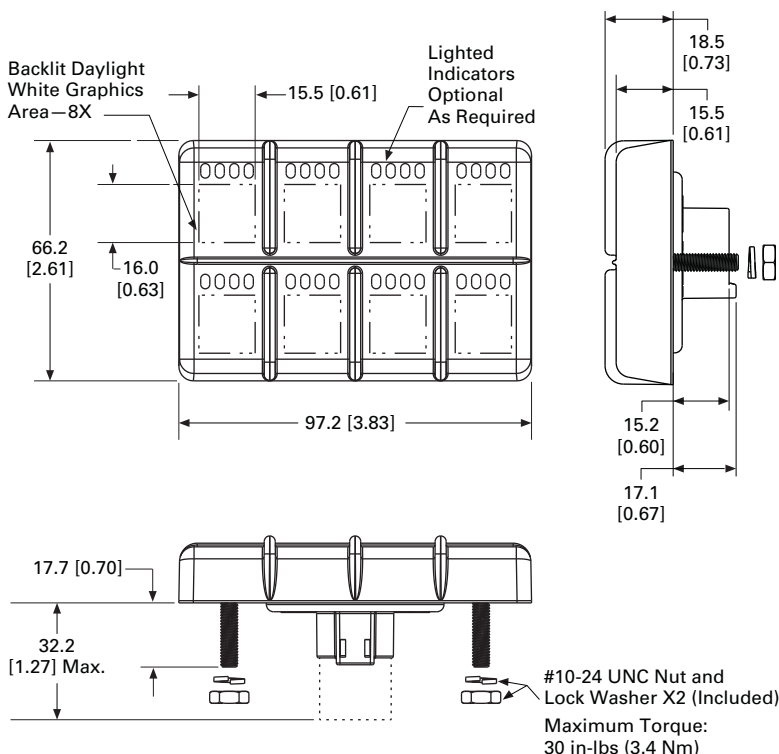
## Dimensions

Approximate Dimensions in mm [in]

### Mounting Dimensions



### E31 Keypad Master or Expansion Module



E30 eSM—Multiplexed Rocker Switch Units



Contents

Description

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| Wiring . . . . .                            | V11-T1-7 |
| Dimensions . . . . .                        | V11-T1-7 |

Product Description

Tailored to meet the same look and feel of Eaton’s NGR product line, the E30 eSM offers the added benefits of multiplexed control and system simplification. The E30 eSM is a below-panel styled multiplexed rocker module capable of communicating via SAE J1939 CAN 2.0b. The modules are set up in a master-expansion configuration capable of supporting up to seven

expansion modules per master thus minimizing the impact on a controller to a single CAN node. Additionally, up to eight master modules per system can be accommodated. Communication with the expansion modules is done via a four-wire sub-bus.

Multiplexing of switches can significantly reduce harness costs and complexity as well as improve installation cycle time.

Application Description

The E30 eSM is especially suited for applications that require both high current independently wired switches using Eaton NGR switches as well as those applications realizing the benefits of multiplexing. The E30 eSM is styled to match the Eaton NGR switch for a consistent look and feel to your dash panel.

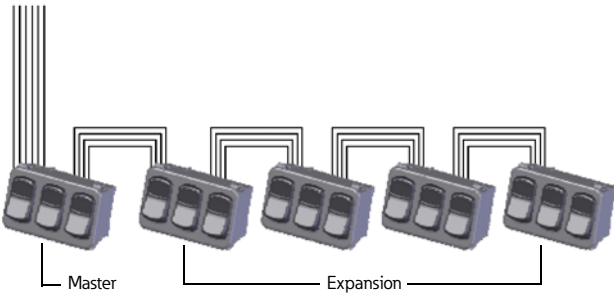
The E30 eSM also has the capability of having a separate input for key switch and dimmer control functions to increase the flexibility of the product to interface seamlessly to your vehicle.

Customization of the E30 eSM is done by creating an application specific rocker with icons representing the function as well as by use of colored LEDs to highlight status. Two and three position as well as momentary or maintained circuits are identified using a sub-actuator to offer complete flexibility.

Target Market Segments:

- Motor coach/bus
- Specialty vehicle
- Truck

Master Expansion Modules



Product Selection

**Note:** All products are custom ordered. Contact your local Eaton Sales Representative.

## Technical Data and Specifications

### E30 eSM Specifications

| Description           | Specification                                            |
|-----------------------|----------------------------------------------------------|
| Power supply          | 12 Vdc regulated power, 1.5A                             |
| Operating temperature | –40° to 85°C                                             |
| Storage temperature   | –40° to 85°C                                             |
| Sealing               | IP42                                                     |
| Illumination          | Dependent on search lighting, customer defined LED color |
| Switch life cycle     |                                                          |
| Electrical life       | 250,000 cycles                                           |
| Mechanical life       | 250,000 cycles                                           |
| Radiated immunity     | SAE J1113/21, 100 v/m                                    |
| Radiated emissions    | SAE J1113/41, Class 2                                    |
| Dimming               | 0–10 Vdc Analog Input (0 = 0% and 10V = 100% brightness) |
| Connectors            | Delphi Micro VHT 15499927<br>Delphi Micro VHT 13513469   |

### Power Supply

A regulated 12 Vdc power supply capable of providing 1.5A should be connected to terminals 1, 5 and 6 of the six-pole connector of the master module only. All connected expansion modules receive their supply power from the master module.

### Diagnostics

The LED indicators at the back of the modules show the status of the internal diagnostics as follows:

#### Diagnostics

| Label         | Color | Meaning        |
|---------------|-------|----------------|
| J1939 ACTIVE  | Red   | CANbus active  |
| MODULE ACTIVE | Amber | Sub bus active |
| SWITCH CHANGE | Green | Switch change  |

### Communication

The communication to and from the master module is fully compliant to the SAE J1939/CAN 2.0b protocol.

The application-specific J1939 message parameters are as follows:

#### Transmission Repetition

| Description                  | Specification |
|------------------------------|---------------|
| Transmission repetition rate | 100 ms        |
| Data length                  | 8 bytes       |
| Data page                    | 0             |
| PDU format                   | 255           |
| PDU specific                 | 160           |
| Default priority             | 5             |
| Parameter group number       | 65440         |

### SAE J1455

| Description                 | Specification        |
|-----------------------------|----------------------|
| Dust test (Non-operational) | SAE J726 Course      |
| Mechanical vibration        | 2gs from 10 to 2 kHz |
| Mechanical shock            | 30g                  |
| Handling drop               | 1m, 3-axis           |
| Load dump transient         | Table 4A and 4B      |
| Reverse voltage             | –28 Vdc for 5 mins   |
| Over-voltage                | 48 Vdc for 5 mins    |
| Under-voltage               | 4 Vdc for 5 mins     |

### Message Contents

#### Status

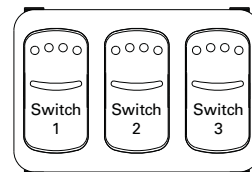
| Byte   | Status                    |
|--------|---------------------------|
| Byte 1 | Master module status      |
| Byte 2 | Expansion module 1 status |
| Byte 3 | Expansion module 2 status |
| Byte 4 | Expansion module 3 status |
| Byte 5 | Expansion module 4 status |
| Byte 6 | Expansion module 5 status |
| Byte 7 | Expansion module 6 status |
| Byte 8 | Expansion module 7 status |

Within each status byte, the bits are assigned to the individual switches as follows:

| Bit     | Switch          |
|---------|-----------------|
| Bit 8&7 | Not defined     |
| Bit 5&6 | Switch 1 status |
| Bit 3&4 | Switch 2 status |
| Bit 1&2 | Switch 3 status |

where the switches are numbered as shown below.

#### Switches

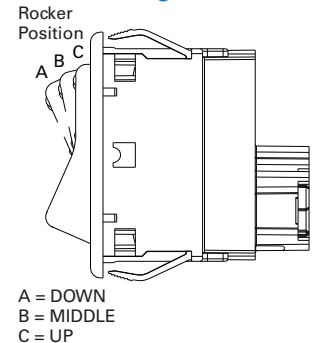


The two status bit pairs represent the switch state in the following manner:

| Bit | Switch                    |
|-----|---------------------------|
| 00  | Switch in DOWN position   |
| 01  | Switch in MIDDLE position |
| 10  | Switch in UP position     |
| 11  | Not defined               |

where the position assignment is as shown below.

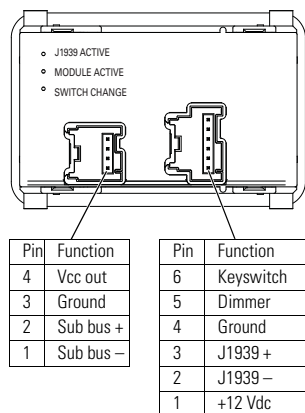
#### Position Assignment



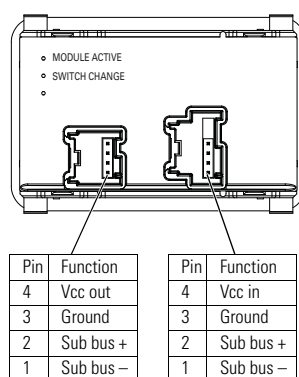
## Wiring

The master unit is connected using six unshielded wires. The connection from the master to the first expansion module and between any consecutive expansion modules is made using four unshielded wires.

### Master Module



### Expansion Module



Master wiring:

- Six unshielded wires

Expansion wiring:

- Four unshielded wires

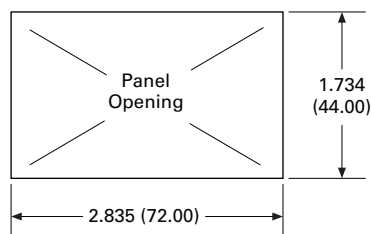
## Dimensions

Approximate Dimensions in Inches (mm)

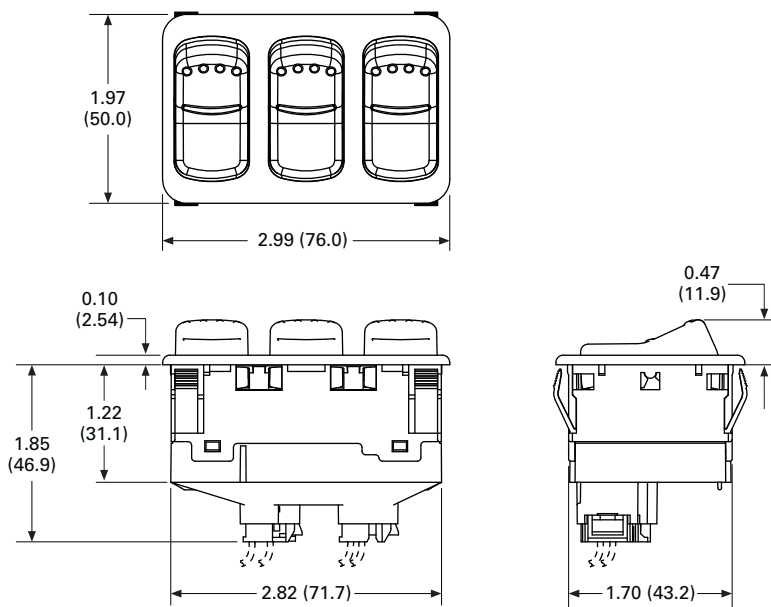
### Mounting Dimensions

If you want to mount the modules in a panel, the opening in the panel should be rectangular, 2.835 in wide and 1.732 in high (72.00 mm wide and 44.00 mm high).

The panel thickness should be between 0.039 and 0.157 in (1.00 and 4.00 mm).



### E30 eSM Multiplexed Rocker Switch Units





## Contents

### Description

### Page

#### E32 eSM—Multiplexed Rocker Switch Units

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| Wiring .....            | V11-T1-10 |
| Dimensions .....        | V11-T1-11 |

## Product Description

### Multiplexed Master Module using a LIN sub bus to communicate with up to seven expansion modules.

Offering a high level of flexibility, the above-panel electronic multiplex switch module (E32 eSM) covers your wide range of switch and indicator applications using standard or custom graphics, as well as a full range of circuits and illumination options. The above-panel E32 eSM has top, center and bottom LED lighting with software that offers advanced circuit and lighting flexibility, including dimming and flashing options via J1939 CANbus communication. The indicator bar can be lighted with up to four separate colors to indicate operational status, vehicle mode and faults. All standard combinations of maintained and momentary switch actions, matching indicator caps and dummy plugs, along with the complementary styled SVR electromechanical rocker switch are available to complete the offering.

### Compared with electromechanical switches, multiplexed switch modules offer several advantages.

- Reduced assembly labor due to ease of installation, allowing for mounting and connection of three switches at one time versus individually
- Reduced wire harness complexity, using one harness to a controller to accommodate up to 24 switches and a three-wire interconnect between expansion and master modules
- Reduced harness size offers an overall reduction in weight, improving operational efficiency of the equipment
- Increase in switch life-cycle over traditional electromechanical switches (500k cycles)

## Application Description

### Target Market Segments

This product is targeted at the bus/coach, truck and specialty vehicle markets. The product is especially suitable where a customer has “gangs” of switches mounted in a panel or dashboard, and expansion modules can be connected easily to a master module.

- On-road specialty vehicle
- EMS vehicles
- Street sweepers
- Recreational vehicles
- Motor coach/bus
- Refuse vehicles

## Features and Benefits

- Fully compliant with J1939 CAN 2.0b messaging
- LED lighting in top, center and bottom positions
- Late point definition of circuit and rockers to reduce inventory and accommodate multiple application requirements
- 9–16 Vdc operating voltage
- 16–32 Vdc operating voltage
- IP53 degree of protection from the front
- Easy address assignment
- Immune to SAE J1455 and J1113 power disturbances
- Front panel removable for ease of maintenance
- Sleep mode available to reduce current draw on the battery
- Wake on switch change configurable
- Decorative-style rocker with matching indicator option available
- Colored rocker options
- CAN controlled digital logic output—500 mA

## Product Selection

**Note:** All fully-assembled products are custom ordered. Contact your local Eaton Sales Representative.



### Modules

| Voltage | Module              | Icon Lighting | Status Bar Lighting     | Catalog Number         |
|---------|---------------------|---------------|-------------------------|------------------------|
| 9–16V   | Master              | Amber         | Amber                   | <b>E321AAAAAAAAA01</b> |
|         |                     | Green         | Green                   | <b>E321GGGGGGGGG01</b> |
|         |                     | White         | Red, Amber, Green, Blue | <b>E321W4WW4WW4W01</b> |
|         | Expansion           | Amber         | Amber                   | <b>E322AAAAAAAAA01</b> |
|         |                     | Green         | Green                   | <b>E322GGGGGGGGG01</b> |
|         |                     | White         | Red, Amber, Green, Blue | <b>E322W4WW4WW4W01</b> |
|         | Indicator expansion | Amber         | Amber                   | <b>E322AAAAAAAAA17</b> |
|         |                     | Green         | Green                   | <b>E322GGGGGGGGG17</b> |
|         |                     | White         | Red, Amber, Green, Blue | <b>E322W4WW4WW4W17</b> |
| 16–32V  | Master              | Amber         | Amber                   | <b>E323AAAAAAAAA01</b> |
|         |                     | Green         | Green                   | <b>E323GGGGGGGGG01</b> |
|         |                     | White         | Red, Amber, Green, Blue | <b>E323W4WW4WW4W01</b> |
|         | Expansion           | Amber         | Amber                   | <b>E324AAAAAAAAA01</b> |
|         |                     | Green         | Green                   | <b>E324GGGGGGGGG01</b> |
|         |                     | White         | Red, Amber, Green, Blue | <b>E324W4WW4WW4W01</b> |
|         | Indicator expansion | Amber         | Amber                   | <b>E324AAAAAAAAA17</b> |
|         |                     | Green         | Green                   | <b>E324GGGGGGGGG17</b> |
|         |                     | White         | Red, Amber, Green, Blue | <b>E324W4WW4WW4W17</b> |

## Accessories

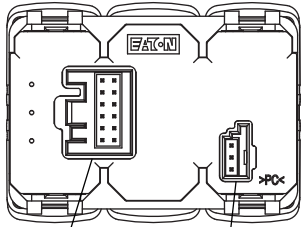
### Rockers

| Color | Description              | Catalog Number   |
|-------|--------------------------|------------------|
| Black | Full-throw actuator      | <b>53-7350</b>   |
|       | Half-throw up actuator   | <b>53-7350-2</b> |
|       | Half-throw down actuator | <b>53-7350-3</b> |
| Red   | Full-throw actuator      | <b>53-7350-4</b> |
|       | Half-throw up actuator   | <b>53-7350-5</b> |
|       | Half-throw down actuator | <b>53-7350-6</b> |
| Black | Indicator                | <b>53-7354</b>   |
|       | Dummy plug               | <b>53-7354-2</b> |
|       | Panel plug               | <b>17-24241</b>  |

### Circuit Sub-Actuators

| Color        | Circuit (Up-Middle-Down) |      |           | Catalog Number    |
|--------------|--------------------------|------|-----------|-------------------|
| Black        | On                       | On   | None      | <b>61-4043</b>    |
| Red          | Momentary                | On   | None      | <b>61-4043-2</b>  |
| Light blue   | On                       | On   | On        | <b>61-4043-3</b>  |
| White        | Momentary                | On   | Momentary | <b>61-4043-4</b>  |
| Yellow       | Momentary                | On   | On        | <b>61-4043-5</b>  |
| Gray         | On                       | None | On        | <b>61-4043-6</b>  |
| Pink         | Momentary                | None | On        | <b>61-4043-7</b>  |
| Maroon       | None                     | On   | On        | <b>61-4043-8</b>  |
| Light purple | None                     | On   | Momentary | <b>61-4043-9</b>  |
| Orange       | On                       | On   | Momentary | <b>61-4043-10</b> |
| Green        | On                       | None | Momentary | <b>61-4043-11</b> |

## 1

**Wiring****Master Module Wire Harness**

| Pin | Function        |
|-----|-----------------|
| 1   | VBAT (clamp 30) |
| 2   | Ground          |
| 3   | CAN high        |
| 4   | CAN low         |
| 5   | 500 mA output   |
| 6   | Address 1       |
| 7   | Address 2       |
| 8   | Address 3       |
| 9   | Address 4       |
| 10  | No connect      |
| 11  | No connect      |
| 12  | No connect      |

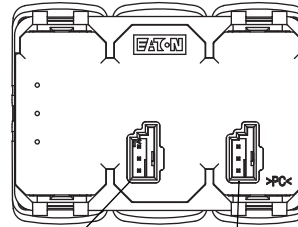
| Pin | Function        |
|-----|-----------------|
| 1   | VBAT (clamp 30) |
| 2   | Ground          |
| 3   | LIN sub bus     |

The interconnection between master module and controller uses a simple four-wire harness with addressing specified by jumping between pins 6 to 9. An additional pin-out is provided for a 500 mA output if required.

**Mating Connector Information**

Housing:

- ETN 28-6982
- Amp/Tyco #1394048-1
- ETN 49-7867
- Amp/Tyco #2-1355524-3

**Expansion Module Wire Harness**

| Pin | Function        |
|-----|-----------------|
| 1   | VBAT (clamp 30) |
| 2   | Ground          |
| 3   | LIN sub bus     |

| Pin | Function        |
|-----|-----------------|
| 1   | VBAT (clamp 30) |
| 2   | Ground          |
| 3   | LIN sub bus     |

The interconnection between modules uses a cost-effective three-wire harness. This simplified wire harness reduces cost, weight and assembly labor for the end-user.

**Mating Connector Information**

Terminal:

- ETN 28-6983
- Amp/Tyco #1-1718346-1 Coding A
- ETN 80-20608
- Amp/Tyco #963715-1

**Master Address Assignment**

The master switch module address is set using jumpers in the wire harness to connect the following pins:

**Master Address Assignment**

| Terminal Pins Connected | Address |
|-------------------------|---------|
| 6-7                     | A1      |
| 6-8                     | A2      |
| 6-9                     | A3      |
| 7-8                     | A4      |
| 7-9                     | A5      |
| 8-9                     | A6      |
| 6-7, 8-9                | A7      |
| 6-8, 7-9                | A8      |

**Manufacturing Flexibility**

E32 eSM offers a tremendous amount of flexibility including options for complete assemblies to be provided as well as late-point definable rocker and circuit. Individual components can be purchased independently and assembled to create any combination of circuits and icons which is especially suited for low volume/high mix applications minimizing inventory requirements. Rockers and indicators can also be laser-etched with custom icons by Eaton or other to accommodate application specific requirements. Contact your Eaton representative to discuss the Eaton solution further.

## Dimensions

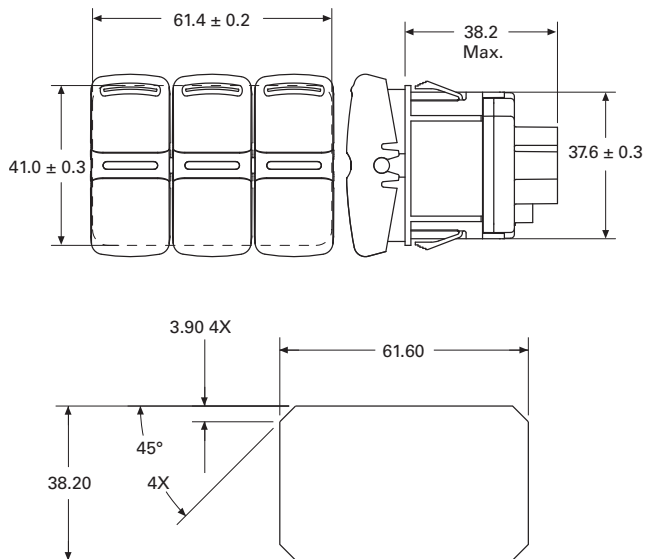
Approximate Dimensions in mm

### Mounting Instructions

The modules are easily mounted with plastic retention clips. Modules are mounted in a single, space-saving cutout, reducing assembly time and accommodating up to three switches in a compact design.

The unit will accommodate 1.5 to 3 mm panel thickness.

### Mounting Dimensions





## Product Description

**Sealed Multiplexed Master Module using a LIN sub bus to communicate with up to seven expansion modules.**

Eaton is pleased to introduce the newest line of multiplexed electronic Switch Modules (eSM), the E33 product line. The E33 eSM offers an increased level of flexibility over previous modules including:

- Fully sealed to IP68 from the front and rear
- Locking rocker options
- Palm guard option

The E33 eSM offers a complete range of switch circuits as well as indicator options to meet all your control requirements. Similar to the E32 eSM product line, the E33 eSM includes individual icon lighting as well as a multi-color center indicator option allowing for steady state, flashing and dimming controlled via messaging. Additional flexibility is available by using the Eaton IP68 sealed SVR switch line for high-current, hard-wired applications in conjunction with our multiplexed solution.

**Compared with electromechanical switches, multiplexed switch modules offer several advantages.**

- Reduced assembly labor due to ease of installation, allowing for mounting and connection of three switches at one time versus individually
- Reduced wire harness complexity, using one harness to a controller to accommodate up to 24 switches and a three-wire interconnect between expansion and master modules
- Reduced harness size offers an overall reduction in weight, improving operational efficiency of the equipment
- Increase in switch life-cycle over traditional electromechanical switches (500k cycles)
- Reduced connections resulting in less possible failure points

## Contents

### Description

E33 eSM—Keypad Multiplexed Switch Module

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### Page

## Application Description

### Target Market Segments

This product is targeted at harsh environment applications where a ruggedized product is needed to meet demanding requirements. Additionally, applications where there is concern over inadvertent switch actuation driving the need for guarding or locking features are also well-suited. Typical applications include:

- Construction equipment
- Agricultural equipment
- Specialty vehicle
- Material handling
- Emergency vehicle
- School and transit bus

## Features and Benefits

- Fully compliant with J1939 CAN 2.0b messaging
- IP68 degree of protection front and rear
- 9–32 Vdc rated
- Immune to SAE J1455 and J1113 power disturbances
- Top, bottom and full guard option available
- Locking rocker available
- Front panel removable for ease of maintenance
- Sleep mode available to reduce current draw on the battery
- Wake on switch change configurable
- LED lighting in top, center-indicator and bottom position
- Decorative style rocker with matching indicator option
- Late point definition of circuit and rockers to reduce inventory
- Diagnostics

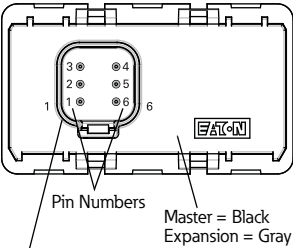
Contact your Eaton sales engineer for availability.

Product Selection

**Note:** All fully-assembled products are custom ordered. Contact your local Eaton Sales Representative.

Wiring

Master/Expansion Module Wire Harness



| Pin | Master   | Expansion |
|-----|----------|-----------|
| 1   | VBATT    | VBATT     |
| 2   | Common   | Common    |
| 3   | CAN High | LIN       |
| 4   | CAN Low  | LIN       |
| 5   | Common   | Common    |
| 6   | LIN      | VBATT     |

The interconnection between master module and controller uses a simple four-wire harness. Addressing of the master can be done by software or via address claim process. Interconnect wiring between master-expansion as well as expansion-expansion uses a three-wire harness.

Mating Connector Information

- Mating connector: Deutsch plug DT06-6S
- Wedge lock: W6S
- Socket contact: 0462-201-16141 (1.0–0.5 mm<sup>2</sup> [16–20 AWG])
- Hole plug: 0413-217-1605

Technical Data and Specifications

E33 eSM Specifications

| Description                                        | Specification                 |
|----------------------------------------------------|-------------------------------|
| Operating temperature                              | –40° to 85°C                  |
| Storage temperature                                | –40° to 95°C                  |
| Operating voltage                                  | 9–32 Vdc                      |
| Environmental sealing                              | IP68                          |
| Mechanical shock                                   | 30g for 11 ms                 |
| Mechanical vibration                               | MIL-STD-202F/201A 2.0g random |
| Immunity to SAE J1455 and J1113 power disturbances |                               |
| Communication                                      |                               |
| Master                                             | SAE J1939 CAN 2.0b            |
| Expansion                                          | LIN 2.0                       |

Contact your Eaton sales engineer for availability.

## 1

**Dimensions**

Approximate Dimensions in Inches (mm)

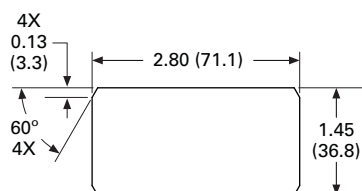
**Standard Cut-Out**

The modules are easily mounted with plastic retention clips. Modules are mounted in a single, space-saving cutout reducing assembly time and accommodating up to three switches in a compact design.

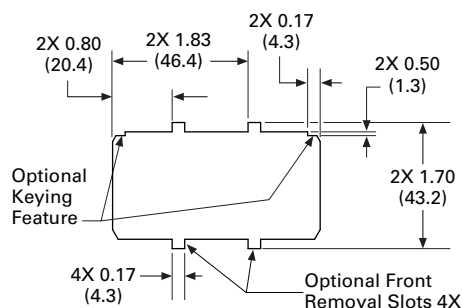
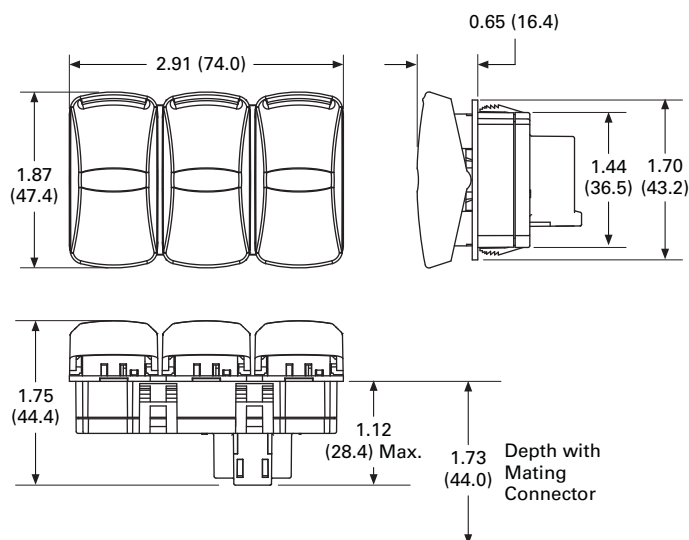
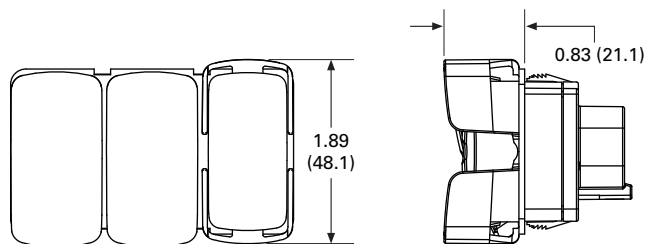
**Serviceability**

By modifying the standard cut-out to include the optional front panel removable slots shown below, the modules are easily serviceable from the front of the panel without further disassembly.

Due to the E33's design allowing for late-point definition on assembly, both the actuator and circuit profile are serviceable as individual components.

**Standard Cut-Out**

Recommended Panel Opening  
Panel Thickness: 0.04–0.16 (1.0–4.0)

**Optional Panel Opening Features****E33 eSM Sealed Multiplexed Rocker Switch Units****E33 eSM Sealed Multiplexed Rocker Switch Units (Palm Guard Version)**

Contact your Eaton sales engineer for availability.

## eVu—Electronic Vehicle Display



## Product Description

With a focus on communications, convenience and safety, Eaton Corporation is pleased to introduce eVu.

Rugged dashpanel displays simplify the viewing, selecting and inputting of key equipment/trip data.

Working in sync with existing controllers and networks, the displays provide the driver with valuable feedback on vehicle status and performance.

eVu displays offer a great deal of flexibility which can include:

- Internal warning/alert buzzer
- Backlighting legend displays
- Sunlight readable LCD characters
- Internal power supply
- Analog or discrete switch inputs
- Up to 2.5 digit character display
- 8-segment bar graph
- Individual LED control

### So, what's the e for?

**E**asy, **e**lectronic and **e**volutionary. eVu fills the gap (literally) between on-board systems and displays, ideal for application-specific functions.

## Application Description

Typical applications for information display include:

- Temperature
- Pressure
- Speed
- Distance
- Capacity
- Transmission
- Warnings/alarms
- System information

### Safety

eVu displays are easier to access than typical touch screens or soft-key applications. Keeping the dashboard displays within the driver's line of vision helps keep the driver and everyone else on the road safe. Additionally, the eVu displays are designed to meet SAE-1455 specification.

### What Do You Want to View?

There are many types of eVu displays and they can be customized with various colors, resolutions and character configurations. Choose the functionality you want with the flexibility you need.

## Contents

### Description

eVu—Electronic Vehicle Display

## Features

### Communication and Networking

eVu displays can interface with smart engines, controllers and equipment software via established J1939 and J1708 communication protocols.

In addition, eVu displays can receive input from analog transducers and sub-systems. Analog inputs can be either 0–20 mA or 0–10V. Additional input options exist for up to six logic states.

### Designed for Easy Installation

Some advancements in technology create installation obstacles. That isn't the case with eVu. The displays fit into the same cutouts as standard Eaton NGR rocker switches, 0.866 x 1.732 in (22.00 x 44.00 mm), making installation easy. The simplified architecture not only saves dash space, it also saves costs.

## Product Selection

**Note:** All products are custom ordered. Contact your local Eaton Sales Representative.

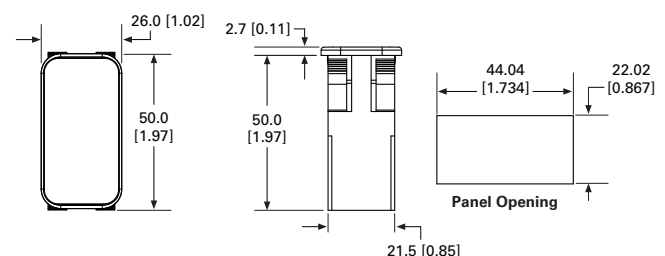
## Dimensions

Approximate Dimensions in mm [in]

### Mounting Instructions

Product is designed to mount in panels between 1 to 4 mm (0.039 to 0.157 in) thick.

### eVu—Electronic Vehicle Display



NGR



SVR



Rockette



EURO SR



ESPORT



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Rocker Switch Products

2



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## Rocker Selection Guide

See Technical Data and Dimensions for more details.

### Rocker Switches—Illuminated and Non-Illuminated

|                                                                                    | NGR                                                              | SVR                                      |
|------------------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------|
|  |                                                                  |                                          |
| <b>Features</b>                                                                    |                                                                  |                                          |
| <b>Ratings</b>                                                                     | 15A at 125 Vac, 10A at 250 Vac;<br>15A at 28 Vdc (14 Vdc rating) | 12A at either 12 or 24 Vdc               |
| <b>Certifications</b>                                                              | RoHS, UL® Approvable                                             | RoHS, UL Approvable                      |
| <b>Panel Opening</b>                                                               | Rectangular                                                      | Octagonal                                |
| Single- and two-pole length                                                        | 1.734 in (44.04 ± 0.13 mm)                                       | 0.830 in (21.10 mm); 0.680 in (17.30 mm) |
| Single-pole width                                                                  | 0.867 in (22.02 ± 0.13 mm)                                       | 1.450 in (36.80 mm); 1.190 in (30.20 mm) |
| Two-pole width                                                                     | 0.867 in (22.02 ± 0.13 mm)                                       | 1.450 in (36.80 mm); 1.190 in (30.20 mm) |
| <b>Seal</b>                                                                        |                                                                  |                                          |
| Top (internal)                                                                     | ✓                                                                | ✓                                        |
| Bottom (internal)                                                                  | —                                                                | ✓                                        |
| Panel                                                                              | ✓                                                                | ✓                                        |
| <b>Actuator</b>                                                                    |                                                                  |                                          |
| Rocker without bezel                                                               | —                                                                | ✓                                        |
| Rocker with bezel                                                                  | ✓                                                                | ✓                                        |
| Paddle                                                                             | ✓                                                                | ✓                                        |
| Snap-in lens                                                                       | ✓                                                                | ✓                                        |
| Locking                                                                            | ✓                                                                | —                                        |
| Label                                                                              | ✓                                                                | —                                        |
| <b>Decorative</b>                                                                  |                                                                  |                                          |
| Laser-etch                                                                         | ✓                                                                | ✓                                        |
| Pad-print                                                                          | ✓                                                                | ✓                                        |
| <b>Poles</b>                                                                       |                                                                  |                                          |
| Single                                                                             | ✓                                                                | ✓                                        |
| Double                                                                             | ✓                                                                | ✓                                        |
| Four                                                                               | —                                                                | —                                        |
| <b>Termination</b>                                                                 |                                                                  |                                          |
| Spade                                                                              | ✓                                                                | ✓                                        |
| Solder                                                                             | —                                                                | —                                        |
| Screw                                                                              | —                                                                | —                                        |
| Weld lugs                                                                          | —                                                                | —                                        |
| <b>Illumination</b>                                                                |                                                                  |                                          |
| Incandescent 6 Vdc                                                                 | —                                                                | —                                        |
| Incandescent 12 Vdc                                                                | —                                                                | —                                        |
| Incandescent 14 Vdc                                                                | ✓                                                                | —                                        |
| Incandescent 18 Vdc                                                                | ✓                                                                | —                                        |
| Incandescent 24 Vdc                                                                | —                                                                | —                                        |
| Incandescent 28 Vdc                                                                | ✓                                                                | —                                        |
| Neon 110V                                                                          | —                                                                | —                                        |
| Neon 125V                                                                          | —                                                                | —                                        |
| Neon 250V                                                                          | —                                                                | —                                        |
| 14V LED                                                                            | ✓                                                                | ✓                                        |
| 28V LED                                                                            | ✓                                                                | ✓                                        |
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See Technical Data and Dimensions for more details.

### Rocker Switches—Illuminated and Non-Illuminated, continued

2

#### Dual Motion Safety Switch

#### 1500/2500



#### Features

|                                    |                                                      |                                      |
|------------------------------------|------------------------------------------------------|--------------------------------------|
| <b>Ratings</b>                     | 10A at 250 Vac, 15A at 125 Vac,<br>3/4 hp at 250 Vac | Up to 22A at 125 Vac, 16A at 250 Vac |
| <b>Certifications</b>              | UL, CSA®, RoHS                                       | UL, CSA, ENEC, RoHS                  |
| <b>Panel Opening</b>               | Octagonal                                            | Rectangular                          |
| Single- and two-pole length        | 1.450 in (36.80 mm); 1.190 in (30.20 mm)             | 1.075 in (27.30 ± 0.10 mm)           |
| Single-pole width                  | 0.830 in (21.10 mm); 0.680 in (17.20 mm)             | 0.483 in (12.27 ± 0.07 mm)           |
| Two-pole width                     | N/A                                                  | 0.876 in (22.25 ± 0.10 mm)           |
| <b>Seal</b>                        |                                                      |                                      |
| Top (internal)                     | —                                                    | —                                    |
| Bottom (internal)                  | —                                                    | —                                    |
| Panel                              | —                                                    | —                                    |
| <b>Actuator</b>                    |                                                      |                                      |
| Rocker without bezel               | —                                                    | —                                    |
| Rocker with bezel                  | ✓                                                    | ✓                                    |
| Paddle                             | ✓                                                    | ✓                                    |
| Snap-in lens                       | —                                                    | —                                    |
| Locking                            | —                                                    | —                                    |
| Label                              | —                                                    | —                                    |
| <b>Decorative</b>                  |                                                      |                                      |
| Laser-etch                         | —                                                    | —                                    |
| Pad-print                          | ✓                                                    | ✓                                    |
| <b>Poles</b>                       |                                                      |                                      |
| Single                             | ✓                                                    | ✓                                    |
| Double                             | —                                                    | ✓                                    |
| Four                               | —                                                    | —                                    |
| <b>Termination</b>                 |                                                      |                                      |
| Spade                              | ✓                                                    | ✓                                    |
| Solder                             | ✓                                                    | ✓                                    |
| Screw                              | ✓                                                    | —                                    |
| Weld lugs                          | —                                                    | —                                    |
| <b>Illumination</b>                |                                                      |                                      |
| Incandescent 6 Vdc                 | —                                                    | ✓                                    |
| Incandescent 12 Vdc                | —                                                    | ✓                                    |
| Incandescent 14 Vdc                | —                                                    | —                                    |
| Incandescent 18 Vdc                | —                                                    | —                                    |
| Incandescent 24 Vdc                | —                                                    | ✓                                    |
| Incandescent 28 Vdc                | —                                                    | —                                    |
| Neon 110V                          | —                                                    | —                                    |
| Neon 125V                          | —                                                    | ✓                                    |
| Neon 250V                          | —                                                    | ✓                                    |
| 14V LED                            | —                                                    | —                                    |
| 28V LED                            | —                                                    | —                                    |
| <b>Catalog Number Selection</b>    | <b>Page V11-T2-42</b>                                | <b>Page V11-T2-44</b>                |
| <b>Technical Data</b>              | —                                                    | <b>Page V11-T2-46</b>                |
| <b>Circuit Diagrams</b>            | —                                                    | <b>Page V11-T2-78</b>                |
| <b>Dimensions</b>                  | <b>Page V11-T2-42</b>                                | <b>Page V11-T2-46</b>                |
| <b>Icon/Legend Symbols Library</b> | —                                                    | <b>Page V11-T2-53</b>                |

See Technical Data and Dimensions for more details.

**Rocker Switches—Illuminated and Non-Illuminated, continued**

|                                                                                    | 1600/2600                            | Rockette                                                |
|------------------------------------------------------------------------------------|--------------------------------------|---------------------------------------------------------|
|  |                                      |                                                         |
| <b>Features</b>                                                                    |                                      |                                                         |
| <b>Ratings</b>                                                                     | Up to 22A at 125 Vac, 16A at 250 Vac | Up to 15A at 125 Vac, 10A at 250 Vac, 3/4 hp at 250 Vac |
| <b>Certifications</b>                                                              | UL, CSA, ENEC, RoHS                  | UL, CSA, RoHS                                           |
| <b>Panel Opening</b>                                                               | Rectangular                          | Octagonal                                               |
| Single- and two-pole length                                                        | 1.075 in (27.30 ± 0.10 mm)           | 1.450 in (36.83 mm); 1.190 in (30.23 mm)                |
| Single-pole width                                                                  | 0.483 in (12.27 ± 0.07 mm)           | 0.830 in (21.80 mm); 0.680 in (17.27 mm)                |
| Two-pole width                                                                     | 0.876 in (22.25 ± 0.10 mm)           | 0.830 in (21.80 mm); 0.680 in (17.27 mm)                |
| <b>Seal</b>                                                                        |                                      |                                                         |
| Top (internal)                                                                     | —                                    | ✓                                                       |
| Bottom (internal)                                                                  | —                                    | —                                                       |
| Panel                                                                              | —                                    | —                                                       |
| <b>Actuator</b>                                                                    |                                      |                                                         |
| Rocker without bezel                                                               | —                                    | —                                                       |
| Rocker with bezel                                                                  | ✓                                    | ✓                                                       |
| Paddle                                                                             | ✓                                    | —                                                       |
| Snap-in lens                                                                       | —                                    | —                                                       |
| Locking                                                                            | —                                    | —                                                       |
| Label                                                                              | —                                    | —                                                       |
| <b>Decorative</b>                                                                  |                                      |                                                         |
| Laser-etch                                                                         | —                                    | —                                                       |
| Pad-print                                                                          | ✓                                    | ✓                                                       |
| <b>Poles</b>                                                                       |                                      |                                                         |
| Single                                                                             | ✓                                    | —                                                       |
| Double                                                                             | ✓                                    | ✓                                                       |
| Four                                                                               | —                                    | ✓                                                       |
| <b>Termination</b>                                                                 |                                      |                                                         |
| Spade                                                                              | ✓                                    | ✓                                                       |
| Solder                                                                             | ✓                                    | ✓                                                       |
| Screw                                                                              | —                                    | ✓                                                       |
| Weld lugs                                                                          | —                                    | —                                                       |
| <b>Illumination</b>                                                                |                                      |                                                         |
| Incandescent 6 Vdc                                                                 | ✓                                    | —                                                       |
| Incandescent 12 Vdc                                                                | ✓                                    | —                                                       |
| Incandescent 14 Vdc                                                                | —                                    | ✓                                                       |
| Incandescent 18 Vdc                                                                | —                                    | —                                                       |
| Incandescent 24 Vdc                                                                | ✓                                    | —                                                       |
| Incandescent 28 Vdc                                                                | —                                    | ✓                                                       |
| Neon 110V                                                                          | —                                    | ✓                                                       |
| Neon 125V                                                                          | —                                    | —                                                       |
| Neon 250V                                                                          | —                                    | —                                                       |
| 14V LED                                                                            | —                                    | —                                                       |
| 28V LED                                                                            | —                                    | —                                                       |
| <b>Catalog Number Selection</b>                                                    | Page V11-T2-48                       | Page V11-T2-55                                          |
| <b>Technical Data</b>                                                              | Page V11-T2-52                       | Page V11-T2-58                                          |
| <b>Circuit Diagrams</b>                                                            | Page V11-T2-78                       | Page V11-T2-78                                          |
| <b>Dimensions</b>                                                                  | Page V11-T2-52                       | Page V11-T2-58                                          |
| <b>Icon/Legend Symbols Library</b>                                                 | Page V11-T2-53                       | —                                                       |

See Technical Data and Dimensions for more details.

### Rocker Switches—Illuminated and Non-Illuminated, continued

2

8006/8007

8004/8005



#### Features

|                                    |                                                                                          |                                                                                          |
|------------------------------------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| <b>Ratings</b>                     | 10A at 250 Vac, 15A at 125 Vac,<br>3/4 hp at 250 Vac, recommended up<br>to 15A at 28 Vdc | 10A at 250 Vac, 15A at 125 Vac,<br>3/4 hp at 250 Vac, recommended up<br>to 15A at 28 Vdc |
| <b>Certifications</b>              | UL(CUR), RoHS                                                                            | UL(CUR), RoHS                                                                            |
| <b>Panel Opening</b>               | Octagonal                                                                                | Rectangular                                                                              |
| Single- and two-pole length        | 1.450 in (36.85 mm); 1.190 in (30.23 mm)                                                 | 1.734 in (44.04 ± 0.13 mm)                                                               |
| Single-pole width                  | 0.830 in (21.08 mm); 0.680 in (17.27 mm)                                                 | 0.867 in (22.02 ± 0.13 mm)                                                               |
| Two-pole width                     | 0.830 in (21.08 mm); 0.680 in (17.27 mm)                                                 | 0.867 in (22.02 ± 0.13 mm)                                                               |
| <b>Seal</b>                        |                                                                                          |                                                                                          |
| Top (internal)                     | ✓                                                                                        | ✓                                                                                        |
| Bottom (internal)                  | —                                                                                        | —                                                                                        |
| Panel                              | —                                                                                        | —                                                                                        |
| <b>Actuator</b>                    |                                                                                          |                                                                                          |
| Rocker without bezel               | —                                                                                        | —                                                                                        |
| Rocker with bezel                  | ✓                                                                                        | ✓                                                                                        |
| Paddle                             | ✓                                                                                        | —                                                                                        |
| Snap-in lens                       | ✓                                                                                        | ✓                                                                                        |
| Locking                            | —                                                                                        | —                                                                                        |
| Label                              | —                                                                                        | ✓                                                                                        |
| <b>Decorative</b>                  |                                                                                          |                                                                                          |
| Laser-etch                         | —                                                                                        | —                                                                                        |
| Pad-print                          | ✓                                                                                        | ✓                                                                                        |
| <b>Poles</b>                       |                                                                                          |                                                                                          |
| Single                             | ✓                                                                                        | ✓                                                                                        |
| Double                             | ✓                                                                                        | ✓                                                                                        |
| Four                               | —                                                                                        | —                                                                                        |
| <b>Termination</b>                 |                                                                                          |                                                                                          |
| Spade                              | ✓                                                                                        | ✓                                                                                        |
| Solder                             | ✓                                                                                        | ✓                                                                                        |
| Screw                              | ✓                                                                                        | ✓                                                                                        |
| Weld lugs                          | —                                                                                        | —                                                                                        |
| <b>Illumination</b>                |                                                                                          |                                                                                          |
| Incandescent 6 Vdc                 | —                                                                                        | —                                                                                        |
| Incandescent 12 Vdc                | —                                                                                        | —                                                                                        |
| Incandescent 14 Vdc                | ✓                                                                                        | ✓                                                                                        |
| Incandescent 18 Vdc                | ✓                                                                                        | ✓                                                                                        |
| Incandescent 24 Vdc                | —                                                                                        | —                                                                                        |
| Incandescent 28 Vdc                | ✓                                                                                        | ✓                                                                                        |
| Neon 110V                          | —                                                                                        | —                                                                                        |
| Neon 125V                          | ✓                                                                                        | ✓                                                                                        |
| Neon 250V                          | ✓                                                                                        | ✓                                                                                        |
| 14V LED                            | —                                                                                        | —                                                                                        |
| 28V LED                            | —                                                                                        | —                                                                                        |
| <b>Catalog Number Selection</b>    | <b>Page V11-T2-63</b>                                                                    | <b>Page V11-T2-66</b>                                                                    |
| <b>Technical Data</b>              | <b>Page V11-T2-64</b>                                                                    | <b>Page V11-T2-67</b>                                                                    |
| <b>Circuit Diagrams</b>            | <b>Page V11-T2-78</b>                                                                    | <b>Page V11-T2-78</b>                                                                    |
| <b>Dimensions</b>                  | <b>Page V11-T2-64</b>                                                                    | <b>Page V11-T2-67</b>                                                                    |
| <b>Icon/Legend Symbols Library</b> | —                                                                                        | —                                                                                        |

See Technical Data and Dimensions for more details.

**Rocker Switches—Illuminated and Non-Illuminated, continued**

|                                                                                    | X Series                                                                | 8064/8065                                                                                |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
|  |                                                                         |                                                                                          |
| <b>Features</b>                                                                    |                                                                         |                                                                                          |
| <b>Ratings</b>                                                                     | 16A 125V, 10A 277V, 3/4 hp 277V<br>Recommended 21A 14 Vdc or 10A 28 Vdc | 10A at 250 Vac, 15A at 125 Vac,<br>3/4 hp at 250 Vac, recommended up<br>to 15A at 28 Vdc |
| <b>Certifications</b>                                                              | UL(CUR); RoHS, T85                                                      | UL(CUR); RoHS                                                                            |
| <b>Panel Opening</b>                                                               | Rectangular                                                             | Rectangular                                                                              |
| Single- and two-pole length                                                        | 1.46 in (37.00 ± 0.1 mm)                                                | 1.734 in (44.04 ± 0.13 mm)                                                               |
| Single-pole width                                                                  | 0.83 in (21.20 ± 0.1 mm)                                                | 0.867 in (22.02 ± 0.13 mm)                                                               |
| Two-pole width                                                                     | 0.83 in (21.20 ± 0.1 mm)                                                | 0.867 in (22.02 ± 0.13 mm)                                                               |
| <b>Seal</b>                                                                        |                                                                         |                                                                                          |
| Top (internal)                                                                     | ✓                                                                       | —                                                                                        |
| Bottom (internal)                                                                  | —                                                                       | —                                                                                        |
| Panel                                                                              | —                                                                       | —                                                                                        |
| <b>Actuator</b>                                                                    |                                                                         |                                                                                          |
| Rocker without bezel                                                               | —                                                                       | —                                                                                        |
| Rocker with bezel                                                                  | ✓                                                                       | ✓                                                                                        |
| Paddle                                                                             | —                                                                       | ✓                                                                                        |
| Snap-in lens                                                                       | —                                                                       | —                                                                                        |
| Locking                                                                            | —                                                                       | —                                                                                        |
| Label                                                                              | —                                                                       | ✓                                                                                        |
| <b>Decorative</b>                                                                  |                                                                         |                                                                                          |
| Laser-etch                                                                         | ✓                                                                       | —                                                                                        |
| Pad-print                                                                          | —                                                                       | ✓                                                                                        |
| <b>Poles</b>                                                                       |                                                                         |                                                                                          |
| Single                                                                             | ✓                                                                       | ✓                                                                                        |
| Double                                                                             | ✓                                                                       | ✓                                                                                        |
| Four                                                                               | —                                                                       | —                                                                                        |
| <b>Termination</b>                                                                 |                                                                         |                                                                                          |
| Spade                                                                              | ✓                                                                       | ✓                                                                                        |
| Solder                                                                             | ✓                                                                       | —                                                                                        |
| Screw                                                                              | ✓                                                                       | —                                                                                        |
| Weld lugs                                                                          | —                                                                       | —                                                                                        |
| <b>Illumination</b>                                                                |                                                                         |                                                                                          |
| Incandescent 6 Vdc                                                                 | —                                                                       | —                                                                                        |
| Incandescent 12 Vdc                                                                | —                                                                       | —                                                                                        |
| Incandescent 14 Vdc                                                                | —                                                                       | —                                                                                        |
| Incandescent 18 Vdc                                                                | —                                                                       | —                                                                                        |
| Incandescent 24 Vdc                                                                | —                                                                       | —                                                                                        |
| Incandescent 28 Vdc                                                                | —                                                                       | —                                                                                        |
| Neon 110V                                                                          | —                                                                       | —                                                                                        |
| Neon 125V                                                                          | —                                                                       | —                                                                                        |
| Neon 250V                                                                          | —                                                                       | —                                                                                        |
| 14V LED                                                                            | ✓                                                                       | ✓                                                                                        |
| 28V LED                                                                            | ✓                                                                       | ✓                                                                                        |
| 125V LED                                                                           | ✓                                                                       | —                                                                                        |
| 277V LED                                                                           | ✓                                                                       | —                                                                                        |
| <b>Catalog Number Selection</b>                                                    | Page V11-T2-69                                                          | Page V11-T2-73                                                                           |
| <b>Technical Data</b>                                                              | Page V11-T2-70                                                          | Page V11-T2-74                                                                           |
| <b>Circuit Diagrams</b>                                                            | Page V11-T2-70 (Light Diagrams)                                         | Page V11-T2-78                                                                           |
| <b>Dimensions</b>                                                                  | Page V11-T2-71                                                          | Page V11-T2-75                                                                           |
| <b>Icon/Legend Symbols Library</b>                                                 | Page V11-T2-70                                                          | Page V11-T2-74                                                                           |

## NGR Rocker Switches

2



### Product Description

Eaton presents its NGR Rocker Switches. This field-proven line of full-sized rocker switches, initially developed for the heavy truck industry, is now found in a variety of vehicle-related applications.

The NGR offers both European styling and ergonomic design while still providing the solid durability that you have come to expect from Eaton switches.

Illuminated and non-illuminated versions with either incandescent bulbs or LEDs are available in either dependent or independent circuits and in a variety of popular switching circuits.

The NGR also offers a variety of rocker buttons and indicators with laser-etched or pad-printed icons, insertable lenses and adhesive-backed labels.

### Features

- Sealing

Standard switch provides splash and dust resistance to IP42. The sealed version is sealed to IP67 when supplied with panel seal.

- Rocker

The standard actuator for the NGR is a clean, European-styled, two-face rocker made of high-quality thermoplastic material. The rocker is replaceable and snaps on and off the switch. Both the rocker and the bezel are supplied with an aesthetically pleasing matte finish. Different colors are also available, but black is standard. Rockers can be ordered separately.

### Contents

#### Description

#### Page

#### NGR Rocker Switches

|                                               |                  |
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| Switch Base .....                             | <b>V11-T2-10</b> |
| Rocker Buttons/Actuators .....                | <b>V11-T2-11</b> |
| Lens Selection .....                          | <b>V11-T2-13</b> |
| NGR Complete Indicators and Indicator Caps .. | <b>V11-T2-14</b> |
| NGR Indicator Base and Indicator Caps .....   | <b>V11-T2-15</b> |
| Technical Data and Specifications .....       | <b>V11-T2-16</b> |
| Standard Circuit Diagrams .....               | <b>V11-T2-17</b> |
| Dimensions .....                              | <b>V11-T2-30</b> |

- Lighting

Each switch is capable of accommodating two incandescent light bulbs or LEDs for lighting purposes. A lamp or LED can be located at either end of the switch and oriented to be circuit dependent or independent. The incandescent bulbs are front replaceable. Two lamp or LED voltages, 14 Vdc and 28 Vdc, are standard. For additional voltages or colors, consult your local Eaton Sales Representative.

### Standards and Certifications

- Approvable under stringent UL and CSA standards
- For information, contact your local Eaton Sales Representative
- RoHS Compliant <sup>①</sup>



#### Note

- <sup>①</sup> Visit [www.eaton.com/vc bu](http://www.eaton.com/vc bu) for the most up-to-date list of verified part numbers.

## Options

- Circuits
  - 1PST, 1PDT, 2PST and 2PDT
  - Maintained and momentary action
- Common lamp ground jumper for dual lamp units
- Multiple LEDs for daylight readability
- Additional colors of rockers, mounting bezels and lenses are available
- Special circuits
- Special ratings
- Pad-printed legends on lens, rocker and bezel
- Special lamps and lamp voltages
- Dry circuit capabilities
- Custom back-lit legends available
- Reversing jumpers (internal)
- Gang mounting system, see **Page V11-T2-77**
- Locking rocker with locking feature in UP and/or DOWN positions
- Indicators with laser-etched or insertable lenses, or adhesive labels
- IP67 rated sealed switch
- Polarized lock-on connectors, see **Page V11-T2-76**
  - 28-5637-2 for Packard terminals
  - 28-5940 for AMP terminals
- Panel plug 17-21543
- Replacement bulb catalog number
  - 14V: 28-5901
  - 28V: 28-5909

For more information on additional options, contact your local Eaton Sales Representative.

## Legends

Two legend areas are provided on the ends of each rocker of sufficient size to accommodate two lines consisting of four Helvetica Narrow 12-point characters. Legends may be non-illuminated or illuminated. The NGR offers three styles of illuminated legends.

**Single-piece back-lit**—Back-lighting is a high-quality automotive/truck industry technique. The legend can appear daylight white or dead-front when non-illuminated but, depending on the back-lit color chosen, will change color when illuminated. Examples of standard back-lit legends are found on **Pages V11-T2-80 to V11-T2-94**.

**Snap-in lenses**—This rocker will have either one or two snap-in lenses in the legend areas. Legends are typically pad-printed on the lens in black or white. Snap-in lenses are available in six standard colors and can be ordered separately.

**Label rocker**—This rocker has a one-piece adhesive-backed label inserted into a recessed area on the face of the button. Legends can be done in several colors and be illuminated or non-illuminated. Contact your local Eaton Sales Representative for suggested sources.

## Flexible Ordering System

You can order assembled switches or the switch base and actuator separately.

Use the final code in the switch base catalog number, **Page V11-T2-10**, to denote assembly instructions.



To order rocker and switch base assembled, contact your local Eaton Sales Representative.

To order rocker buttons, see **Page V11-T2-11**.

To order lenses, see **Page V11-T2-13**.

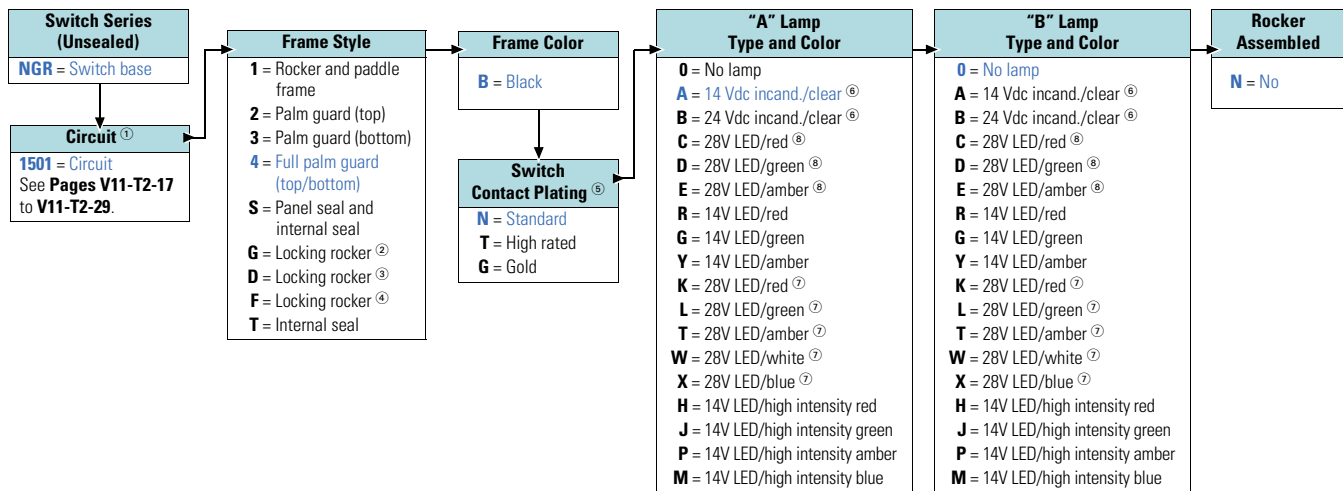
To order indicator caps, see **Page V11-T2-15**. For a complete indicator, see **Page V11-T2-14**.

## Catalog Number Selection

### How To Order—Switch Base

To determine complete catalog number, start with the appropriate base prefix and add the appropriate code letters and/or numbers.

**Example:** NGR 1501 4 B N A 0 N



#### Notes

<sup>①</sup> Circuits show lighting options available. See **Pages V11-T2-17 to V11-T2-29**.

<sup>②</sup> Locks in DOWN position.

<sup>③</sup> Locks in UP and DOWN positions.

<sup>④</sup> Locks in UP position.

<sup>⑤</sup> Switch contact construction plating—

N = Standard: Recommended for use on loads up to 12 amps at 14 Vdc.

T = High Rated: Recommended for use on loads greater than 12 amps at 14 Vdc.

G = Gold: Recommended for use on dry circuit/low level switching.

<sup>⑥</sup> Replaceable.

<sup>⑦</sup> Replaceable/wedge base LED.

<sup>⑧</sup> PCB version LED.

## Rocker Buttons/Actuators

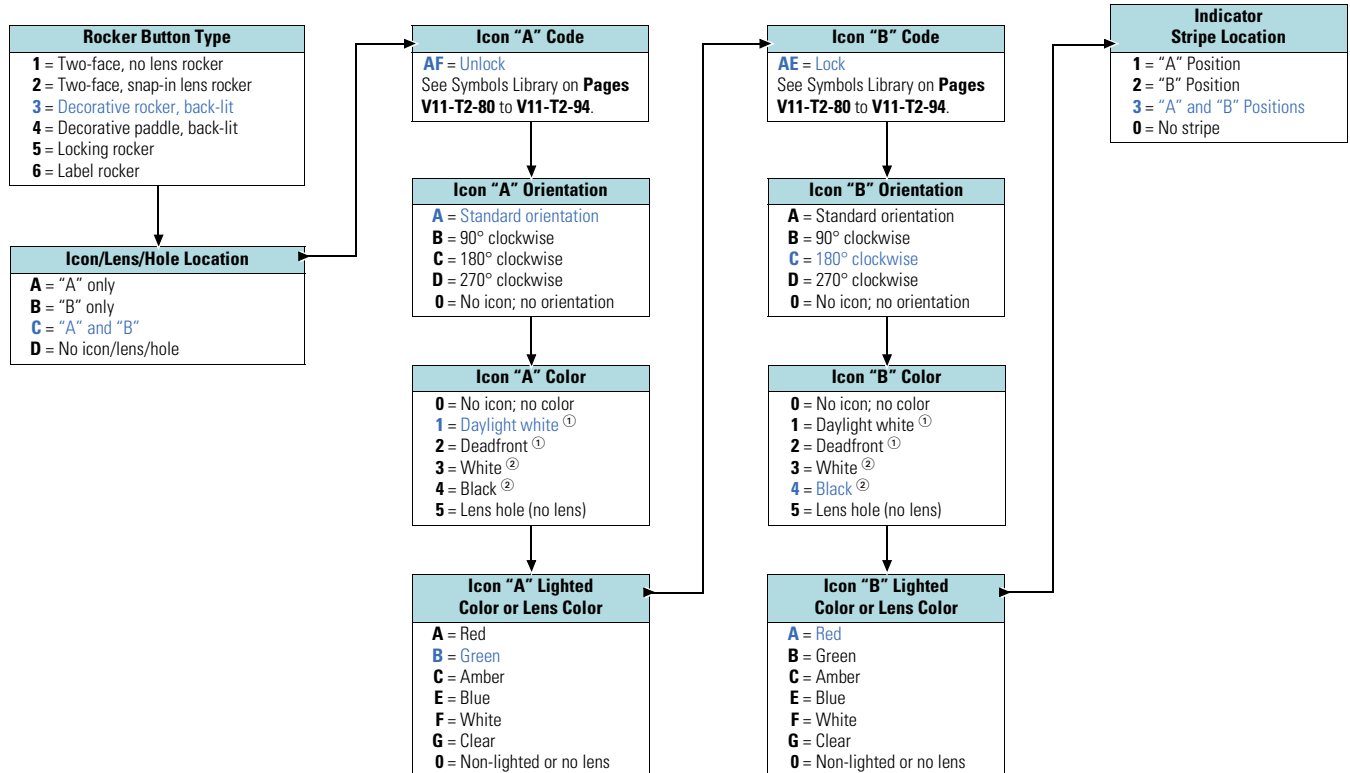


### Catalog Number Selection

#### How To Order—Rocker Buttons/Actuators

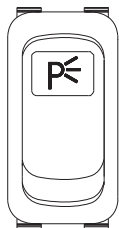
To determine complete catalog number, start with the appropriate button type and add the appropriate code letters and/or numbers.

**Example:** 3 C A F A 1 B A E C 4 A 3

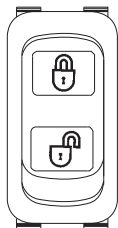


#### Notes

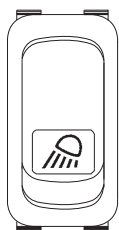
- <sup>①</sup> Decorative rocker only.  
<sup>②</sup> Two-face rocker only.

**Icon Location Examples****Location A**

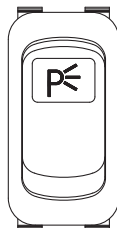
Rocker with Icon in  
"A" Position (Code A)

**Location C**

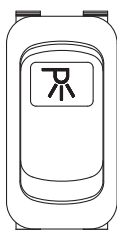
Rocker with Icon in  
"C" Position (Code C)

**Location B**

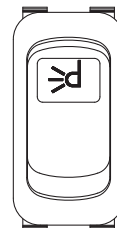
Rocker with Icon in  
"B" Position (Code B)

**Icon Orientation Examples****Orientation A**

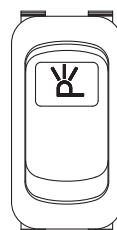
Rocker with Standard  
Orientation (Code A)

**Orientation B**

Rocker with Icon at  
90° Clockwise (Code B)

**Orientation C**

Rocker with Icon at  
180° Clockwise (Code C)

**Orientation D**

Rocker with Icon at  
270° Clockwise (Code D)



## Lens Selection

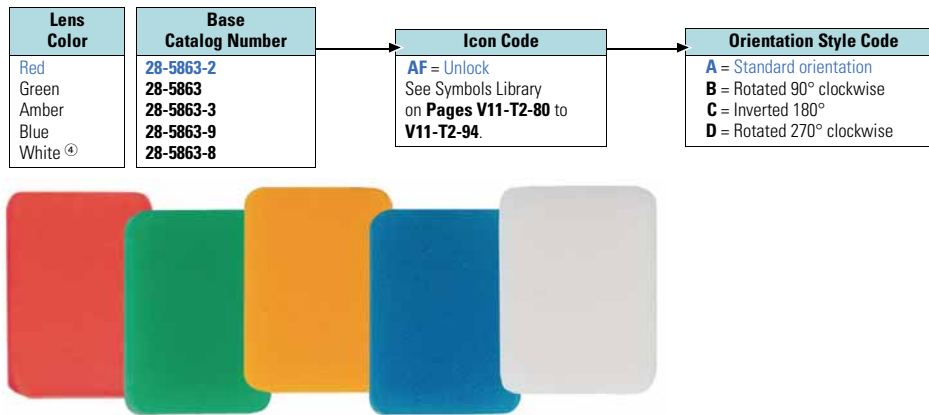
For NGR Rocker Type "2" and Indicator Type "2CAP" only.

## Catalog Number Selection

### How To Order—Translucent Lenses ①②

To determine complete catalog number, start with the appropriate base prefix and add the appropriate code letters and/or numbers.

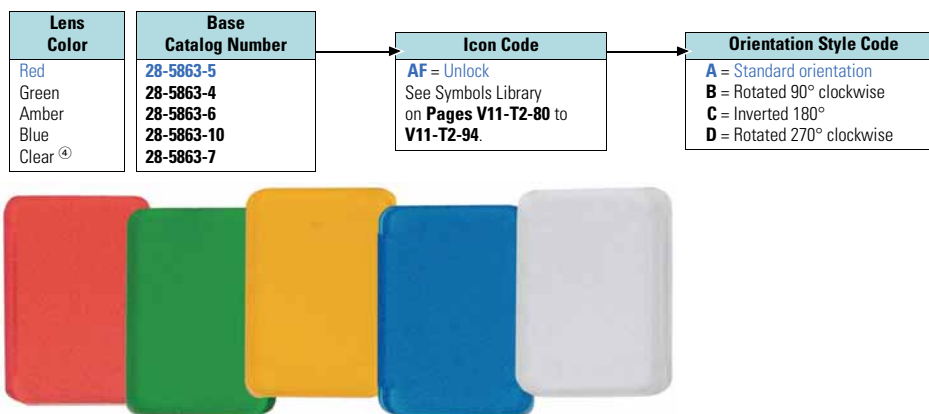
Example: **28-5863-2 AF A**



### How To Order—Transparent Lenses ①②

To determine complete catalog number, start with the appropriate base prefix and add the appropriate code letters and/or numbers.

Example: **28-5863-5 AF A**



### Notes

- ① When ordering a lens with an icon for the code **B** (bottom) position, specify code **C** orientation.
- ② Standard lens type.
- ③ Non-standard lens type.
- ④ Standard pad print for white and clear lens is black.

Complete Indicator and Indicator Cap Assembled



## NGR Complete Indicators and Indicator Caps

To order rocker buttons, see **Page V11-T2-11**.

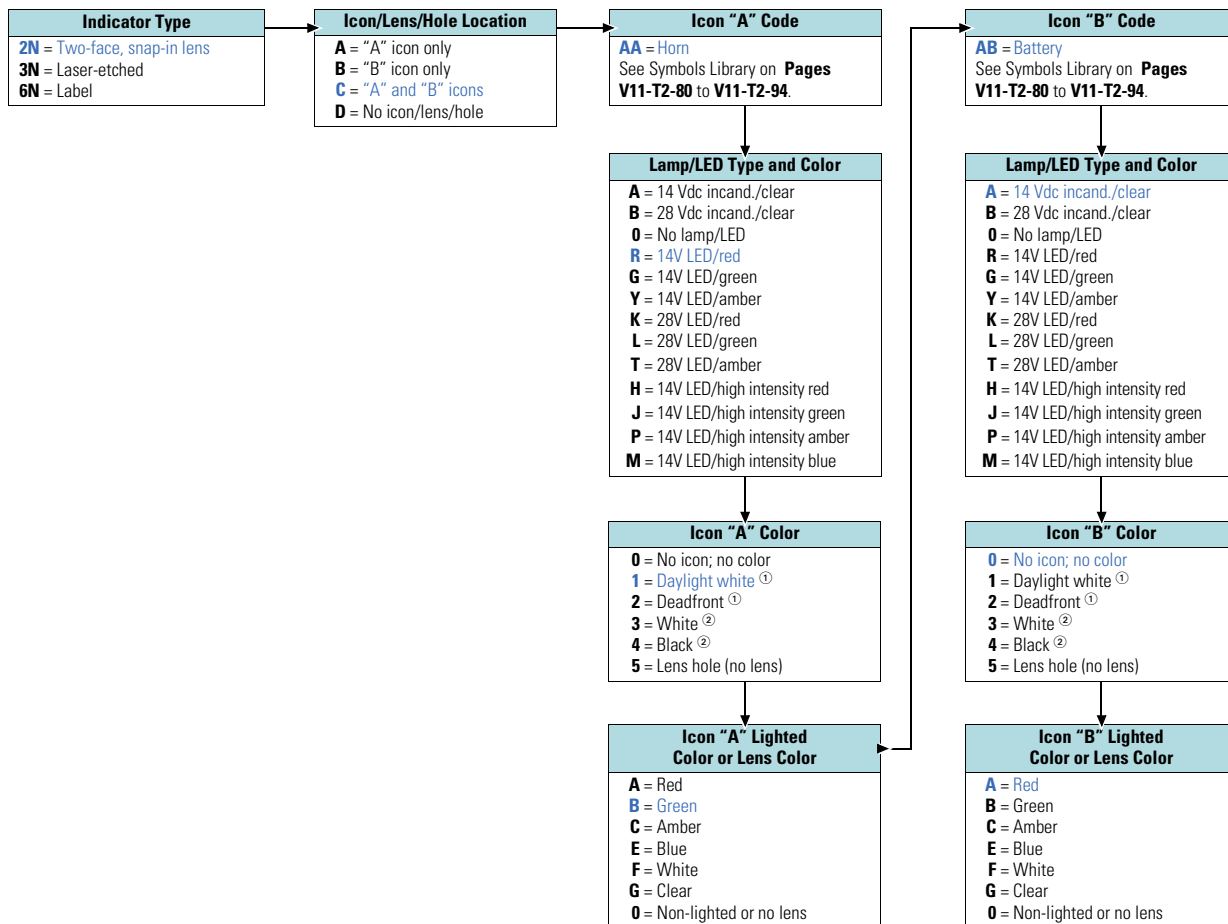
To order lenses, see **Page V11-T2-13**.

## Catalog Number Selection

### How To Order—Complete Indicator

To determine complete catalog number, start with the appropriate indicator type and add the appropriate code letters and/or numbers.

**Example:** **2N C AA R 1 B AB A 0 A**



#### Notes

<sup>①</sup> Decorative rocker only.

<sup>②</sup> Two-face rocker only.



## NGR Indicator Base and Indicator Caps

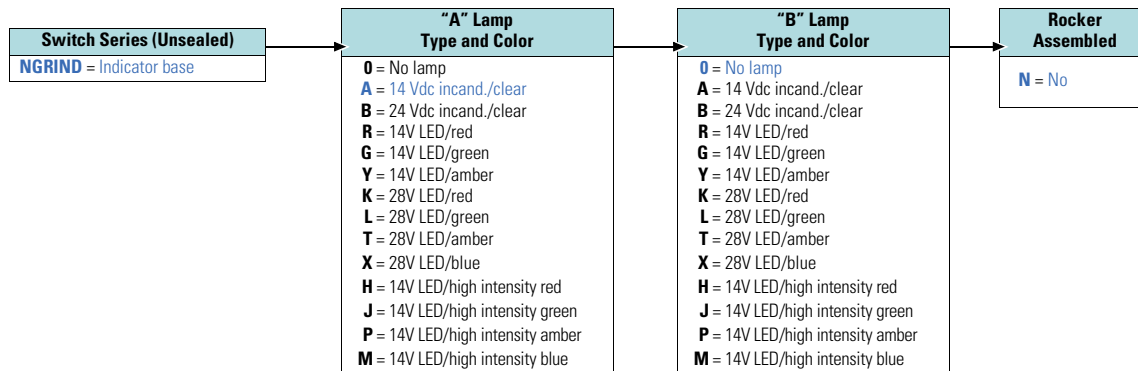
To order rocker buttons, see **Page V11-T2-11**.  
To order lenses, see **Page V11-T2-13**.  
To order complete indicator, see **Page V11-T2-14**.

## Catalog Number Selection

### How To Order—Indicator Base

To determine complete catalog number, start with the appropriate base prefix and add the appropriate code letters and/or numbers.

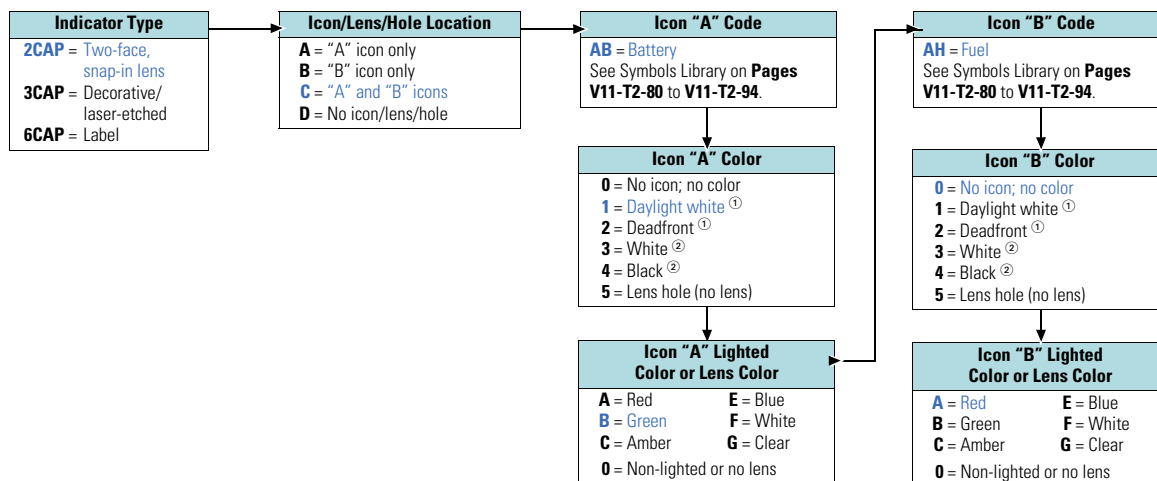
Example: **NGRIND A 0 N**



### How To Order—Indicator Cap

To determine complete catalog number, start with the appropriate indicator type and add the appropriate code letters and/or numbers.

Example: **2CAP C AB 1 B AH 0 A**



#### Notes

- <sup>①</sup> Decorative rocker only.  
<sup>②</sup> Two-face rocker only.

## Technical Data and Specifications

## 2

### NGR Rocker Switches

| Description                                | Specification                                                                                                                               |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Ratings <sup>①</sup>                       | 15A at 125 Vac, 10A at 250 Vac<br>15A at 28 Vdc (14 Vdc rating)<br>Approvable under stringent UL and CSA standards                          |
| Contact mechanism                          | Slow-make/slow-break contact mechanism<br>Butt action contact mechanism designed specifically for use on AC and low voltage DC applications |
| Contact material—<br>Standard construction | Movable—copper alloy with silver alloy contact face button<br>Stationary—silver-plated copper alloy with silver alloy contact face button   |
| Mechanical life                            | 250,000 operations, minimum                                                                                                                 |
| Electrical life                            | 200,000 operations, minimum                                                                                                                 |
| Terminal type                              | Standard 0.25 in (6.35 mm) spade, silver-plated copper alloy                                                                                |
| Base material                              | High-grade thermoplastic molding material                                                                                                   |
| Dielectric                                 | 1000V rms, minimum                                                                                                                          |
| Mounting means                             | Snap-in mounting with plastic bezel                                                                                                         |
| Mounting hole                              | Rectangular panel cutout 1.734 x 0.867 in (44 x 22 mm)                                                                                      |
| Panel thickness                            | 0.040 to 0.156 in (1.0 to 4.0 mm) <sup>② ③</sup>                                                                                            |
| IP rating                                  | Standard IP42; sealed option IP67                                                                                                           |
| Operating temperature<br>range             | –40° to 185°F (–40° to 85°C)                                                                                                                |

#### Notes

- <sup>①</sup> For information, contact your local Eaton Sales Representative.
- <sup>②</sup> Best results obtained between 0.060 and 0.118 in (1.5 and 3.0 mm).
- <sup>③</sup> On sealed versions, recommended panel thickness between 0.079 and 0.118 in (2.0 and 3.0 mm).

## Standard Circuit Diagrams

### Single-Pole

| Circuit No. | Schematic<br>(Shown in UP Position) | Circuit with Rocker In ... |                    |                |
|-------------|-------------------------------------|----------------------------|--------------------|----------------|
|             |                                     | DOWN<br>Position           | CENTER<br>Position | UP<br>Position |
| 1001        |                                     | OFF                        | NONE               | ON             |
|             |                                     | —                          | —                  | 2B-3           |
| 1501        |                                     | OFF                        | NONE               | ON             |
|             |                                     | —                          | —                  | 2B-3-9         |
| 1502        |                                     | OFF                        | NONE               | ON             |
|             |                                     | —                          | —                  | 2B-3-10        |
| 1503        |                                     | OFF                        | NONE               | ON             |
|             |                                     | —                          | —                  | 2B-3           |
| 1504        |                                     | OFF                        | NONE               | ON             |
|             |                                     | —                          | —                  | 2B-3           |
| 1505        |                                     | OFF                        | NONE               | ON             |
|             |                                     | —                          | —                  | 2B-3-9         |
| 1506        |                                     | OFF                        | NONE               | ON             |
|             |                                     | —                          | —                  | 2B-3-10        |
| 1507        |                                     | OFF                        | NONE               | ON             |
|             |                                     | —                          | —                  | 2B-3-9-10      |
| 1508        |                                     | OFF                        | NONE               | ON             |
|             |                                     | —                          | —                  | 2B-3           |

### Two-Pole

| Circuit No. | Schematic<br>(Shown in UP Position) | Circuit with Rocker In ... |                    |                  |
|-------------|-------------------------------------|----------------------------|--------------------|------------------|
|             |                                     | DOWN<br>Position           | CENTER<br>Position | UP<br>Position   |
| 2001        |                                     | OFF                        | NONE               | ON               |
|             |                                     | —                          | —                  | 2B-3<br>5B-6     |
| 2501        |                                     | OFF                        | NONE               | ON               |
|             |                                     | —                          | —                  | 2B-3-9<br>5B-6   |
| 2502        |                                     | OFF                        | NONE               | ON               |
|             |                                     | —                          | —                  | 2B-3-10<br>5B-6  |
| 2503        |                                     | OFF                        | NONE               | ON               |
|             |                                     | —                          | —                  | 2B-3<br>5B-6     |
| 2504        |                                     | OFF                        | NONE               | ON               |
|             |                                     | —                          | —                  | 2B-3<br>5B-6     |
| 2505        |                                     | OFF                        | NONE               | ON               |
|             |                                     | —                          | —                  | 2B-3-9<br>5B-6   |
| 2506        |                                     | OFF                        | NONE               | ON               |
|             |                                     | —                          | —                  | 2B-3-10<br>5B-6  |
| 2507        |                                     | OFF                        | NONE               | ON               |
|             |                                     | —                          | —                  | 2B-3-9-1<br>5B-6 |
| 2508        |                                     | OFF                        | NONE               | ON               |
|             |                                     | —                          | —                  | 2B-3<br>5B-6     |

## Single-Pole

2

| Circuit No. | Schematic<br>(Shown in UP Position) | Circuit with Rocker In ... |                    |                |
|-------------|-------------------------------------|----------------------------|--------------------|----------------|
|             |                                     | DOWN<br>Position           | CENTER<br>Position | UP<br>Position |
| 1002        |                                     | OFF                        | NONE               | MOM. ON        |
|             |                                     | —                          | —                  | 2B-3           |
| 1521        |                                     | OFF                        | NONE               | MOM. ON        |
|             |                                     | —                          | —                  | 2B-3-9         |
| 1522        |                                     | OFF                        | NONE               | MOM. ON        |
|             |                                     | —                          | —                  | 2B-3-10        |
| 1523        |                                     | OFF                        | NONE               | MOM. ON        |
|             |                                     | —                          | —                  | 2B-3           |
| 1524        |                                     | OFF                        | NONE               | MOM. ON        |
|             |                                     | —                          | —                  | 2B-3           |
| 1525        |                                     | OFF                        | NONE               | MOM. ON        |
|             |                                     | —                          | —                  | 2B-3-9         |
| 1526        |                                     | OFF                        | NONE               | MOM. ON        |
|             |                                     | —                          | —                  | 2B-3-10        |
| 1528        |                                     | OFF                        | NONE               | MOM. ON        |
|             |                                     | —                          | —                  | 2B-3           |

## Two-Pole

| Circuit No. | Schematic<br>(Shown in UP Position) | Circuit with Rocker In ... |                    |                 |
|-------------|-------------------------------------|----------------------------|--------------------|-----------------|
|             |                                     | DOWN<br>Position           | CENTER<br>Position | UP<br>Position  |
| 2002        |                                     | OFF                        | NONE               | MOM. ON         |
|             |                                     | —                          | —                  | 2B-3<br>5B-6    |
| 2521        |                                     | OFF                        | NONE               | MOM. ON         |
|             |                                     | —                          | —                  | 2B-3-9<br>5B-6  |
| 2522        |                                     | OFF                        | NONE               | MOM. ON         |
|             |                                     | —                          | —                  | 2B-3-10<br>5B-6 |
| 2523        |                                     | OFF                        | NONE               | MOM. ON         |
|             |                                     | —                          | —                  | 2B-3<br>5B-6    |
| 2524        |                                     | OFF                        | NONE               | MOM. ON         |
|             |                                     | —                          | —                  | 2B-3<br>5B-6    |
| 2525        |                                     | OFF                        | NONE               | MOM. ON         |
|             |                                     | —                          | —                  | 2B-3-9<br>5B-6  |
| 2526        |                                     | OFF                        | NONE               | MOM. ON         |
|             |                                     | —                          | —                  | 2B-3-10<br>5B-6 |
| 2528        |                                     | OFF                        | NONE               | MOM. ON         |
|             |                                     | —                          | —                  | 2B-3<br>5B-6    |

## Single-Pole

| Circuit No. | Schematic<br>(Shown in UP Position) | Circuit with Rocker In ... |                    |                |
|-------------|-------------------------------------|----------------------------|--------------------|----------------|
|             |                                     | DOWN<br>Position           | CENTER<br>Position | UP<br>Position |
| 1003        |                                     | ON                         | NONE               | ON             |
|             |                                     | 2B-1                       | —                  | 2B-3           |
| 1541        |                                     | ON                         | NONE               | ON             |
|             |                                     | 2B-1                       | —                  | 2B-3-9         |
| 1542        |                                     | ON                         | NONE               | ON             |
|             |                                     | 2B-1                       | —                  | 2B-3-10        |
| 1543        |                                     | ON                         | NONE               | ON             |
|             |                                     | 2B-1                       | —                  | 2B-3           |
| 1544        |                                     | ON                         | NONE               | ON             |
|             |                                     | 2B-1                       | —                  | 2B-3           |
| 1545        |                                     | ON                         | NONE               | ON             |
|             |                                     | 2B-1                       | —                  | 2B-3-9         |
| 1546        |                                     | ON                         | NONE               | ON             |
|             |                                     | 2B-1                       | —                  | 2B-3-10        |
| 1547        |                                     | ON                         | NONE               | ON             |
|             |                                     | 2B-1-10                    | —                  | 2B-3-9         |
| 1548        |                                     | ON                         | NONE               | ON             |
|             |                                     | 2B-1                       | —                  | 2B-3           |

## Two-Pole

| Circuit No. | Schematic<br>(Shown in UP Position) | Circuit with Rocker In ... |                    |                 |
|-------------|-------------------------------------|----------------------------|--------------------|-----------------|
|             |                                     | DOWN<br>Position           | CENTER<br>Position | UP<br>Position  |
| 2003        |                                     | ON                         | NONE               | ON              |
|             |                                     | 2B-1                       | —                  | 2B-3<br>5B-6    |
| 2541        |                                     | ON                         | NONE               | ON              |
|             |                                     | 2B-1                       | —                  | 2B-3-9<br>5B-6  |
| 2542        |                                     | ON                         | NONE               | ON              |
|             |                                     | 2B-1                       | —                  | 2B-3-10<br>5B-6 |
| 2543        |                                     | ON                         | NONE               | ON              |
|             |                                     | 2B-1                       | —                  | 2B-3<br>5B-6    |
| 2544        |                                     | ON                         | NONE               | ON              |
|             |                                     | 2B-1                       | —                  | 2B-3<br>5B-6    |
| 2545        |                                     | ON                         | NONE               | ON              |
|             |                                     | 2B-1                       | —                  | 2B-3-9<br>5B-6  |
| 2546        |                                     | ON                         | NONE               | ON              |
|             |                                     | 2B-1                       | —                  | 2B-3-10<br>5B-6 |
| 2547        |                                     | ON                         | NONE               | ON              |
|             |                                     | 2B-1-10                    | —                  | 2B-3-9<br>5B-6  |
| 2548        |                                     | ON                         | NONE               | ON              |
|             |                                     | 2B-1                       | —                  | 2B-3<br>5B-6    |

## Single-Pole

2

| Circuit No. | Schematic<br>(Shown in UP Position) | Circuit with Rocker In ... |                    |                |
|-------------|-------------------------------------|----------------------------|--------------------|----------------|
|             |                                     | DOWN<br>Position           | CENTER<br>Position | UP<br>Position |
| 1004        |                                     | ON                         | OFF                | ON             |
|             |                                     | 2B-1                       | —                  | 2B-3           |
| 1561        |                                     | ON                         | OFF                | ON             |
|             |                                     | 2B-1                       | —                  | 2B-3-9         |
| 1562        |                                     | ON                         | OFF                | ON             |
|             |                                     | 2B-1                       | —                  | 2B-3-10        |
| 1563        |                                     | ON                         | OFF                | ON             |
|             |                                     | 2B-1                       | —                  | 2B-3           |
| 1564        |                                     | ON                         | OFF                | ON             |
|             |                                     | 2B-1                       | —                  | 2B-3           |
| 1565        |                                     | ON                         | OFF                | ON             |
|             |                                     | 2B-1                       | —                  | 2B-3-9         |
| 1566        |                                     | ON                         | OFF                | ON             |
|             |                                     | 2B-1                       | —                  | 2B-3-10        |
| 1567        |                                     | ON                         | OFF                | ON             |
|             |                                     | 2B-1-10                    | —                  | 2B-3-9         |
| 1568        |                                     | ON                         | OFF                | ON             |
|             |                                     | 2B-1                       | —                  | 2B-3           |

## Two-Pole

| Circuit No. | Schematic<br>(Shown in UP Position) | Circuit with Rocker In ... |                    |                 |
|-------------|-------------------------------------|----------------------------|--------------------|-----------------|
|             |                                     | DOWN<br>Position           | CENTER<br>Position | UP<br>Position  |
| 2004        |                                     | ON                         | OFF                | ON              |
|             |                                     | 2B-1<br>5B-4               | —                  | 2B-3<br>5B-6    |
| 2561        |                                     | ON                         | OFF                | ON              |
|             |                                     | 2B-1<br>5B-4               | —                  | 2B-3-9<br>5B-6  |
| 2562        |                                     | ON                         | OFF                | ON              |
|             |                                     | 2B-1<br>5B-4               | —                  | 2B-3-10<br>5B-6 |
| 2563        |                                     | ON                         | OFF                | ON              |
|             |                                     | 2B-1<br>5B-4               | —                  | 2B-3<br>5B-6    |
| 2564        |                                     | ON                         | OFF                | ON              |
|             |                                     | 2B-1<br>5B-4               | —                  | 2B-3<br>5B-6    |
| 2565        |                                     | ON                         | OFF                | ON              |
|             |                                     | 2B-1<br>5B-4               | —                  | 2B-3-9<br>5B-6  |
| 2566        |                                     | ON                         | OFF                | ON              |
|             |                                     | 2B-1<br>5B-4               | —                  | 2B-3-10<br>5B-6 |
| 2567        |                                     | ON                         | OFF                | ON              |
|             |                                     | 2B-1-10<br>5B-4            | —                  | 2B-3-9<br>5B-6  |
| 2568        |                                     | ON                         | OFF                | ON              |
|             |                                     | 2B-1<br>5B-4               | —                  | 2B-3<br>5B-6    |

### Single-Pole

| Circuit No. | Schematic<br>(Shown in UP Position) | Circuit with Rocker In ... |                    |                |
|-------------|-------------------------------------|----------------------------|--------------------|----------------|
|             |                                     | DOWN<br>Position           | CENTER<br>Position | UP<br>Position |
| 1005        |                                     | MOM. ON                    | OFF                | MOM. ON        |
|             |                                     | 2B-1                       | —                  | 2B-3           |
| 1581        |                                     | MOM. ON                    | OFF                | MOM. ON        |
|             |                                     | 2B-1                       | —                  | 2B-3-9         |
| 1582        |                                     | MOM. ON                    | OFF                | MOM. ON        |
|             |                                     | 2B-1                       | —                  | 2B-3-10        |
| 1583        |                                     | MOM. ON                    | OFF                | MOM. ON        |
|             |                                     | 2B-1                       | —                  | 2B-3           |
| 1584        |                                     | MOM. ON                    | OFF                | MOM. ON        |
|             |                                     | 2B-1                       | —                  | 2B-3           |
| 1585        |                                     | MOM. ON                    | OFF                | MOM. ON        |
|             |                                     | 2B-1                       | —                  | 2B-3-9         |
| 1586        |                                     | MOM. ON                    | OFF                | MOM. ON        |
|             |                                     | 2B-1                       | —                  | 2B-3-10        |
| 1587        |                                     | MOM. ON                    | OFF                | MOM. ON        |
|             |                                     | 2B-1-10                    | —                  | 2B-3-9         |
| 1588        |                                     | MOM. ON                    | OFF                | MOM. ON        |
|             |                                     | 2B-1                       | —                  | 2B-3           |

### Two-Pole

| Circuit No. | Schematic<br>(Shown in UP Position) | Circuit with Rocker In ... |                    |                 |
|-------------|-------------------------------------|----------------------------|--------------------|-----------------|
|             |                                     | DOWN<br>Position           | CENTER<br>Position | UP<br>Position  |
| 2005        |                                     | MOM. ON                    | OFF                | MOM. ON         |
|             |                                     | 2B-1                       | —                  | 2B-3<br>5B-6    |
| 2581        |                                     | MOM. ON                    | OFF                | MOM. ON         |
|             |                                     | 2B-1                       | —                  | 2B-3-9<br>5B-6  |
| 2582        |                                     | MOM. ON                    | OFF                | MOM. ON         |
|             |                                     | 2B-1                       | —                  | 2B-3-10<br>5B-6 |
| 2583        |                                     | MOM. ON                    | OFF                | MOM. ON         |
|             |                                     | 2B-1                       | —                  | 2B-3<br>5B-6    |
| 2584        |                                     | MOM. ON                    | OFF                | MOM. ON         |
|             |                                     | 2B-1                       | —                  | 2B-3<br>5B-6    |
| 2585        |                                     | MOM. ON                    | OFF                | MOM. ON         |
|             |                                     | 2B-1                       | —                  | 2B-3-9<br>5B-6  |
| 2586        |                                     | MOM. ON                    | OFF                | MOM. ON         |
|             |                                     | 2B-1                       | —                  | 2B-3-10<br>5B-6 |
| 2587        |                                     | MOM. ON                    | OFF                | MOM. ON         |
|             |                                     | 2B-1-10                    | —                  | 2B-3-9<br>5B-6  |
| 2588        |                                     | MOM. ON                    | OFF                | MOM. ON         |
|             |                                     | 2B-1                       | —                  | 2B-3<br>5B-6    |

## Single-Pole

2

| Circuit No. | Schematic<br>(Shown in UP Position) | Circuit with Rocker In ... |                    |                |
|-------------|-------------------------------------|----------------------------|--------------------|----------------|
|             |                                     | DOWN<br>Position           | CENTER<br>Position | UP<br>Position |
| 1006        |                                     | ON                         | OFF                | MOM. ON        |
|             |                                     | 2B-1                       | —                  | 2B-3           |
| 1601        |                                     | ON                         | OFF                | MOM. ON        |
|             |                                     | 2B-1                       | —                  | 2B-3-9         |
| 1602        |                                     | ON                         | OFF                | MOM. ON        |
|             |                                     | 2B-1                       | —                  | 2B-3-10        |
| 1603        |                                     | ON                         | OFF                | MOM. ON        |
|             |                                     | 2B-1                       | —                  | 2B-3           |
| 1604        |                                     | ON                         | OFF                | MOM. ON        |
|             |                                     | 2B-1                       | —                  | 2B-3           |
| 1605        |                                     | ON                         | OFF                | MOM. ON        |
|             |                                     | 2B-1                       | —                  | 2B-3-9         |
| 1606        |                                     | ON                         | OFF                | MOM. ON        |
|             |                                     | 2B-1                       | —                  | 2B-3-10        |
| 1607        |                                     | ON                         | OFF                | MOM. ON        |
|             |                                     | 2B-1-10                    | —                  | 2B-3-9         |
| 1608        |                                     | ON                         | OFF                | MOM. ON        |
|             |                                     | 2B-1                       | —                  | 2B-3           |

## Two-Pole

| Circuit No. | Schematic<br>(Shown in UP Position) | Circuit with Rocker In ... |                    |                 |
|-------------|-------------------------------------|----------------------------|--------------------|-----------------|
|             |                                     | DOWN<br>Position           | CENTER<br>Position | UP<br>Position  |
| 2006        |                                     | ON                         | OFF                | MOM. ON         |
|             |                                     | 2B-1<br>5B-4               | —                  | 2B-3<br>5B-6    |
| 2601        |                                     | ON                         | OFF                | MOM. ON         |
|             |                                     | 2B-1<br>5B-4               | —                  | 2B-3-9<br>5B-6  |
| 2602        |                                     | ON                         | OFF                | MOM. ON         |
|             |                                     | 2B-1<br>5B-4               | —                  | 2B-3-10<br>5B-6 |
| 2603        |                                     | ON                         | OFF                | MOM. ON         |
|             |                                     | 2B-1<br>5B-4               | —                  | 2B-3<br>5B-6    |
| 2604        |                                     | ON                         | OFF                | MOM. ON         |
|             |                                     | 2B-1<br>5B-4               | —                  | 2B-3<br>5B-6    |
| 2605        |                                     | ON                         | OFF                | MOM. ON         |
|             |                                     | 2B-1<br>5B-4               | —                  | 2B-3-9<br>5B-6  |
| 2606        |                                     | ON                         | OFF                | MOM. ON         |
|             |                                     | 2B-1<br>5B-4               | —                  | 2B-3-10<br>5B-6 |
| 2607        |                                     | ON                         | OFF                | MOM. ON         |
|             |                                     | 2B-1-10<br>5B-4            | —                  | 2B-3-9<br>5B-6  |
| 2608        |                                     | ON                         | OFF                | MOM. ON         |
|             |                                     | 2B-1<br>5B-4               | —                  | 2B-3<br>5B-6    |

## Single-Pole

| Circuit No. | Schematic<br>(Shown in UP Position) | Circuit with Rocker In ... |                    |                |
|-------------|-------------------------------------|----------------------------|--------------------|----------------|
|             |                                     | DOWN<br>Position           | CENTER<br>Position | UP<br>Position |
| 1007        |                                     | ON                         | NONE               | MOM ON         |
|             |                                     | 2B-1                       | —                  | 2B-3           |
| 1621        |                                     | ON                         | NONE               | MOM ON         |
|             |                                     | 2B-1                       | —                  | 2B-3-9         |
| 1622        |                                     | ON                         | NONE               | MOM ON         |
|             |                                     | 2B-1                       | —                  | 2B-3-10        |
| 1623        |                                     | ON                         | NONE               | MOM ON         |
|             |                                     | 2B-1                       | —                  | 2B-3           |
| 1624        |                                     | ON                         | NONE               | MOM ON         |
|             |                                     | 2B-1                       | —                  | 2B-3           |
| 1625        |                                     | ON                         | NONE               | MOM ON         |
|             |                                     | 2B-1                       | —                  | 2B-3-9         |
| 1626        |                                     | ON                         | NONE               | MOM ON         |
|             |                                     | 2B-1                       | —                  | 2B-3-10        |
| 1627        |                                     | ON                         | NONE               | MOM ON         |
|             |                                     | 2B-1-10                    | —                  | 2B-3-9         |
| 1628        |                                     | ON                         | NONE               | MOM ON         |
|             |                                     | 2B-1                       | —                  | 2B-3           |

## Two-Pole

| Circuit No. | Schematic<br>(Shown in UP Position) | Circuit with Rocker In ... |                    |                 |
|-------------|-------------------------------------|----------------------------|--------------------|-----------------|
|             |                                     | DOWN<br>Position           | CENTER<br>Position | UP<br>Position  |
| 2007        |                                     | ON                         | NONE               | MOM ON          |
|             |                                     | 2B-1<br>5B-4               | —                  | 2B-3<br>5B-6    |
| 2621        |                                     | ON                         | NONE               | MOM ON          |
|             |                                     | 2B-1<br>5B-4               | —                  | 2B-3-9<br>5B-6  |
| 2622        |                                     | ON                         | NONE               | MOM ON          |
|             |                                     | 2B-1<br>5B-4               | —                  | 2B-3-10<br>5B-6 |
| 2623        |                                     | ON                         | NONE               | MOM ON          |
|             |                                     | 2B-1<br>5B-4               | —                  | 2B-3<br>5B-6    |
| 2624        |                                     | ON                         | NONE               | MOM ON          |
|             |                                     | 2B-1<br>5B-4               | —                  | 2B-3<br>5B-6    |
| 2625        |                                     | ON                         | NONE               | MOM ON          |
|             |                                     | 2B-1<br>5B-4               | —                  | 2B-3-9<br>5B-6  |
| 2626        |                                     | ON                         | NONE               | MOM ON          |
|             |                                     | 2B-1<br>5B-4               | —                  | 2B-3-10<br>5B-6 |
| 2627        |                                     | ON                         | NONE               | MOM ON          |
|             |                                     | 2B-1-10<br>5B-4            | —                  | 2B-3-9<br>5B-6  |
| 2628        |                                     | ON                         | NONE               | MOM ON          |
|             |                                     | 2B-1<br>5B-4               | —                  | 2B-3<br>5B-6    |

## Single-Pole

2

| Circuit No. | Schematic<br>(Shown in UP Position) | Circuit with Rocker In ... |                    |                |
|-------------|-------------------------------------|----------------------------|--------------------|----------------|
|             |                                     | DOWN<br>Position           | CENTER<br>Position | UP<br>Position |
| 3003        |                                     | OFF                        | ON                 | ON             |
|             |                                     | 2A-1                       | 2A-2B              | 2B-3           |
| 3541        |                                     | OFF                        | ON                 | ON             |
|             |                                     | 2A-1                       | 2A-2B              | 2B-3-9         |
| 3542        |                                     | OFF                        | ON                 | ON             |
|             |                                     | 2A-1                       | 2A-2B              | 2B-3-10        |
| 3543        |                                     | OFF                        | ON                 | ON             |
|             |                                     | 2A-1                       | 2A-2B              | 2B-3           |
| 3544        |                                     | OFF                        | ON                 | ON             |
|             |                                     | 2A-1                       | 2A-2B              | 2B-3           |
| 3545        |                                     | OFF                        | ON                 | ON             |
|             |                                     | 2A-1                       | 2A-2B              | 2B-3-9         |
| 3546        |                                     | OFF                        | ON                 | ON             |
|             |                                     | 2A-1                       | 2A-2B              | 2B-3-10        |
| 3547        |                                     | OFF                        | ON                 | ON             |
|             |                                     | 2A-1-10                    | 2A-2B              | 2B-3-9         |
| 3548        |                                     | OFF                        | ON                 | ON             |
|             |                                     | 2A-1                       | 2A-2B              | 2B-3           |

## Two-Pole

| Circuit No. | Schematic<br>(Shown in UP Position) | Circuit with Rocker In ... |                    |                 |
|-------------|-------------------------------------|----------------------------|--------------------|-----------------|
|             |                                     | DOWN<br>Position           | CENTER<br>Position | UP<br>Position  |
| 3004        |                                     | OFF                        | ON                 | ON              |
|             |                                     | 2A-1<br>5A-4               | 2A-2B<br>5A-5B     | 2B-3<br>5B-6    |
| 3561        |                                     | OFF                        | ON                 | ON              |
|             |                                     | 2A-1<br>5A-4               | 2A-2B<br>5A-5B     | 2B-3-9<br>5B-6  |
| 3562        |                                     | OFF                        | ON                 | ON              |
|             |                                     | 2A-1<br>5A-4               | 2A-2B<br>5A-5B     | 2B-3-10<br>5B-6 |
| 3563        |                                     | OFF                        | ON                 | ON              |
|             |                                     | 2A-1<br>5A-4               | 2A-2B<br>5A-5B     | 2B-3<br>5B-6    |
| 3564        |                                     | OFF                        | ON                 | ON              |
|             |                                     | 2A-1<br>5A-4               | 2A-2B<br>5A-5B     | 2B-3<br>5B-6    |
| 3565        |                                     | OFF                        | ON                 | ON              |
|             |                                     | 2A-1<br>5A-4               | 2A-2B<br>5A-5B     | 2B-3-9<br>5B-6  |
| 3566        |                                     | OFF                        | ON                 | ON              |
|             |                                     | 2A-1<br>5A-4               | 2A-2B<br>5A-5B     | 2B-3-10<br>5B-6 |
| 3567        |                                     | OFF                        | ON                 | ON              |
|             |                                     | 2A-1-10<br>5A-4            | 2A-2B<br>5A-5B     | 2B-3-9<br>5B-6  |
| 3568        |                                     | OFF                        | ON                 | ON              |
|             |                                     | 2A-1<br>5A-4               | 2A-2B<br>5A-5B     | 2B-3<br>5B-6    |

### Single-Pole

| Circuit No. | Schematic<br>(Shown in UP Position) | Circuit with Rocker In ... |                    |                |
|-------------|-------------------------------------|----------------------------|--------------------|----------------|
|             |                                     | DOWN<br>Position           | CENTER<br>Position | UP<br>Position |
| 5001        |                                     | ON                         | NONE               | OFF            |
|             |                                     | 2B-1                       | —                  | —              |
| 5501        |                                     | ON                         | NONE               | OFF            |
|             |                                     | 2B-1-9                     | —                  | —              |
| 5502        |                                     | ON                         | NONE               | OFF            |
|             |                                     | 2B-1-10                    | —                  | —              |
| 5503        |                                     | ON                         | NONE               | OFF            |
|             |                                     | 2B-1                       | —                  | —              |
| 5504        |                                     | ON                         | NONE               | OFF            |
|             |                                     | 2B-1                       | —                  | —              |
| 5505        |                                     | ON                         | NONE               | OFF            |
|             |                                     | 2B-1-9                     | —                  | —              |
| 5506        |                                     | ON                         | NONE               | OFF            |
|             |                                     | 2B-1-10                    | —                  | —              |
| 5507        |                                     | ON                         | NONE               | OFF            |
|             |                                     | 2B-1-9-10                  | —                  | —              |
| 5508        |                                     | ON                         | NONE               | OFF            |
|             |                                     | 2B-1                       | —                  | —              |

### Two-Pole

| Circuit No. | Schematic<br>(Shown in UP Position) | Circuit with Rocker In ... |                    |                |
|-------------|-------------------------------------|----------------------------|--------------------|----------------|
|             |                                     | DOWN<br>Position           | CENTER<br>Position | UP<br>Position |
| 5510        |                                     | ON                         | NONE               | OFF            |
|             |                                     | 2B-1                       | —                  | —              |
|             |                                     | 5B-4                       | —                  | —              |
| 5511        |                                     | ON                         | NONE               | OFF            |
|             |                                     | 2B-1-9                     | —                  | —              |
|             |                                     | 5B-4                       | —                  | —              |
| 5512        |                                     | ON                         | NONE               | OFF            |
|             |                                     | 2B-1-10                    | —                  | —              |
|             |                                     | 5B-4                       | —                  | —              |
| 5513        |                                     | ON                         | NONE               | OFF            |
|             |                                     | 2B-1                       | —                  | —              |
|             |                                     | 5B-4                       | —                  | —              |
| 5514        |                                     | ON                         | NONE               | OFF            |
|             |                                     | 2B-1                       | —                  | —              |
|             |                                     | 5B-4                       | —                  | —              |
| 5515        |                                     | ON                         | NONE               | OFF            |
|             |                                     | 2B-1-9                     | —                  | —              |
|             |                                     | 5B-4                       | —                  | —              |
| 5516        |                                     | ON                         | NONE               | OFF            |
|             |                                     | 2B-1-10                    | —                  | —              |
|             |                                     | 5B-4                       | —                  | —              |
| 5517        |                                     | ON                         | NONE               | OFF            |
|             |                                     | 2B-1-9-10                  | —                  | —              |
|             |                                     | 5B-4                       | —                  | —              |
| 5518        |                                     | ON                         | NONE               | OFF            |
|             |                                     | 2B-1                       | —                  | —              |
|             |                                     | 5B-4                       | —                  | —              |

## Single-Pole

2

| Circuit No. | Schematic<br>(Shown in UP Position) | Circuit with Rocker In ... |                    |                |
|-------------|-------------------------------------|----------------------------|--------------------|----------------|
|             |                                     | DOWN<br>Position           | CENTER<br>Position | UP<br>Position |
| 5002        |                                     | MOM. ON                    | NONE               | OFF            |
|             |                                     | 2B-1                       | —                  | —              |
| 5521        |                                     | MOM. ON                    | NONE               | OFF            |
|             |                                     | 2B-1-9                     | —                  | —              |
| 5522        |                                     | MOM. ON                    | NONE               | OFF            |
|             |                                     | 2B-1-10                    | —                  | —              |
| 5523        |                                     | MOM. ON                    | NONE               | OFF            |
|             |                                     | 2B-1                       | —                  | —              |
| 5524        |                                     | MOM. ON                    | NONE               | OFF            |
|             |                                     | 2B-1                       | —                  | —              |
| 5525        |                                     | MOM. ON                    | NONE               | OFF            |
|             |                                     | 2B-1-9                     | —                  | —              |
| 5526        |                                     | MOM. ON                    | NONE               | OFF            |
|             |                                     | 2B-1-10                    | —                  | —              |
| 5528        |                                     | MOM. ON                    | NONE               | OFF            |
|             |                                     | 2B-1                       | —                  | —              |

| Circuit No. | Schematic<br>(Shown in UP Position) | Circuit with Rocker In ... |                    |                |
|-------------|-------------------------------------|----------------------------|--------------------|----------------|
|             |                                     | DOWN<br>Position           | CENTER<br>Position | UP<br>Position |
| 5003        |                                     | ON                         | ON                 | OFF            |
|             |                                     | 2A-1                       | 2A-2B              | 2B-3           |
| 5541        |                                     | ON                         | ON                 | OFF            |
|             |                                     | 2A-1                       | 2A-2B              | 2B-3-9         |
| 5542        |                                     | ON                         | ON                 | OFF            |
|             |                                     | 2A-1                       | 2A-2B              | 2B-3-10        |
| 5543        |                                     | ON                         | ON                 | OFF            |
|             |                                     | 2A-1                       | 2A-2B              | 2B-3           |
| 5544        |                                     | ON                         | ON                 | OFF            |
|             |                                     | 2A-1                       | 2A-2B              | 2B-3           |
| 5545        |                                     | ON                         | ON                 | OFF            |
|             |                                     | 2A-1                       | 2A-2B              | 2B-3-9         |
| 5546        |                                     | ON                         | ON                 | OFF            |
|             |                                     | 2A-1                       | 2A-2B              | 2B-3-10        |
| 5547        |                                     | ON                         | ON                 | OFF            |
|             |                                     | 2A-1-10                    | 2A-2B              | 2B-3-9         |
| 5548        |                                     | ON                         | ON                 | OFF            |
|             |                                     | 2A-1                       | 2A-2B              | 2B-3           |

## Two-Pole

| Circuit No. | Schematic<br>(Shown in UP Position) | Circuit with Rocker In ... |                    |                 |
|-------------|-------------------------------------|----------------------------|--------------------|-----------------|
|             |                                     | DOWN<br>Position           | CENTER<br>Position | UP<br>Position  |
| 3001        |                                     | ON                         | ON                 | ON              |
|             |                                     | 5B-4-2B-1                  | 5B-4-2B-3          | 2B-3<br>5B-6    |
| 3501        |                                     | ON                         | ON                 | ON              |
|             |                                     | 5B-4-2B-1                  | 5B-4-2B-3-9        | 2B-3-9<br>5B-6  |
| 3502        |                                     | ON                         | ON                 | ON              |
|             |                                     | 5B-4-2B-1                  | 5B-4-2B-3-10       | 2B-3-10<br>5B-6 |
| 3503        |                                     | ON                         | ON                 | ON              |
|             |                                     | 5B-4-2B-1                  | 5B-4-2B-3          | 2B-3<br>5B-6    |
| 3504        |                                     | ON                         | ON                 | ON              |
|             |                                     | 5B-4-2B-1                  | 5B-4-2B-3          | 2B-3<br>5B-6    |
| 3505        |                                     | ON                         | ON                 | ON              |
|             |                                     | 5B-4-2B-1                  | 5B-4-2B-3          | 2B-3<br>5B-6    |
| 3506        |                                     | ON                         | ON                 | ON              |
|             |                                     | 5B-4-2B-1                  | 5B-4-2B-3          | 2B-3<br>5B-6    |
| 3507        |                                     | ON                         | ON                 | ON              |
|             |                                     | 5B-4-2B-1                  | 5B-4-2B-3-9        | 2B-3-9<br>5B-6  |
| 3508        |                                     | ON                         | ON                 | ON              |
|             |                                     | 5B-4-2B-1                  | 5B-4-2B-3          | 2B-3<br>5B-6    |
| 3002        |                                     | OFF                        | 1-ON               | 2-ON            |
|             |                                     | 2B-1<br>5B-4               | 2B-3<br>5B-4       | 2B-3<br>5B-6    |
| 3521        |                                     | OFF                        | 1-ON               | 2-ON            |
|             |                                     | 2B-1<br>5B-4               | 2B-3-9<br>5B-4     | 2B-3-9<br>5B-6  |
| 3522        |                                     | OFF                        | 1-ON               | 2-ON            |
|             |                                     | 2B-1<br>5B-4               | 2B-3-10<br>5B-4    | 2B-3-10<br>5B-6 |
| 3523        |                                     | OFF                        | 1-ON               | 2-ON            |
|             |                                     | 2B-1<br>5B-4               | 2B-3<br>5B-4       | 2B-3<br>5B-6    |
| 3524        |                                     | OFF                        | 1-ON               | 2-ON            |
|             |                                     | 2B-1<br>5B-4               | 2B-3<br>5B-4       | 2B-3<br>5B-6    |
| 3525        |                                     | OFF                        | 1-ON               | 2-ON            |
|             |                                     | 2B-1<br>5B-4               | 2B-3-9<br>5B-4     | 2B-3-9<br>5B-6  |
| 3526        |                                     | OFF                        | 1-ON               | 2-ON            |
|             |                                     | 2B-1<br>5B-4               | 2B-3-10<br>5B-4    | 2B-3-10<br>5B-6 |
| 3527        |                                     | OFF                        | 1-ON               | 2-ON            |
|             |                                     | 2B-1-10<br>5B-4            | 2B-3-9<br>5B-4     | 2B-3-9<br>5B-6  |
| 3528        |                                     | OFF                        | 1-ON               | 2-ON            |
|             |                                     | 2B-1<br>5B-4               | 2B-3<br>5B-4       | 2B-3<br>5B-6    |

## Two-Pole

2

| Circuit No. | Schematic<br>(Shown in UP Position) | Circuit with Rocker In ... |                    |                 |
|-------------|-------------------------------------|----------------------------|--------------------|-----------------|
|             |                                     | DOWN<br>Position           | CENTER<br>Position | UP<br>Position  |
| 3005        |                                     | MOM. ON                    | ON                 | MOM. ON         |
|             |                                     | 2B-1<br>5B-4               | 2B-1<br>5B-6       | 2B-3<br>5B-6    |
| 3581        |                                     | MOM. ON                    | ON                 | MOM. ON         |
|             |                                     | 2B-1<br>5B-4               | 2B-1<br>5B-6       | 2B-3-9<br>5B-6  |
| 3582        |                                     | MOM. ON                    | ON                 | MOM. ON         |
|             |                                     | 2B-1<br>5B-4               | 2B-1<br>5B-6       | 2B-3-10<br>5B-6 |
| 3583        |                                     | MOM. ON                    | ON                 | MOM. ON         |
|             |                                     | 2B-1<br>5B-4               | 2B-1<br>5B-6       | 2B-3<br>5B-6    |
| 3584        |                                     | MOM. ON                    | ON                 | MOM. ON         |
|             |                                     | 2B-1<br>5B-4               | 2B-1<br>5B-6       | 2B-3<br>5B-6    |
| 3585        |                                     | MOM. ON                    | ON                 | MOM. ON         |
|             |                                     | 2B-1<br>5B-4               | 2B-1<br>5B-6       | 2B-3-9<br>5B-6  |
| 3586        |                                     | MOM. ON                    | ON                 | MOM. ON         |
|             |                                     | 2B-1<br>5B-4               | 2B-1<br>5B-6       | 2B-3-10<br>5B-6 |
| 3587        |                                     | MOM. ON                    | ON                 | MOM. ON         |
|             |                                     | 2B-1-10<br>5B-4            | 2B-1-10<br>5B-6    | 2B-3-9<br>5B-6  |
| 3588        |                                     | MOM. ON                    | ON                 | MOM. ON         |
|             |                                     | 2B-1<br>5B-4               | 2B-1<br>5B-6       | 2B-3<br>5B-6    |

| Circuit No. | Schematic<br>(Shown in UP Position) | Circuit with Rocker In ... |                    |                 |
|-------------|-------------------------------------|----------------------------|--------------------|-----------------|
|             |                                     | DOWN<br>Position           | CENTER<br>Position | UP<br>Position  |
| 4001        |                                     | NONE                       | ON                 | MOM. ON         |
|             |                                     | 2B-1<br>5B-4               | 2B-1<br>5B-4       | 2B-3<br>5B-6    |
| 4501        |                                     | NONE                       | ON                 | MOM. ON         |
|             |                                     | 2B-1<br>5B-4               | 2B-1<br>5B-4       | 2B-3-9<br>5B-6  |
| 4502        |                                     | NONE                       | ON                 | MOM. ON         |
|             |                                     | 2B-1<br>5B-4               | 2B-1<br>5B-4       | 2B-3-10<br>5B-6 |
| 4503        |                                     | NONE                       | ON                 | MOM. ON         |
|             |                                     | 2B-1<br>5B-4               | 2B-1<br>5B-4       | 2B-3<br>5B-6    |
| 4504        |                                     | NONE                       | ON                 | MOM. ON         |
|             |                                     | 2B-1<br>5B-4               | 2B-1<br>5B-4       | 2B-3<br>5B-6    |
| 4505        |                                     | NONE                       | ON                 | MOM. ON         |
|             |                                     | 2B-1<br>5B-4               | 2B-1<br>5B-4       | 2B-3-9<br>5B-6  |
| 4506        |                                     | NONE                       | ON                 | MOM. ON         |
|             |                                     | 2B-1<br>5B-4               | 2B-1<br>5B-4       | 2B-3-10<br>5B-6 |
| 4507        |                                     | NONE                       | ON                 | MOM. ON         |
|             |                                     | 2B-1-10<br>5B-4            | 2B-1-10<br>5B-4    | 2B-3-9<br>5B-6  |
| 4508        |                                     | NONE                       | ON                 | MOM. ON         |
|             |                                     | 2B-1<br>5B-4               | 2B-1<br>5B-4       | 2B-3<br>5B-6    |

Two-Pole

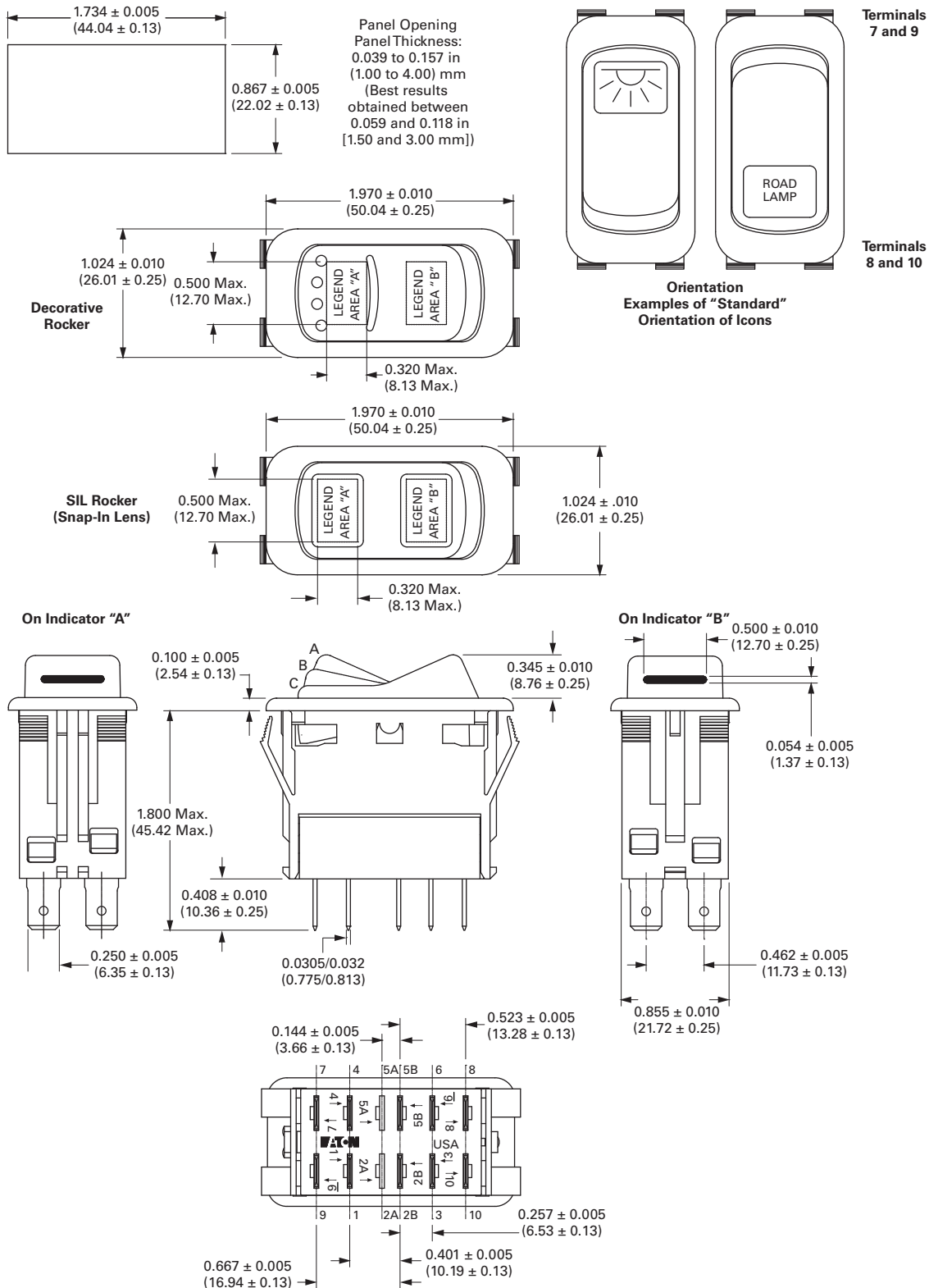
| Circuit No. | Schematic<br>(Shown in UP Position) | Circuit with Rocker In ... |                    |                 |
|-------------|-------------------------------------|----------------------------|--------------------|-----------------|
|             |                                     | DOWN<br>Position           | CENTER<br>Position | UP<br>Position  |
| 5004        |                                     | ON                         | ON                 | OFF             |
|             |                                     | 2A-1<br>5A-4               | 2A-2B<br>5A-5B     | 2B-3<br>5B-6    |
| 5561        |                                     | ON                         | ON                 | OFF             |
|             |                                     | 2A-1<br>5A-4               | 2A-2B<br>5A-5B     | 2B-3-9<br>5B-6  |
| 5562        |                                     | ON                         | ON                 | OFF             |
|             |                                     | 2A-1<br>5A-4               | 2A-2B<br>5A-5B     | 2B-3-10<br>5B-6 |
| 5563        |                                     | ON                         | ON                 | OFF             |
|             |                                     | 2A-1<br>5A-4               | 2A-2B<br>5A-5B     | 2B-3<br>5B-6    |
| 5564        |                                     | ON                         | ON                 | OFF             |
|             |                                     | 2A-1<br>5A-4               | 2A-2B<br>5A-5B     | 2B-3<br>5B-6    |
| 5565        |                                     | ON                         | ON                 | OFF             |
|             |                                     | 2A-1<br>5A-4               | 2A-2B<br>5A-5B     | 2B-3-9<br>5B-6  |
| 5566        |                                     | ON                         | ON                 | OFF             |
|             |                                     | 2A-1<br>5A-4               | 2A-2B<br>5A-5B     | 2B-3-10<br>5B-6 |
| 5567        |                                     | ON                         | ON                 | OFF             |
|             |                                     | 2A-1-10<br>5A-4            | 2A-2B<br>5A-5B     | 2B-3-9<br>5B-6  |
| 5568        |                                     | ON                         | ON                 | OFF             |
|             |                                     | 2A-1<br>5A-4               | 2A-2B<br>5A-5B     | 2B-3<br>5B-6    |
| 5005        |                                     | 2-ON                       | 1-ON               | OFF             |
|             |                                     | 2B-1<br>5B-4               | 2B-3<br>5B-4       | 2B-3<br>5B-6    |
| 5581        |                                     | 2-ON                       | 1-ON               | OFF             |
|             |                                     | 2B-1<br>5B-4               | 2B-3-9<br>5B-4     | 2B-3-9<br>5B-6  |
| 5582        |                                     | 2-ON                       | 1-ON               | OFF             |
|             |                                     | 2B-1<br>5B-4               | 2B-3-10<br>5B-4    | 2B-3-10<br>5B-6 |
| 5583        |                                     | 2-ON                       | 1-ON               | OFF             |
|             |                                     | 2B-1<br>5B-4               | 2B-3<br>5B-4       | 2B-3<br>5B-6    |
| 5584        |                                     | 2-ON                       | 1-ON               | OFF             |
|             |                                     | 2B-1<br>5B-4               | 2B-3<br>5B-4       | 2B-3<br>5B-6    |
| 5585        |                                     | 2-ON                       | 1-ON               | OFF             |
|             |                                     | 2B-1<br>5B-4               | 2B-3-9<br>5B-4     | 2B-3-9<br>5B-6  |
| 5586        |                                     | 2-ON                       | 1-ON               | OFF             |
|             |                                     | 2B-1<br>5B-4               | 2B-3-10<br>5B-4    | 2B-3-10<br>5B-6 |
| 5587        |                                     | 2-ON                       | 1-ON               | OFF             |
|             |                                     | 2B-1-10<br>5B-4            | 2B-3-9<br>5B-4     | 2B-3-9<br>5B-6  |
| 5588        |                                     | 2-ON                       | 1-ON               | OFF             |
|             |                                     | 2B-1<br>5B-4               | 2B-3<br>5B-4       | 2B-3-9<br>5B-6  |
| 6001        |                                     | ON                         | NONE               | ON              |
|             |                                     | 2A-2B-5A-5B-<br>10-1-4-3   | —                  | 3-6-1           |

## Dimensions

Approximate Dimensions in Inches (mm)

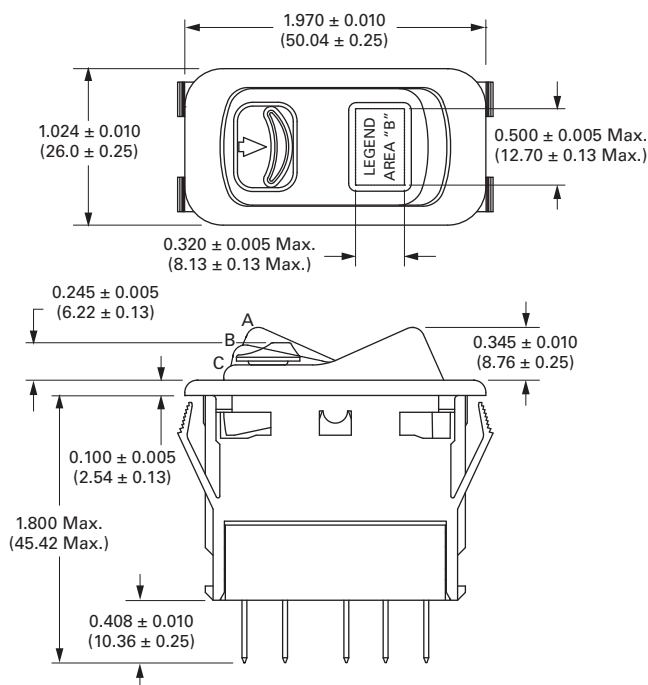
2

### Switch Base with Rocker Button

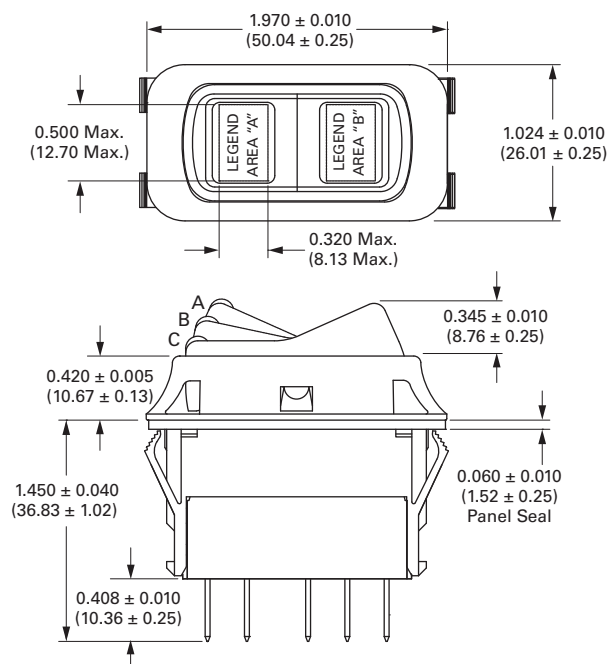


Approximate Dimensions in Inches (mm)

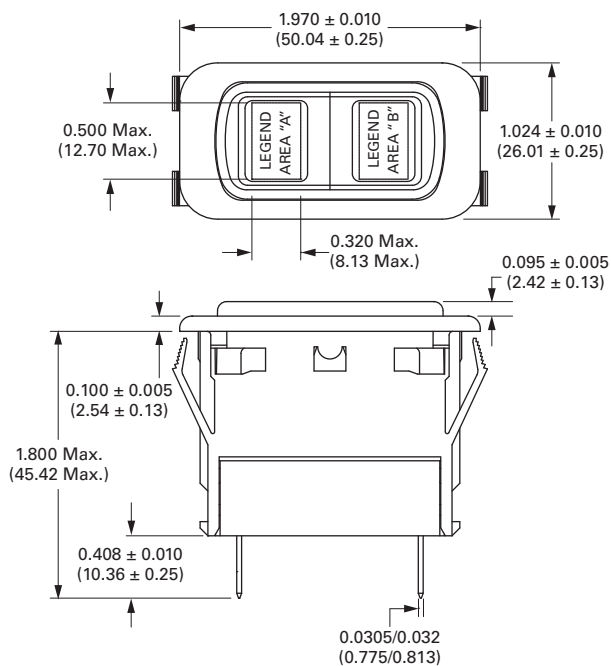
### Locking Rocker



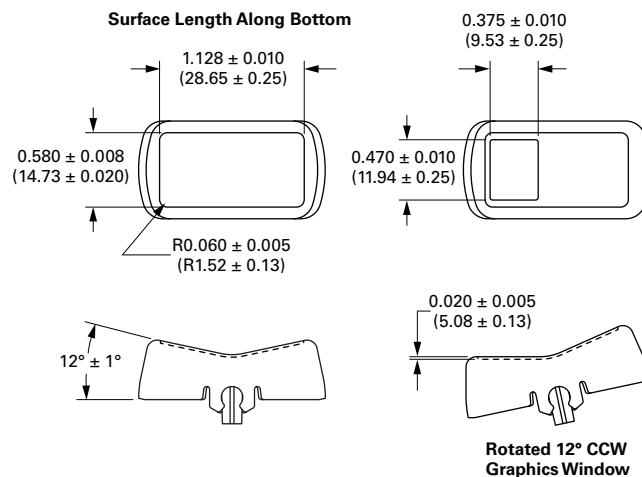
### Sealed Rocker



### Indicator



### Label Rocker



**Note:** Graphics window may be on both ends or either end of part. Dimensions shown are typical.

## SVR—Sealed Vehicle Rocker

2



## Product Description

The Sealed Vehicle Rocker (SVR) switch from Eaton's electrical business now offers an above panel actuator style in addition to the below panel and paddle actuators. Designed to meet the severe environmental requirements of the construction and agricultural vehicle markets, the SVR is sealed at the front and back of the switch and meets the rigorous sealing requirements of IP68.

The small switch footprint minimizes the space taken on switch panels. SVR switches are assembled into panels by pressing the switch through the top of the panel and are held in place by retention tabs molded into the body of the switch; mounting hardware or special tools are not necessary.

The SVR is offered in single- and two-pole switch circuits, with two- and three-position momentary and maintained circuits available. Switch and illumination circuits are terminated with 0.11 in (2.8 mm) tin-plated copper alloy spade terminals. The SVR connector can be loaded with the appropriate terminals and/or wire seals to accomplish sealing at the back end of the switch.

## Contents

### Description

| Description                       | Page      |
|-----------------------------------|-----------|
| SVR—Sealed Vehicle Rockers        |           |
| Above Panel Rocker Switch         | V11-T2-34 |
| Below Panel Rocker Switch         | V11-T2-35 |
| Technical Data and Specifications | V11-T2-36 |
| Circuit Diagrams                  | V11-T2-37 |
| Dimensions                        | V11-T2-38 |

## Features

You can order assembled switches or the switch base and actuator separately.

Use the final code in the switch base catalog number, **Pages V11-T2-34** and **V11-T2-35**, to denote assembly instructions.

### Actuator

The SVR switch family includes three styles of actuators: above panel, below panel and paddle.

Switch performance and specifications are the same for all actuator styles. Black is standard, but other colors are also available. Matte finish is standard on all actuator styles, matching the finish on the bezels and all other visible SVR switch features and accessories.

### Actuator Styles

- Above panel rocker button offers new styling and a larger surface area. Eaton can offer assistance with unique designs of above panel actuators for applications where differentiation is desired
- Below panel rocker button is the same two-faced European styling that has been offered for SVR since its initial release. Indicator style matches the below panel rocker button style
- Paddle actuator allows toggle-type actuation of the SVR switch

## Standards and Certifications

- Approvable under stringent UL and CSA standards
- For information, contact your local Eaton Sales Representative
- RoHS Compliant <sup>①</sup>



### Note

- <sup>①</sup> Visit [www.eaton.com/vcbu](http://www.eaton.com/vcbu) for the most up-to-date list of verified part numbers.

### Illumination

Long life LEDs provide backlighting illumination for the SVR switch. Backlighting can be either independent of or dependent on the switch circuits, or a combination of both. Standard LED color is amber, with red, green and blue also available. LED protection circuitry is available to protect the LED from overvoltage and reverse voltage conditions.

Contact your local Eaton Sales Representative for more specific information about standard and custom circuit options.

### Backlighting

- Each switch can accommodate up to two LEDs that can be connected to be either circuit dependent or independent
- Standard LED color is amber, with red, green and blue also available. Long life (100,000 hours) LEDs are standard
- Standard LED voltages are 12 and 24 Vdc
- The below panel rocker button style includes a single-piece back-lit actuator with laser-etched icons in either daylight white or deadfront styles. Without illumination, the icon is either daylight white or deadfront, but will change to the color of the chosen light source when illuminated

### Snap-in Lenses

- Above and below panel rocker buttons are available with or without one or two translucent lenses. Five standard lens colors are available: white, red, green, blue and amber

### Icons

- Icon areas are provided on each end of the rocker button. Icons may be illuminated or non-illuminated and are pad-printed in a contrasting color either directly on the rocker button or the lens

### Mounting Means

Snap-in mounting using four flexible plastic retainers integral with switch frame.

### Circuits

The SVR switch is capable of single- or two-pole configurations with two- or three-position maintained, momentary or a combination of actuations.

The addition of jumpers between switch terminals expands the circuit possibilities.

Contact your local Eaton Sales Representative for more specific information about SVR standard and custom circuit options.

### Standard Circuit Options

- ON–NONE–ON
- ON–OFF–ON
- ON\*–OFF–ON\*
- ON\*–OFF–ON
- ON–ON–ON
- ON\*–NONE–ON
- ON\*–ON–ON\*
- ON\*–ON–ON

**Note:** \* = Momentary. See Electrical Circuit Diagrams on **Page V11-T2-37**.

### Sealing

SVR design includes a sealed contact chamber with dust and water resistance to IP68. The harness connection can also be sealed by using AMP wire seals Catalog Number 828905-1 (14–16 gauge) or 828904-1 (18–20 gauge) to seal the wires to the connector. For an application where a connector cavity is not being used, it can be sealed with AMP sealing plug Catalog Number 828922-1.

The above panel version may also be sealed to the panel using panel seal Catalog Number 32-2245.

### Options

- Additional colors of actuators, mounting bezels and lenses
- Special circuits
- Special ratings
- Pad printing on the below panel switch bezel
- Low current capabilities
- Custom back-lit icons
- Gang-mount system including end bezel Catalog Number 17-22146 and center bezel 17-22152
- Palm Guard (below panel switch only) at either or both ends of the switch frame
- Indicators with insertable lenses
- Polarized lock-on connector Catalog Number 25-13936
- Panel plug with connector retention feature Catalog Number 17-22145
- Non-illuminated below panel paddle actuator

**Note:** Contact your local Eaton Sales Representative for additional information on options.

## Above Panel Rocker Switch

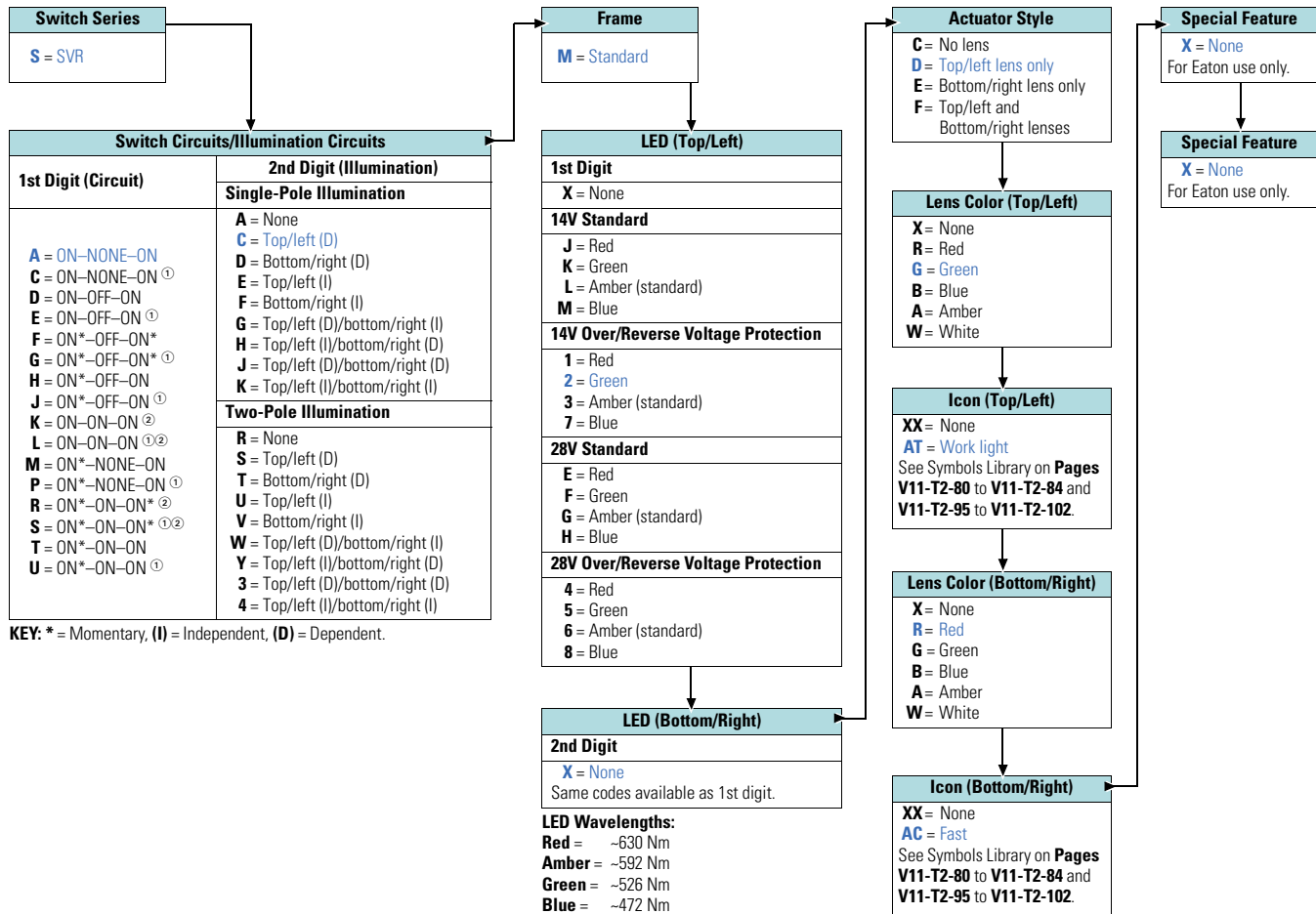


## Catalog Number Selection

## How To Order—Above Panel Rocker Switch

To determine complete catalog number, start with the appropriate switch series and add the appropriate code letters and/or numbers.

**Example:** S AC M 2X D G AT R AC X X



## Notes

- ① Gold plated.  
 ② Two-pole only. See Electrical Circuit Diagrams on Page V11-T2-37 and Illumination Circuit Diagrams on Page V11-T2-38.



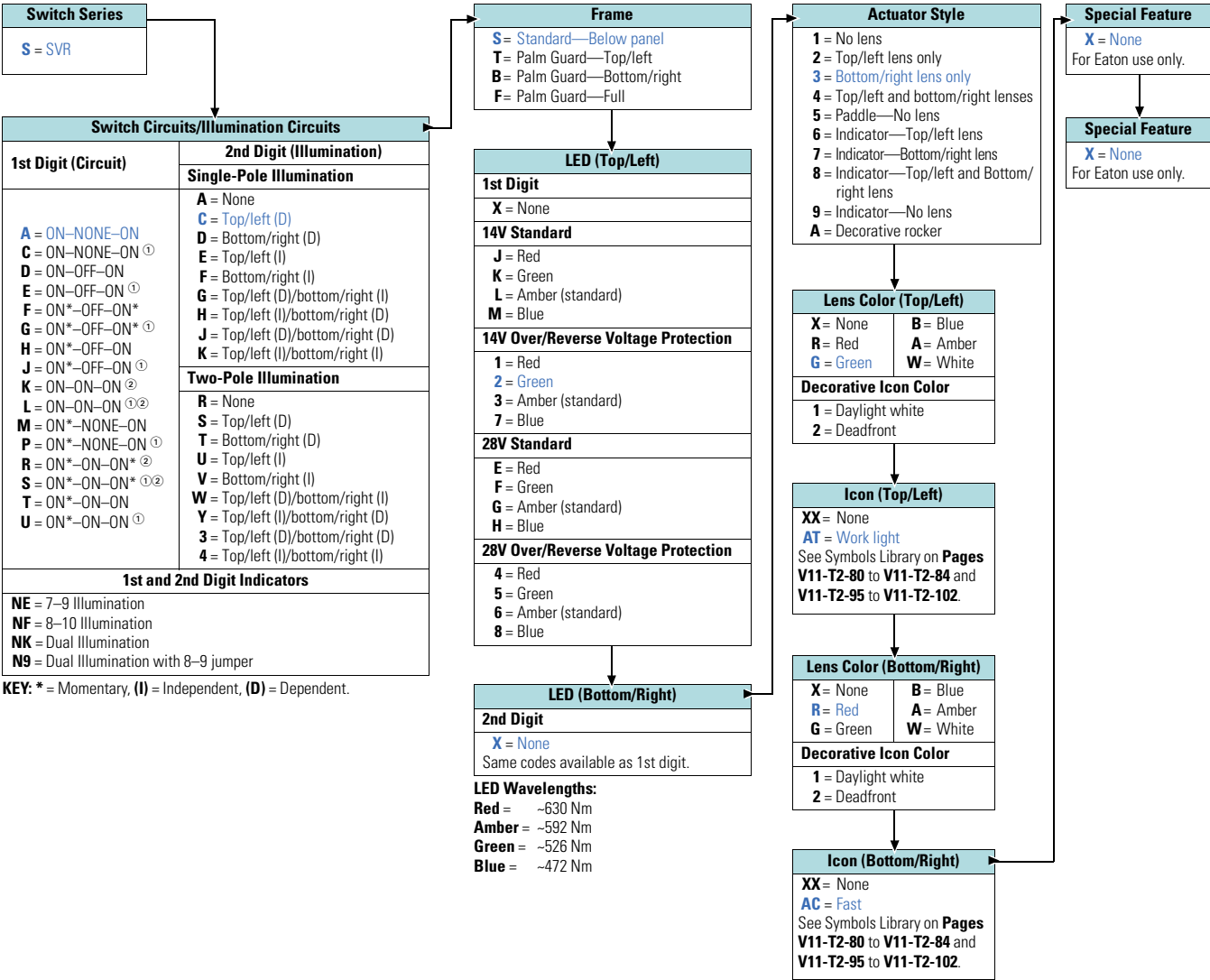
Below Panel Rocker Switch

Catalog Number Selection

How To Order—Below Panel Rocker Switch

To determine complete catalog number, start with the appropriate switch series and add the appropriate code letters and/or numbers.

Example: **S** **AC** **S** **2X** **3** **G** **AT** **R** **AC** **X** **X**



Notes

- ① Gold plated.
- ② Two-pole only. See Electrical Circuit Diagrams on Page V11-T2-37 and Illumination Circuit Diagrams on Page V11-T2-38.

## Technical Data and Specifications

## 2

### SVR—Sealed Vehicle Rocker

| Description                  | Specification                                                                                                                                                                                                |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ratings                      | 12A at either 12 or 24 Vdc, can be approved under stringent UL and CSA standards                                                                                                                             |
| Electrical life              |                                                                                                                                                                                                              |
| Standard plating             | 50,000 operations at 12A at either 12 or 24 Vdc. Life cycle testing conducted using both inductive and resistive loads                                                                                       |
| Gold plating                 | 250,000 (maintained circuits)/50,000 (momentary circuits) operations at 10 mA at either 12 or 24 Vdc                                                                                                         |
| Mechanical life              |                                                                                                                                                                                                              |
| Maintained circuits          | 250,000 operations minimum                                                                                                                                                                                   |
| Momentary circuits           | 50,000 operations minimum                                                                                                                                                                                    |
| Circuits                     | Single- or two-pole, two- or three-position, with momentary and maintained capabilities                                                                                                                      |
| Dielectric strength          | 1500 volts rms minimum                                                                                                                                                                                       |
| Operate force                | 1–3 lbs (4.4–13.2 Nm) depending on circuit configuration and actuator style                                                                                                                                  |
| Temperature                  |                                                                                                                                                                                                              |
| Operating range              | –40° to 185°F (–40° to 85°C)                                                                                                                                                                                 |
| Storage range                | –40° to 185°F (–40° to 85°C)                                                                                                                                                                                 |
| Contact material             |                                                                                                                                                                                                              |
| Movable                      | Copper alloy with silver alloy contact surface                                                                                                                                                               |
| Stationary                   | Silver-plated copper alloy with silver alloy contact surface                                                                                                                                                 |
| Gold-plated                  | Contacts are available for low level electrical loads                                                                                                                                                        |
| Terminal type                | Standard 0.11 in (2.8 mm) tin-plated copper alloy spade terminal<br>Mates to AMP Junior Power Timer Terminals <sup>①</sup><br>Catalog Number 927766-3 (14–16 gauge)<br>Catalog Number 927770-3 (18–20 gauge) |
| Plastic component UL ratings |                                                                                                                                                                                                              |
| Base material                | UL 94 V-0                                                                                                                                                                                                    |
| Frame material               | UL 94 H-B                                                                                                                                                                                                    |
| IP rating                    | IP68                                                                                                                                                                                                         |
| Sub-actuator material        | UL 94 V-0                                                                                                                                                                                                    |
| Actuator material            | UL 94 V-0 (above panel rocker button)<br>UL 94 H-B (below panel rocker button and paddle actuator)                                                                                                           |
| Mounting hole                | Standard panel cutout of 1.45 x 0.83 in (36.8 x 21.1 mm)                                                                                                                                                     |
| Panel thickness              | 0.04 to 0.16 in (1.0 to 4.0 mm)<br>Best results obtained between 0.06 and 0.12 in (1.5 and 3.0 mm)                                                                                                           |

**Note**

<sup>①</sup> See also Sealing, **Page V11-T2-33**, for additional AMP components to seal the connector interface.

## Circuit Diagrams

### Switch Circuit Schematics

| Code          | Single-Pole Schematic<br>(Shown in Top/left<br>Actuated Position) | TOP/<br>LEFT<br>Actuated | CENTER | BOTTOM/<br>RIGHT<br>Actuated |
|---------------|-------------------------------------------------------------------|--------------------------|--------|------------------------------|
| A<br>C (Gold) |                                                                   | ON                       | NONE   | ON                           |
|               |                                                                   | 2-3                      | —      | 2-1                          |
| D<br>E (Gold) |                                                                   | ON                       | OFF    | ON                           |
|               |                                                                   | 2-3                      | —      | 2-1                          |
| F<br>G (Gold) |                                                                   | MOM. ON                  | OFF    | MOM. ON                      |
|               |                                                                   | 2-3                      | —      | 2-1                          |
| H<br>J (Gold) |                                                                   | MOM. ON                  | OFF    | ON                           |
|               |                                                                   | 2-3                      | —      | 2-1                          |
| K<br>L (Gold) |                                                                   | Two-pole only            |        |                              |
| M<br>P (Gold) |                                                                   | MOM. ON                  | NONE   | ON                           |
|               |                                                                   | 2-3                      | —      | 2-1                          |
| R<br>S (Gold) |                                                                   | Two-pole only            |        |                              |
| T<br>U (Gold) |                                                                   | MOM. ON                  | ON     | ON                           |
|               |                                                                   | 2-3                      | 2-1    | 2-1                          |

| Code          | Two-Pole Schematic<br>(Shown in Top/left<br>Actuated Position) | TOP/<br>LEFT<br>Actuated | CENTER  | BOTTOM/<br>RIGHT<br>Actuated |
|---------------|----------------------------------------------------------------|--------------------------|---------|------------------------------|
| A<br>C (Gold) |                                                                | ON                       | NONE    | ON                           |
|               |                                                                | 2-3                      | —       | 2-1                          |
|               |                                                                | 5-6                      | —       | 5-4                          |
| D<br>E (Gold) |                                                                | ON                       | OFF     | ON                           |
|               |                                                                | 2-3                      | —       | 2-1                          |
|               |                                                                | 5-6                      | —       | 5-4                          |
| F<br>G (Gold) |                                                                | MOM. ON                  | OFF     | MOM. ON                      |
|               |                                                                | 2-3                      | —       | 2-1                          |
|               |                                                                | 5-6                      | —       | 5-4                          |
| H<br>J (Gold) |                                                                | MOM. ON                  | OFF     | ON                           |
|               |                                                                | 2-3                      | —       | 2-1                          |
|               |                                                                | 5-6                      | —       | 5-4                          |
| K<br>L (Gold) |                                                                | ON                       | ON      | ON                           |
|               |                                                                | 2-3                      | 5-4-2-3 | 5-4-2-1                      |
|               |                                                                | 5-6                      |         |                              |
| M<br>P (Gold) |                                                                | MOM. ON                  | NONE    | ON                           |
|               |                                                                | 2-3                      | —       | 2-1                          |
|               |                                                                | 5-6                      | —       | 5-4                          |
| R<br>S (Gold) |                                                                | MOM. ON                  | ON      | MOM. ON                      |
|               |                                                                | 2-3                      | 5-4-2-3 | 5-4-2-1                      |
|               |                                                                | 5-6                      |         |                              |
| T<br>U (Gold) |                                                                | MOM. ON                  | ON      | ON                           |
|               |                                                                | 2-3                      | 2-1     | 2-1                          |
|               |                                                                | 5-6                      | 5-4     | 5-4                          |

## Illumination Schematics

| Single-Pole Code  | Two-Pole Code | Schematic <sup>①</sup> |
|-------------------|---------------|------------------------|
| A                 | R             | None                   |
| C                 | S             |                        |
| D                 | T             |                        |
| E                 | U             |                        |
| F                 | V             |                        |
| G                 | W             |                        |
| H                 | Y             |                        |
| J                 | 3             |                        |
| K                 | 4             |                        |
| Illumination Code |               | Schematic <sup>①</sup> |
| 9                 |               |                        |

## Note

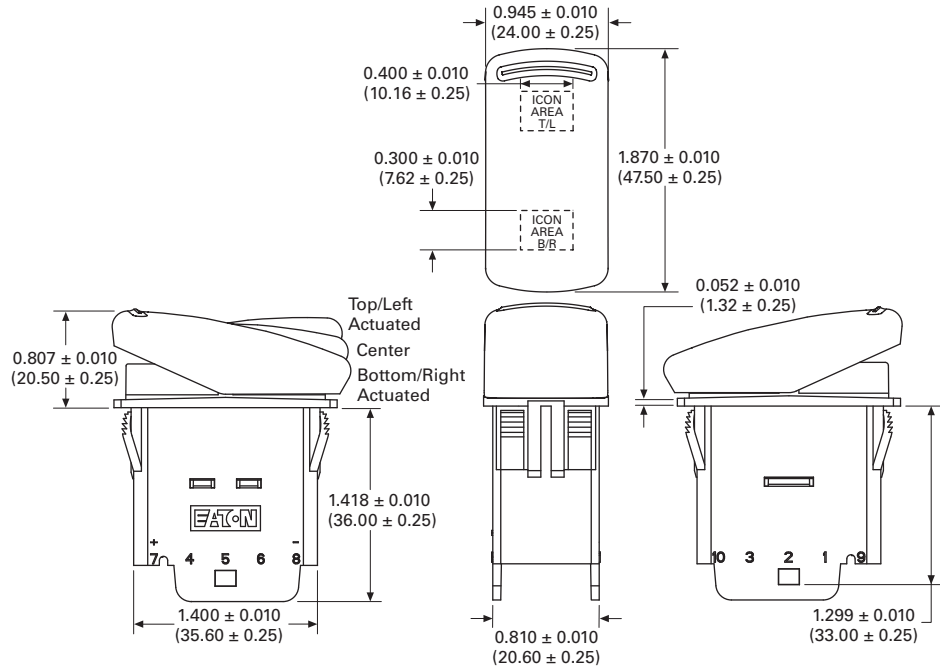
- <sup>①</sup> LED for terminals 7–9 is at top/left side of switch.  
LED for terminals 8–10 is at bottom/right of switch.

## Dimensions

## Above Panel Rocker

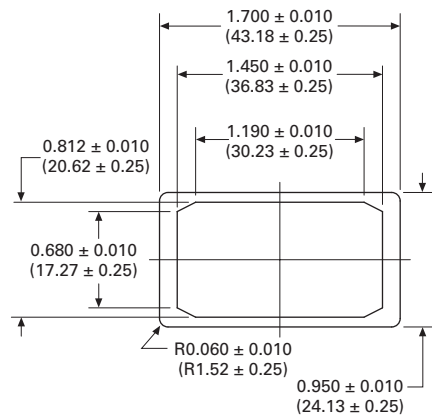
Approximate Dimensions in Inches (mm)

## Above Panel Rocker Switch with Actuator

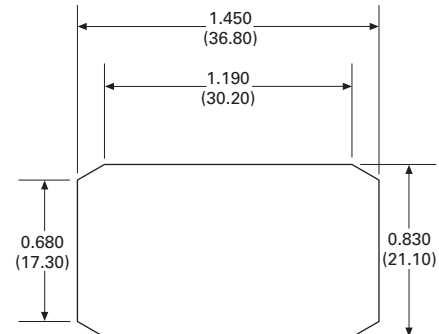


## Panel Seal Gasket (Above Only)

Catalog Number 32-2245



## Panel Opening (Above and Below)

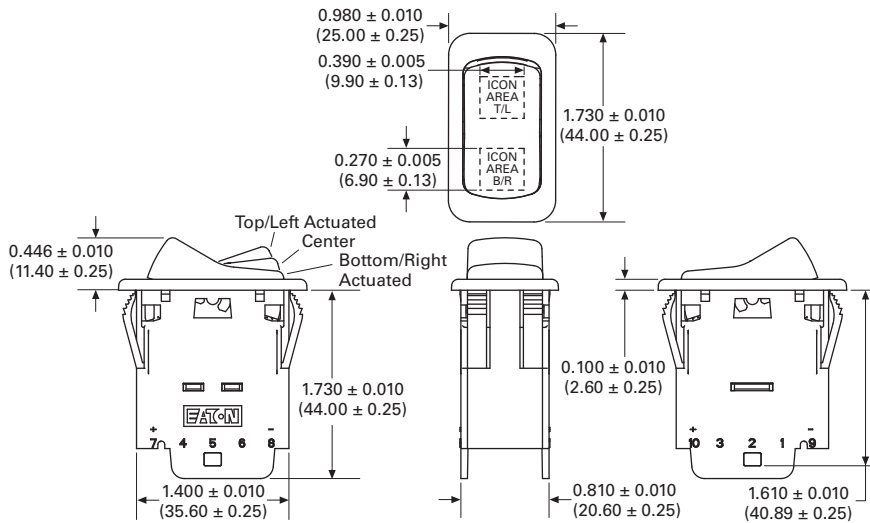


**Note:** Recommended panel thickness 0.039–0.157 in (1.00–4.00 mm). Best results obtained between 0.059 and 0.118 in (1.50 and 3.00 mm).

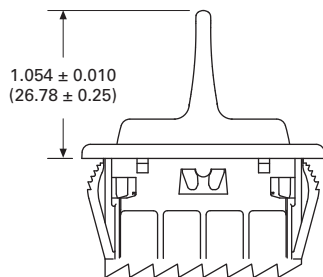
## Below Panel Rocker

Approximate Dimensions in Inches (mm)

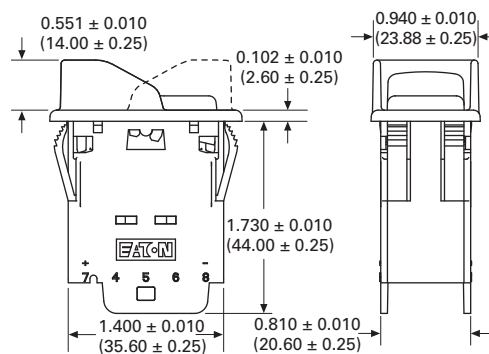
### Below Panel Rocker Switch with Actuator



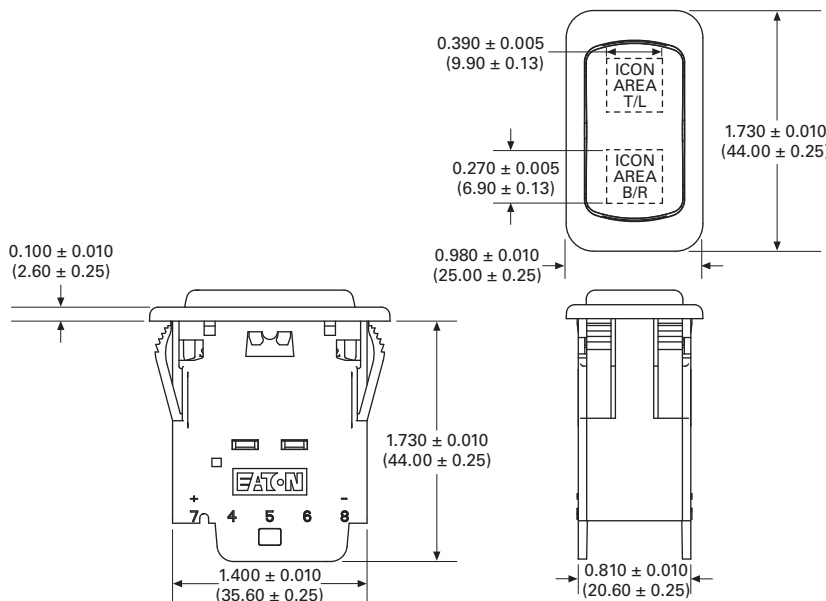
### Panel Actuator (Below Panel Only)



### Panel Guard (Below Panel Only)



### Indicator (Below Panel Only)



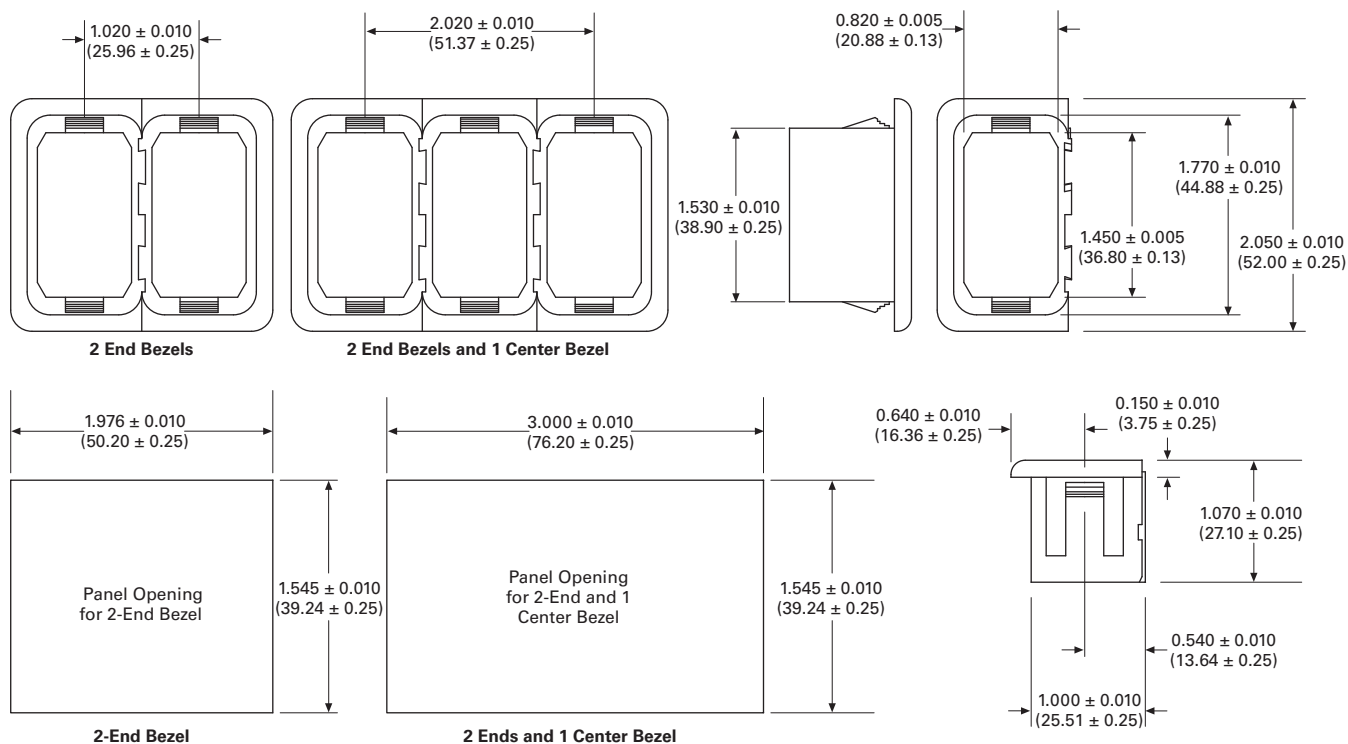
**Accessories**

Approximate Dimensions in Inches (mm)

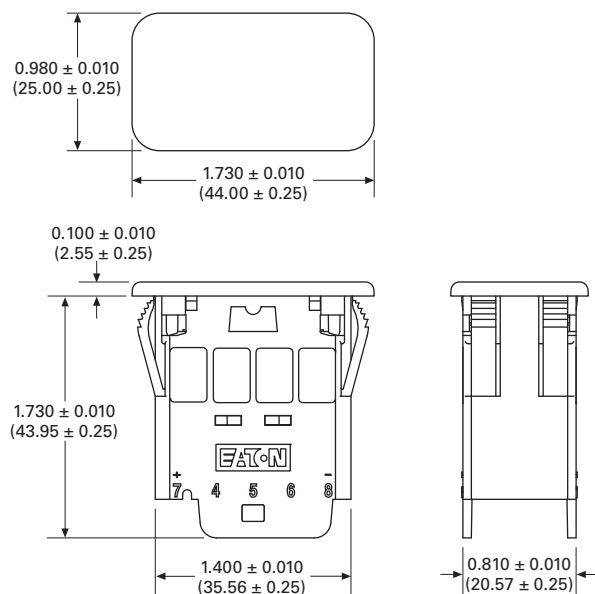
**2****Gang Mount System**

End Bezel Catalog Number 17-22146

Center Bezel Catalog Number 17-22152

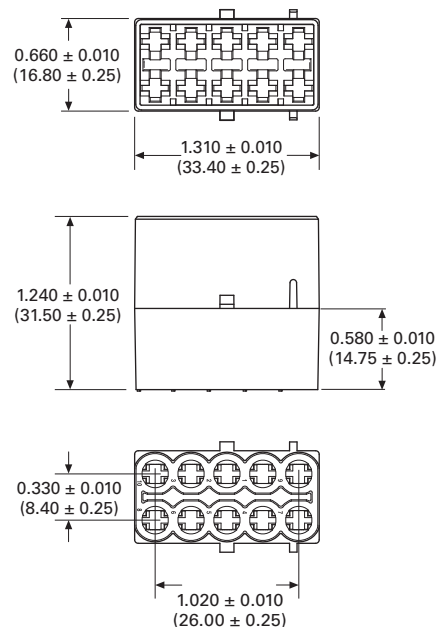
**Panel Plug**

Catalog Number 17-22145

**Connector**

Catalog Number 25-13936

AMP Terminal Catalog Numbers:  
 927766-3 (14–16 gauge)  
 927770-3 (18–20 gauge)  
 AMP Wire Seal Catalog Numbers:  
 828905-1 (14–16 gauge)  
 828904-1 (18–20 gauge)  
 AMP Sealing Plug Catalog Number:  
 828922-1



**Dual Motion Safety Switch****Product Description**

Eaton's Vehicle Control business offers these new dual motion safety switches to prevent accidental actuation and protect operator personnel and equipment.

These rockers are available in two standard circuit options: OFF (locked)—None—ON and ON (locked)—None—ON. The locked safety feature requires two motions from the operator to place the actuator in the unlocked position. In the locked position, the operator must apply pressure on the actuator forward and an additional force in an upward motion for the switch to be moved to the unlocked position. Once in the unlocked position, the switch can easily be moved back into the locked position.

**Application Description**

- Farming equipment
- Fire trucks and safety vehicles
- Lawn and garden equipment
- Large transportation buses
- Industrial and commercial equipment

**Features and Benefits**

Dual motion safety switches are recommended up to 15A at 28 Vdc. An added benefit is its IP54 seal level. They can be used in tough environments where there may be exposure to small dust particles or water splashing against the enclosure from any direction. For available higher ratings or additional customizable circuits, please contact your local Eaton Sales Representative.

**Contents****Description**

Dual Motion Safety Switches

Catalog Number Selection . . . . .

Dimensions . . . . .

**Page****V11-T2-42****V11-T2-42****2****Options**

There are many options to choose when building the right switch for your application. Termination types to choose from include screw type, solder lug and 0.250-inch spade terminals. Actuators are available in four standard colors with an appealing matte finish. Choose from black, red, white or yellow. Eaton also offers standard and customizable legend pad printing options on top of the actuator. There is even an option for arrows to be pad printed on the sides of the rocker to indicate the correct forward motion.

For added convenience, the bezel is designed to allow an easy snap-in switch mount into various panel thicknesses. The actuators even have ergonomic grooves to help provide the operator a firm grip when moving the actuator.

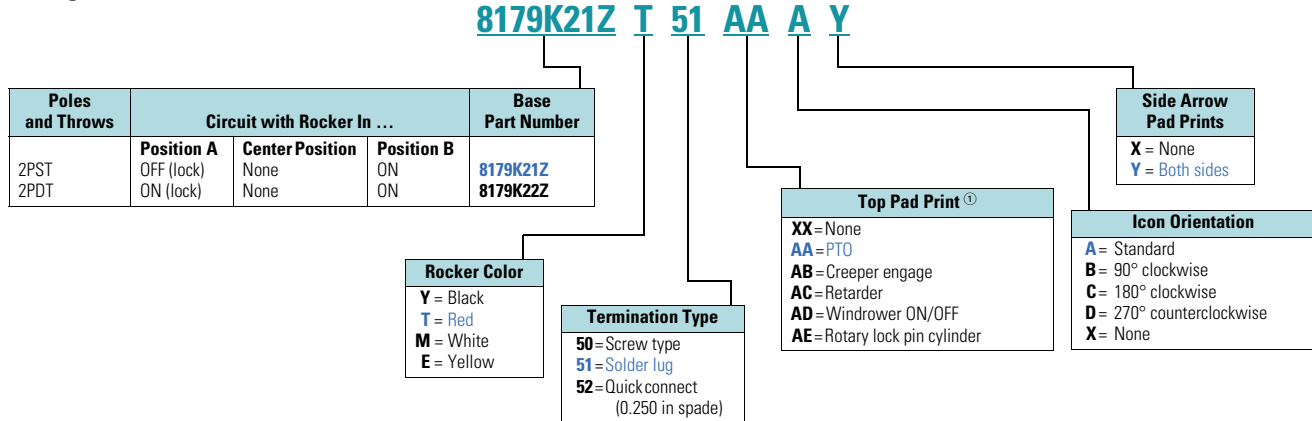
**Standards and Certifications**

- UL/CSA Recognition at 15A, 125 Vac; 10A, 250 Vac; 3/4 hp, 250 Vac
- RoHS Compliant <sup>①</sup>

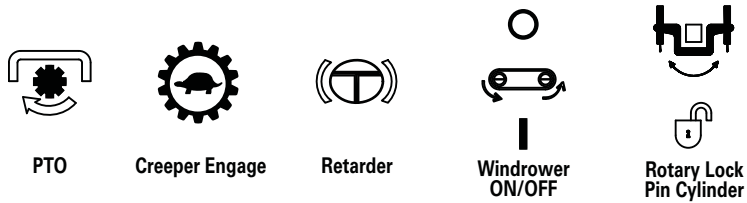
**Note**

<sup>①</sup> Visit [www.eaton.com/vcbu](http://www.eaton.com/vcbu) for the most up-to-date list of verified part numbers.

## Catalog Number Selection



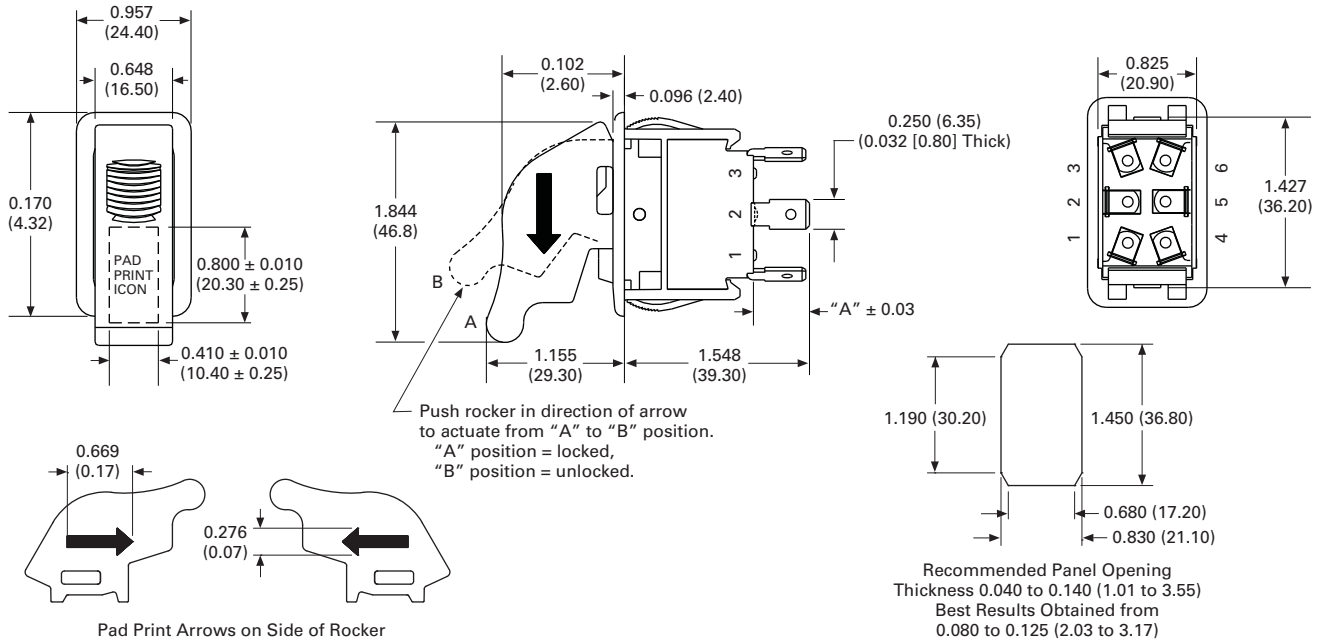
## Available Switch Pad Prints

Prints<sup>②</sup>

## Dimensions

Approximate Dimensions in Inches (mm)

## Dual Motion Safety Switch



## Notes

- ① Black pad print color for white and yellow rockers. White pad print color for red and black rockers.  
 ② Contact your local Eaton Sales Representative for more available pad print options.

## 1500/2500 Series



## Product Description

Eaton's 1500/2500 series rocker switch offers a designer touch that will enhance any product line.

Ideal applications include appliances, electronic instrumentation, data processing, communications and medical and office equipment. Custom legends are available on the switch actuator and bezel.

## Options

### High Inrush Option

The 1500H/2500H is designed to handle high inrush currents up to 100A peak inrush for 10 milliseconds.

### Hi-Lite Rocker with High Inrush Option

This two-color rocker version brightly indicates the ON position. This version spares the expense of more costly illuminated switches and is available with the high inrush option.

## Contents

### Description

1500/2500—Midsize AC Rated

Midsize Non-Illuminated and Illuminated . . . .

Hi-Lite Rocker with High Inrush . . . . .

Technical Data and Specifications . . . . .

Dimensions . . . . .

### Page

**V11-T2-44**

**V11-T2-45**

**V11-T2-46**

**V11-T2-46**

## Standards and Certifications

**Note:** See Catalog Number Selection for more detail.

### International Approvals

- UL Recognized
- CSA Certified
- ENEC
- RoHS Compliant ①



### Note

① Visit [www.eaton.com/vcbu](http://www.eaton.com/vcbu) for the most up-to-date list of verified part numbers.



### Midsize Non-Illuminated and Illuminated

To determine complete catalog number, start with the appropriate base circuit number and add the appropriate code letters and/or numbers.

#### Catalog Number Selection

##### How To Order—Midsize Non-Illuminated

Example: **1500** → **2 1 E 038**

| Rating                                                                                          | Poles and Throw | Circuit with Rocker in ... |                 |                 | Base Circuit Number ②                     | Circuit Number ③ |
|-------------------------------------------------------------------------------------------------|-----------------|----------------------------|-----------------|-----------------|-------------------------------------------|------------------|
|                                                                                                 |                 | UP Position                | CENTER Position | DOWN Position ① |                                           |                  |
| <b>UL/CSA:</b><br>15A 125 Vac, 10A 250 Vac,<br>10A 28 Vdc, 8A 14VT;<br><b>ENEC:</b> 10(4)A 250V | 1PST            | ON<br>MOM. ON              | NONE<br>NONE    | OFF<br>OFF      | <b>1500</b><br><b>1501</b><br><b>1505</b> | 1<br>3<br>4      |
|                                                                                                 | 1PDT            | ON<br>ON                   | NONE<br>NONE    | ON<br>MOM. ON   | <b>1502</b><br><b>1503</b>                | 5<br>7           |
| <b>UL/CSA:</b><br>15A 125 Vac, 10A 250 Vac,<br>10A 28 Vdc, 8A 14VT;<br><b>ENEC:</b> 10(2)A 250V | 1PDT            | ON                         | OFF             | ON              | <b>1504</b>                               | 6                |
| <b>UL/CSA:</b><br>10A 125 Vac, 10A 250 Vac,<br>10A 28Vdc, 8A 14VT;<br><b>ENEC:</b> 10(2)A 250V  | 1PDT            | MOM. ON<br>MOM. ON         | OFF<br>OFF      | MOM. ON<br>ON   | <b>1506</b><br><b>1507</b>                | 9<br>8           |
|                                                                                                 | 2PST            | ON<br>MOM. ON              | NONE<br>NONE    | OFF<br>OFF      | <b>2500</b><br><b>2501</b><br><b>2505</b> | 10<br>11<br>12   |
| <b>UL/CSA:</b><br>15A 125 Vac, 10A 250 Vac,<br>10A 28 Vdc, 8A 14VT;<br><b>ENEC:</b> 10(4)A 250V | 2PDT            | ON<br>ON                   | NONE<br>NONE    | ON<br>MOM. ON   | <b>2502</b><br><b>2503</b>                | 13<br>15         |
|                                                                                                 | 2PDT            | ON                         | OFF             | ON              | <b>2504</b>                               | 14               |
| <b>UL/CSA:</b><br>15A 125 Vac, 10A 250 Vac,<br>10A 28 Vdc, 8A 14VT;<br><b>ENEC:</b> 10(2)A 250V | 2PDT            | MOM. ON<br>MOM. ON         | OFF<br>OFF      | MOM. ON<br>ON   | <b>2506</b><br><b>2507</b>                | 17<br>16         |

Code letters and/or numbers.  
Add to base circuit number.

| Base and Bezel Color |
|----------------------|
| 1 = Black            |
| 2 = White            |
| 3 = Red              |

| Rocker Color |
|--------------|
| 1 = Black    |
| 2 = White    |
| 3 = Red      |

| Terminal Type                         |
|---------------------------------------|
| E = 6.3 mm tabs/0.25 in quick connect |
| B = Solder lugs                       |

Note: B style terminal not offered for 1506 Series.

| Legend Type (Optional)                            |
|---------------------------------------------------|
| 038 = ON/OFF                                      |
| See Most Popular Legends table on Page V11-T2-53. |

##### How To Order—Midsize Illuminated

Example: **2500** → **G 2 2 E 725**

| Rating                                                                                         | Poles and Throw | Circuit with Rocker in ... |                 |                 | Base Circuit Number        | Circuit Number ③ |
|------------------------------------------------------------------------------------------------|-----------------|----------------------------|-----------------|-----------------|----------------------------|------------------|
|                                                                                                |                 | UP Position                | CENTER Position | DOWN Position ① |                            |                  |
| <b>UL/CSA:</b><br>15A 125 Vac, 10A 250 Vac,<br>10A 28Vdc, 8A 14VT;<br><b>ENEC:</b> 10(4)A 250V | 1PST            | ON<br>MOM. ON              | NONE<br>NONE    | OFF<br>OFF      | <b>1500</b><br><b>1501</b> | 18<br>21         |
|                                                                                                | 2PST            | ON<br>MOM. ON              | NONE<br>NONE    | OFF<br>OFF      | <b>2500</b><br><b>2501</b> | 28<br>30         |

Code letters and/or numbers.  
Add to base circuit number.

| Lens/Rocker Color |
|-------------------|
| A = Amber         |
| G = Green         |
| R = Red           |
| W = White (clear) |

| Lamp Voltage       |
|--------------------|
| 0 = No lamp        |
| 1 = 125V neon      |
| 2 = 250V neon      |
| 4 = 6V filament ④  |
| 5 = 12V filament ④ |

| Base and Bezel Color |
|----------------------|
| 1 = Black            |
| 2 = White            |
| 3 = Red              |

| Terminal Type                         |
|---------------------------------------|
| E = 6.3 mm tabs/0.25 in quick connect |
| B = Solder lugs                       |

| Legend Type (Optional)                            |
|---------------------------------------------------|
| 725 = ON/OFF                                      |
| See Most Popular Legends table on Page V11-T2-53. |

#### Notes

- ① 1500 Type—Lever depressed toward terminal #3. 2500 Type—Lever depressed toward terminals #13 and #26.
- ② #1500—#1507 switches are supplied in 1500 type base. #2500—#2507 switches are supplied in 2500 type base.
- ③ See Circuit Diagrams on Page V11-T2-78.
- ④ 6V, 12V filament lamps are not UL, CSA, or ENEC.



## Hi-Lite Rocker with High Inrush

To determine complete catalog number, start with the appropriate base circuit number and add the appropriate code letters and/or numbers.

2

### Catalog Number Selection

#### How To Order—Hi-Lite Rocker with High Inrush Option

Example: **1500H** → **1 2 4 E 038**

| Rating                                                                                                    | Poles and Throw | Circuit with Rocker in ... |                 |                 | Base Circuit Number | Circuit Number ③ |
|-----------------------------------------------------------------------------------------------------------|-----------------|----------------------------|-----------------|-----------------|---------------------|------------------|
|                                                                                                           |                 | UP Pos.                    | CENTER Position | DOWN Position ① |                     |                  |
| <b>UL/CSA:</b> 15A 125 Vac, 10A 250 Vac, 10A 28 Vdc, 8A 14VT; <b>ENEC:</b> 10(4)A 250V                    | 1PST            | ON MOM. ON                 | NONE            | OFF             | 1500                | 1                |
| <b>UL/CSA:</b> 22A 125 Vac, 16A 250 Vac, 6A 125 VacL, 10A 14VT, 1 hp 125-250Vac; <b>ENEC:</b> 16(4)A 250V | 1PST            | ON                         | NONE            | OFF             | 1500H ②             | 1                |

Code letters and/or numbers. Add to Base Circuit Number.

| Base and Bezel Color |
|----------------------|
| 1 = Black            |
| 2 = White            |
| 3 = Red              |

| Rocker Color |
|--------------|
| 1 = Black    |
| 2 = White    |
| 3 = Red      |

| Hi-Lite Color |
|---------------|
| 1 = Black     |
| 2 = White     |
| 4 = Green     |
| 5 = Gray      |
| 6 = Red       |
| 7 = Yellow    |

| Terminal Type                         |
|---------------------------------------|
| E = 6.3 mm tabs/0.25 in quick connect |
| B = Solder lugs ④                     |

| Legend Type (Optional)                            |
|---------------------------------------------------|
| 038 = ON/OFF                                      |
| See Most Popular Legends table on Page V11-T2-53. |

#### How To Order—High Inrush, Non-Illuminated

Example: **1500H** → **1 2 E 038**

| Rating                                                                                                     | Poles and Throw | Circuit with Rocker in ... |                 |                 | Base Circuit Number | Circuit Number ③ |
|------------------------------------------------------------------------------------------------------------|-----------------|----------------------------|-----------------|-----------------|---------------------|------------------|
|                                                                                                            |                 | UP Pos.                    | CENTER Position | DOWN Position ① |                     |                  |
| <b>UL/CSA:</b> 22A 125 Vac, 16A 250 Vac, 6A 125 VacL, 10A 14VT, 1 hp 125-250 Vac; <b>ENEC:</b> 16(4)A 250V | 1PST            | ON                         | NONE            | OFF             | 1500H               | 1                |
|                                                                                                            | 2PST            | ON                         | NONE            | OFF             | 2500H               | 10               |

Code letters and/or numbers. Add to Base Circuit Number.

| Base and Bezel Color |
|----------------------|
| 1 = Black            |
| 2 = White            |
| 3 = Red              |

| Rocker Color |
|--------------|
| 1 = Black    |
| 2 = White    |
| 3 = Red      |

| Terminal Type                         |
|---------------------------------------|
| E = 6.3 mm tabs/0.25 in quick connect |

| Legend Type (Optional)                            |
|---------------------------------------------------|
| 038 = ON/OFF                                      |
| See Most Popular Legends table on Page V11-T2-53. |

#### How To Order—High Inrush Illuminated

Example: **2500H** → **G 2 2 E 725**

| Rating                                                                                                     | Poles and Throw | Circuit with Rocker in ... |                 |                 | Base Circuit Number | Circuit Number ③ |
|------------------------------------------------------------------------------------------------------------|-----------------|----------------------------|-----------------|-----------------|---------------------|------------------|
|                                                                                                            |                 | UP Pos.                    | CENTER Position | DOWN Position ① |                     |                  |
| <b>UL/CSA:</b> 22A 125 Vac, 16A 250 Vac, 6A 125 VacL, 10A 14VT, 1 hp 125-250 Vac; <b>ENEC:</b> 16(4)A 250V | 1PST            | ON                         | NONE            | OFF             | 1500H               | 18               |
|                                                                                                            | 2PST            | ON                         | NONE            | OFF             | 2500H               | 28               |

Code letters and/or numbers. Add to Base Circuit Number.

| Lens/Rocker Color |
|-------------------|
| A = Amber         |
| G = Green         |
| R = Red           |
| W = White (clear) |

| Base and Bezel Color |
|----------------------|
| 1 = Black            |
| 2 = White            |
| 3 = Red              |

| Terminal Type                         |
|---------------------------------------|
| E = 6.3 mm tabs/0.25 in quick connect |

| Legend Type (Optional)                            |
|---------------------------------------------------|
| 725 = ON/OFF                                      |
| See Most Popular Legends table on Page V11-T2-53. |

| Lamp Voltage       |
|--------------------|
| 0 = No lamp        |
| 1 = 125V neon      |
| 2 = 250V neon      |
| 4 = 6V filament ⑤  |
| 5 = 12V filament ⑤ |

#### Notes

- 1500 Type—Lever depressed toward terminal #2. 1500H Type—Lever depressed toward terminal #3. 2500H Type—Lever depressed toward terminals #13 and #26.
- High inrush capabilities available only on basic catalog numbers beginning with 1500H.
- See Circuit Diagrams on Page V11-T2-78.
- Standard rating only.
- 6V, 12V filament lamps are not UL, CSA, or ENEC.

## Technical Data and Specifications

2

### 1500/2500—Midsize AC Rated

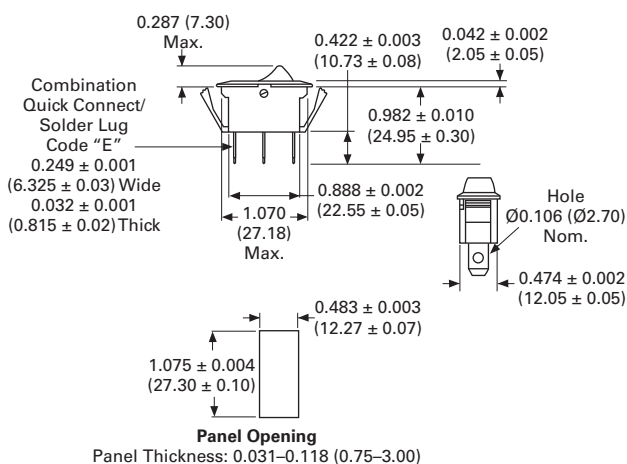
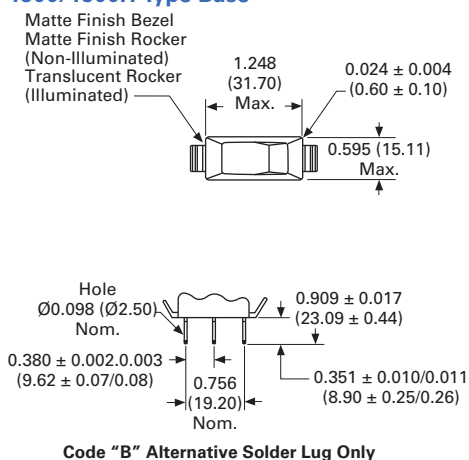
| Description              | Specification                                                   |
|--------------------------|-----------------------------------------------------------------|
| Ratings                  | See selection tables on <b>Pages V11-T2-44 and V11-T2-45.</b>   |
| Seal level               | IP40                                                            |
| Circuits                 |                                                                 |
| Standard                 | 1PST, 1PDT, 2PST, 2PDT, maintained and momentary                |
| High inrush option       | 1PST, 2PST, maintained                                          |
| Hi-lite option           | 1PST, maintained                                                |
| Contact mechanism        |                                                                 |
| Standard                 | Slow-make/slow-break butt contact                               |
| High inrush option       | Slow-make/slow-break butt contact with mechanical break         |
| Make—High inrush option  | 100A peak inrush at 250 Vac for 10 ms for 10,000 cycles minimum |
| Break—High inrush option | 16A, 250 Vac for 10,000 cycles minimum                          |
| Contact material         | Silver inlay over copper                                        |
| Contact resistance       | 10M ohms max. at 1A, 4 Vdc                                      |

| Description                 | Specification                      |
|-----------------------------|------------------------------------|
| Mechanical life             | 50,000 cycles minimum              |
| Insulation resistance       | 50M ohms minimum                   |
| Dielectric withstand        | 1000V rms minimum                  |
| Terminal types              |                                    |
| Standard                    | 6.3 mm Tabs/0.250 in Quick Connect |
| Optional                    | Solder lug                         |
| Termination material        |                                    |
| Common (center)             | Copper fine silver-plated          |
| End                         | Copper                             |
| Lamp                        | Brass                              |
| Mounting                    | See dimensions below               |
| Operating temperature range | 32° to 185°F (0° to 85°C)          |

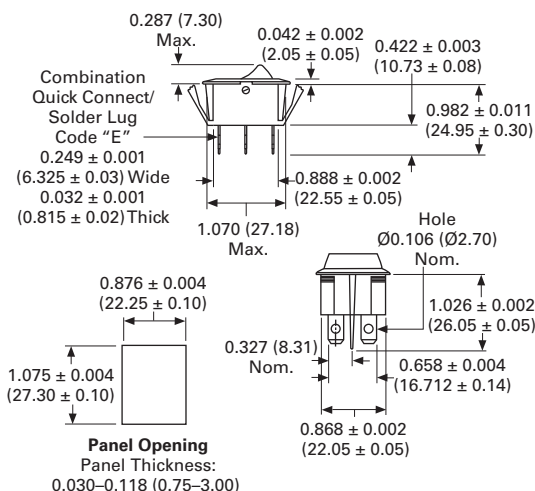
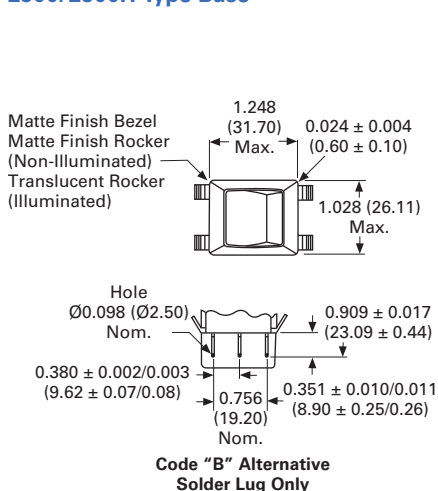
## Dimensions

Approximate Dimensions in Inches (mm)

### 1500/1500H Type Base



### 2500/2500H Type Base



1600/2600 Series



## Product Description

Eaton's 1600/2600 series of midsize snap-in rocker and paddle switches have worldwide approvals at up to 16A, 250 Vac. One switch can be used for both domestic and foreign markets.

Ideal applications include appliances, electronic instrumentation, data processing, communications, medical equipment, office equipment and many more. A wide circuit variety is offered in a choice of standard and custom colors for illuminated and non-illuminated versions. Custom legends are available on the switch lever and bezel. High inrush and splashguard are also available.

## Options

### High Inrush Option

The 1600H/2600H is designed to handle high inrush currents up to 100A peak inrush for 10 milliseconds.

### Splashguard Option

This version features a uniquely designed seal that resists moisture and water, making it ideally suited for marine, RV and food processing applications. The oversized nylon lever with smooth, matte finish features a convenient thumb depression to ensure effortless touch control. Two-pole switches feature both a thumb depression and a convex curve. See **Page V11-T2-50**.

## Contents

### Description

1600/2600—Midsize AC Only

|                                             |                  |
|---------------------------------------------|------------------|
| Non-Illuminated Rocker . . . . .            | <b>V11-T2-48</b> |
| Illuminated Rocker . . . . .                | <b>V11-T2-49</b> |
| Splashguard . . . . .                       | <b>V11-T2-50</b> |
| High Inrush Rockers . . . . .               | <b>V11-T2-51</b> |
| Technical Data and Specifications . . . . . | <b>V11-T2-52</b> |
| Dimensions . . . . .                        | <b>V11-T2-52</b> |
| Accessories . . . . .                       | <b>V11-T2-53</b> |
| Legends . . . . .                           | <b>V11-T2-53</b> |

## Standards and Certifications

**Note:** See Catalog Number Selection for more detail.

### International Approvals

- UL Recognized
- CSA Certified <sup>①</sup>
- ENEC
- RoHS Compliant <sup>②</sup>



### Notes

- <sup>①</sup> Splashguard option is cRU marked only.
- <sup>②</sup> Visit [www.eaton.com/vcbu](http://www.eaton.com/vcbu) for the most up-to-date list of verified part numbers.



### Non-Illuminated Rocker

To determine complete catalog number, start with the appropriate base circuit number and add the appropriate code letters and/or numbers.

## Catalog Number Selection

### How To Order—Non-Illuminated Rocker

Example: **1600** → **M 2 1 E 038**

Code letters and/or numbers.  
Add to base circuit number.

| Rating                                                                                    | Poles and Throw | Circuit with Rocker in ... |                      |                        | Base Circuit Number                       |                                              | Circuit Number ③ |
|-------------------------------------------------------------------------------------------|-----------------|----------------------------|----------------------|------------------------|-------------------------------------------|----------------------------------------------|------------------|
|                                                                                           |                 | UP Position                | CENTER Position      | DOWN Position ②        | Rocker                                    | Paddle ①                                     |                  |
| <b>UL/CSA:</b><br>16A 125–250 Vac,<br>10A 28 Vdc,<br>8A 14VT;<br><b>ENEC:</b> 16(4)A 250V | 1PST            | ON<br>MOM. ON              | NONE<br>NONE<br>NONE | OFF<br>OFF<br>MOM. OFF | <b>1600</b><br><b>1601</b><br><b>1605</b> | <b>P1600</b><br><b>P1601</b><br><b>P1605</b> | 1<br>3<br>4      |
|                                                                                           | 1PDT            | ON<br>ON                   | NONE<br>NONE         | ON<br>MOM. ON          | <b>1602</b><br><b>1603</b>                | <b>P1602</b><br><b>P1603</b>                 | 5<br>7           |
| <b>UL/CSA:</b><br>16A 125–250 Vac,<br>10A 28 Vdc,<br>8A 14VT;<br><b>ENEC:</b> 10(2)A 250V | 1PDT            | ON                         | OFF                  | ON                     | <b>1604</b>                               | <b>P1604</b>                                 | 6                |
| <b>UL/CSA:</b><br>10A 125–250 Vac,<br>10A 28 Vdc,<br>8A 14VT;<br><b>ENEC:</b> 10(2)A 250V | 1PDT            | MOM. ON<br>MOM. ON         | OFF<br>OFF           | MOM. ON<br>ON          | <b>1606</b><br><b>1607</b>                | <b>P1606</b><br><b>P1607</b>                 | 9<br>8           |
|                                                                                           | 2PST            | ON<br>MOM. ON<br>ON        | NONE<br>NONE<br>NONE | OFF<br>OFF<br>MOM. OFF | <b>2600</b><br><b>2601</b><br><b>2605</b> | <b>P2600</b><br><b>P2601</b><br><b>P2605</b> | 10<br>11<br>12   |
| <b>UL/CSA:</b><br>16A 125–250 Vac,<br>10A 28 Vdc,<br>8A 14VT;<br><b>ENEC:</b> 16(4)A 250V | 2PDT            | ON<br>ON                   | NONE<br>NONE         | ON<br>MOM. ON          | <b>2602</b><br><b>2603</b>                | <b>P2602</b><br><b>P2603</b>                 | 13<br>15         |
|                                                                                           | 2PDT            | ON                         | OFF                  | ON                     | <b>2604</b>                               | <b>P2604</b>                                 | 14               |
| <b>UL/CSA:</b><br>10A 125–250 Vac,<br>10A 28 Vdc,<br>8A 14VT;<br><b>ENEC:</b> 10(2)A 250V | 2PDT            | MOM. ON<br>MOM. ON         | OFF<br>OFF           | MOM. ON<br>ON          | <b>2606</b><br><b>2607</b>                | <b>P2606</b><br><b>P2607</b>                 | 17<br>16         |

**Finish ④**  
Blank = Standard  
**M** = Matte

**Base and Bezel Color**  
**1** = Black  
**2** = White  
**3** = Red

**Rocker/Paddle Color**  
**1** = Black  
**2** = White  
**3** = Red

**Terminal Type**  
**E** = 6.3 mm tabs/0.25 in quick connect  
**B** = Solder lugs

**Legend Type (Optional)**  
**038** = ON/OFF  
See Most Popular Legends table on Page V11-T2-53.

#### Notes

- ① Paddles are UL, CSA only.
- ② 1600 Type—Lever depressed toward terminal #3.  
2600 Type—Lever depressed toward terminals #13 and #26.
- ③ See Circuit Diagrams on Page V11-T2-78.
- ④ To order the standard, add a "dash" to the catalog number. Example: 1600–11E.



## Illuminated Rocker

To determine complete catalog number, start with the appropriate base circuit number and add the appropriate code letters and/or numbers.

## Catalog Number Selection

### How To Order—Illuminated Rocker

Example: **1621 X** → **W 5 3 E 038**  
X = Independent lamp

Code letters and/or numbers.  
Add to base circuit number.

| Rating                                                                                 | Poles and Throw | Circuit with Rocker in ... |                      |                        | Base Circuit Number ②                                                      | Circuit Number ③         |
|----------------------------------------------------------------------------------------|-----------------|----------------------------|----------------------|------------------------|----------------------------------------------------------------------------|--------------------------|
|                                                                                        |                 | UP Position                | CENTER Position      | DOWN Position ①        |                                                                            |                          |
| <b>UL/CSA:</b><br>16A 125–250 Vac,<br>10A 28 Vdc, 8A 14VT;<br><b>ENEC:</b> 16(4)A 250V | 1PST            | ON<br>MOM. ON<br>ON        | NONE<br>NONE<br>NONE | OFF<br>OFF<br>OFF      | <b>1600</b><br><b>1601</b><br><b>1620X</b><br><b>1621X</b><br><b>1625X</b> | 18<br>21<br>20<br>④<br>④ |
|                                                                                        | 1PDT            | MOM. ON<br>ON              | NONE<br>NONE         | OFF<br>MOM. OFF<br>ON  | <b>1622X</b><br><b>1623X</b>                                               | ④<br>④                   |
| <b>UL/CSA:</b><br>16A 125–250 Vac,<br>10A 28 Vdc, 8A 14VT;<br><b>ENEC:</b> 10(2)A 250V | 1PDT            | ON                         | OFF                  | ON                     | <b>1624X</b>                                                               | ④                        |
| <b>UL/CSA:</b><br>10A 125–250 Vac,<br>10A 28 Vdc, 8A 14VT;<br><b>ENEC:</b> 10(2)A 250V | 1PDT            | MOM. ON<br>MOM. ON         | OFF<br>OFF           | MOM. ON<br>ON          | <b>1626X</b><br><b>1627X</b>                                               | ④<br>④                   |
| <b>UL/CSA:</b><br>16A 125–250 Vac,<br>10A 28 Vdc, 8A 14VT;<br><b>ENEC:</b> 16(4)A 250V | 2PST            | ON<br>MOM. ON<br>ON        | NONE<br>NONE<br>NONE | OFF<br>OFF<br>MOM. OFF | <b>2600</b><br><b>2601</b><br><b>2605</b>                                  | 28<br>30<br>31           |
| —                                                                                      | —               | Indicator                  | —                    | —                      | <b>1609</b>                                                                | 32                       |

**Lens/Rocker Color**  
**A** = Amber  
**G** = Green  
**R** = Red  
**W** = White (clear)

**Lamp Voltage**  
**0** = No lamp  
**1** = 125V neon  
**2** = 250V neon  
**4** = 6V filament ⑤  
**5** = 12V filament ⑤

**Base and Bezel Color**  
**1** = Black  
**2** = White  
**3** = Red

**Terminal Type**  
**E** = 6.3 mm tabs/0.25 in quick connect  
**B** = Solder lugs

**Legend Type (Optional)**  
**038** = ON/OFF  
See Most Popular  
Legends table on  
Page V11-T2-53.

### Notes

- ① 1600 Type—Lever depressed toward terminal #3.  
2600 Type—Lever depressed toward terminals #13 and #26.
- ② #1600—#1609 switches are supplied in 1600 type base.  
#1620—#1627 switches are supplied in 2600 type base. (Must have an “X” code.)  
#2600—#2605 switches are supplied in 2600 type base.
- ③ See Circuit Diagrams on **Page V11-T2-78**.
- ④ All independent lamps for IP switches to be assembled from terminal positions #24 and #26.
- ⑤ 6V, 12V filament lamps are not UL, CSA, or ENEC.



### Splashguard

To determine complete catalog number, start with the appropriate base circuit number and add the appropriate code letters and/or numbers.

## Catalog Number Selection

### How To Order—Splashguard<sup>①</sup>

Example: **B1600** → **1 2 E**

| Rating <sup>②</sup>          | Poles and Throw | Circuit with Rocker in ... |                 |               | Base Circuit Number          | Circuit Number <sup>③</sup> |
|------------------------------|-----------------|----------------------------|-----------------|---------------|------------------------------|-----------------------------|
|                              |                 | UP Position                | CENTER Position | DOWN Position |                              |                             |
| 16A, 125 Vac<br>10A, 250 Vac | 1PST            | NONE                       | OFF             | ON            | <b>B1600</b>                 | <b>1</b>                    |
|                              | 1PDT            | NONE                       | ON              | ON            | <b>B1602</b><br><b>B1604</b> | <b>5</b><br><b>6</b>        |
| 10A, 125 Vac<br>10A, 250 Vac | 1PDT            | MOM. ON                    | OFF             | MOM. ON       | <b>B1606</b><br><b>B1607</b> | <b>9</b><br><b>8</b>        |
| 16A, 125 Vac<br>10A, 250 Vac | 2PST            | NONE                       | OFF             | ON            | <b>B2600</b><br><b>B2601</b> | <b>10</b><br><b>11</b>      |
|                              | 2PDT            | NONE                       | ON              | ON            | <b>B2602</b><br><b>B2604</b> | <b>13</b><br><b>14</b>      |
| 10A, 125 Vac<br>10A, 250 Vac | 2PDT            | MOM. ON                    | OFF             | MOM. ON       | <b>B2606</b><br><b>B2607</b> | <b>17</b><br><b>16</b>      |

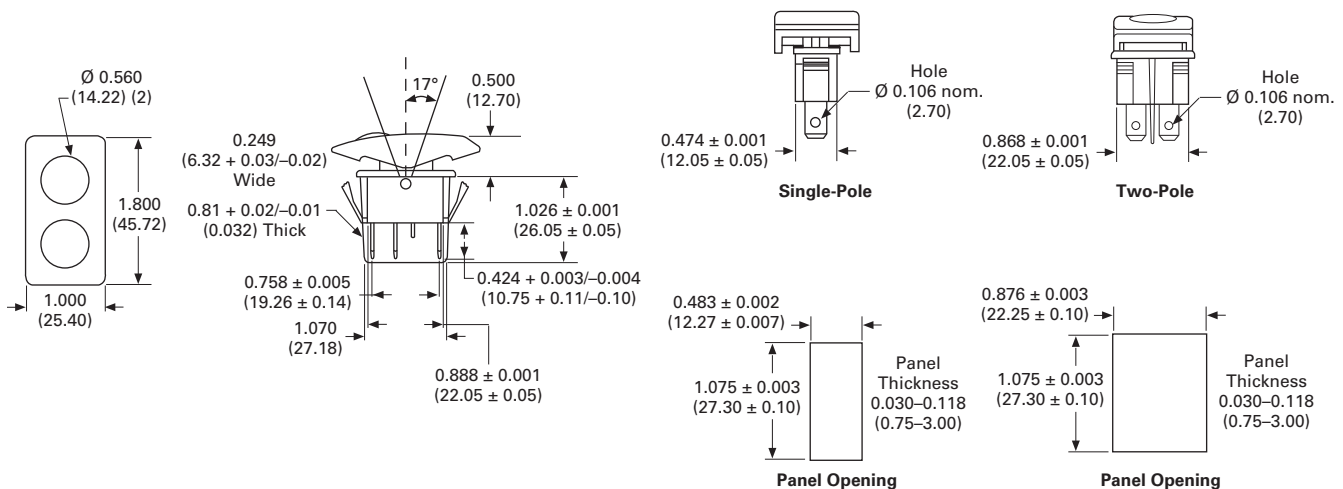
Code letters and/or numbers.  
Add to base circuit number.

| Base Color                                                                                    | Terminal Type                                |
|-----------------------------------------------------------------------------------------------|----------------------------------------------|
| <b>1</b> = Black                                                                              | <b>E</b> = 6.3 mm tabs/0.25 in quick connect |
| Rocker Color                                                                                  |                                              |
| <b>1</b> = Black<br><b>2</b> = White<br><b>3</b> = Red<br><b>4</b> = Green<br><b>5</b> = Gray |                                              |

## Dimensions

Approximate Dimensions in Inches (mm)

### Splashguard



### Notes

- <sup>①</sup> Splashguard is CUR marked, but does not have ENEC approval.
- <sup>②</sup> All circuits also recommended 10A, 28 Vdc.
- <sup>③</sup> See Circuit Diagrams on **Page V11-T2-78**.



### High Inrush Rockers

To determine complete catalog number, start with the appropriate base circuit number and add the appropriate code letters and/or numbers.

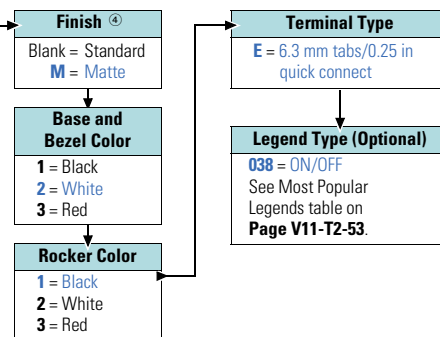
### Catalog Number Selection

#### How To Order—Non-Illuminated High Inrush Rockers

Example: **1600H** → **M 2 1 E 038**

| Rating                                                                                                                      | Poles and Throw | Circuit with Rocker in ... |                 |                            | Base Circuit Number         | Circuit Number |
|-----------------------------------------------------------------------------------------------------------------------------|-----------------|----------------------------|-----------------|----------------------------|-----------------------------|----------------|
|                                                                                                                             |                 | UP Position                | CENTER Position | DOWN Position <sup>②</sup> |                             |                |
| UL/CSA: <sup>①</sup><br>22A 125 Vac,<br>16A 250 Vac,<br>6A 125 VacL,<br>10A 14VT,<br>1 hp 125–250 Vac;<br>ENEC: 16(4)A 250V | 1PST            | ON<br>ON                   | NONE<br>NONE    | OFF<br>OFF                 | 1600H<br>1620H <sup>③</sup> | 1<br>2         |
|                                                                                                                             | 2PST            | ON                         | NONE            | OFF                        | 2600H                       | 10             |

Code letters and/or numbers.  
Add to base circuit number.

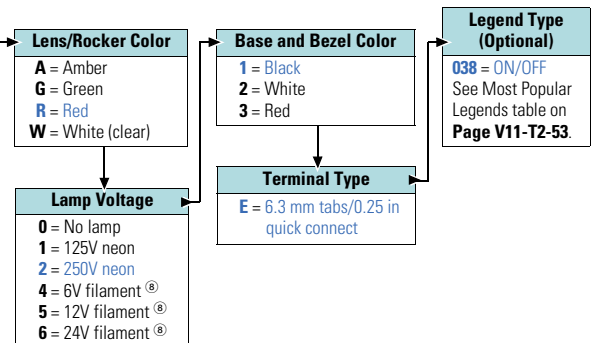


#### How To Order—Illuminated High Inrush Rockers

Example: **1600H** → **R 2 1 E 038**

| Rating                                                                                                                      | Poles and Throw | Circuit with Rocker in ... |                 |                            | Base Circuit Number          | Circuit Number |
|-----------------------------------------------------------------------------------------------------------------------------|-----------------|----------------------------|-----------------|----------------------------|------------------------------|----------------|
|                                                                                                                             |                 | UP Position                | CENTER Position | DOWN Position <sup>②</sup> |                              |                |
| UL/CSA: <sup>①</sup><br>22A 125 Vac,<br>16A 250 Vac,<br>6A 125 VacL,<br>10A 14VT,<br>1 hp 125–250 Vac;<br>ENEC: 16(4)A 250V | 1PST            | ON<br>ON                   | NONE<br>NONE    | OFF<br>OFF                 | 1600H<br>1620HX <sup>⑥</sup> | 18<br>19       |
|                                                                                                                             | 2PST            | ON                         | NONE            | OFF                        | 2600H                        | 28             |
| —                                                                                                                           | —               | Indicator                  | Indicator       | —                          | 1609                         | 32             |

Code letters and/or numbers.  
Add to base circuit number.



#### Notes

- ① UL, CSA: 1 hp at 125V or 250 Vac; 6A, 125 Vac (L) rating; 10A, 14 Vdc. Marked on request only.
- ② 1600H Type—Rocker depressed toward terminal #2.  
2600H Type—Rocker depressed toward terminals #13 and #26.
- ③ 1620H switch is supplied in 2600H base.
- ④ No code required.
- ⑤ See Circuit Diagrams on Page V11-T2-78.
- ⑥ 1620H switch is supplied in 2600H type base. (Must have “X” code.)
- ⑦ 1600H Type—Rocker depressed toward terminal #3.  
1620H Type—Rocker depressed toward terminals #13 and #26.  
2600H Type—Rocker depressed toward terminals #13 and #26.
- ⑧ 6V, 12V, 24V filament lamps are not UL, CSA, or ENEC.

## Technical Data and Specifications

### 1600/2600—Midsize AC Rated

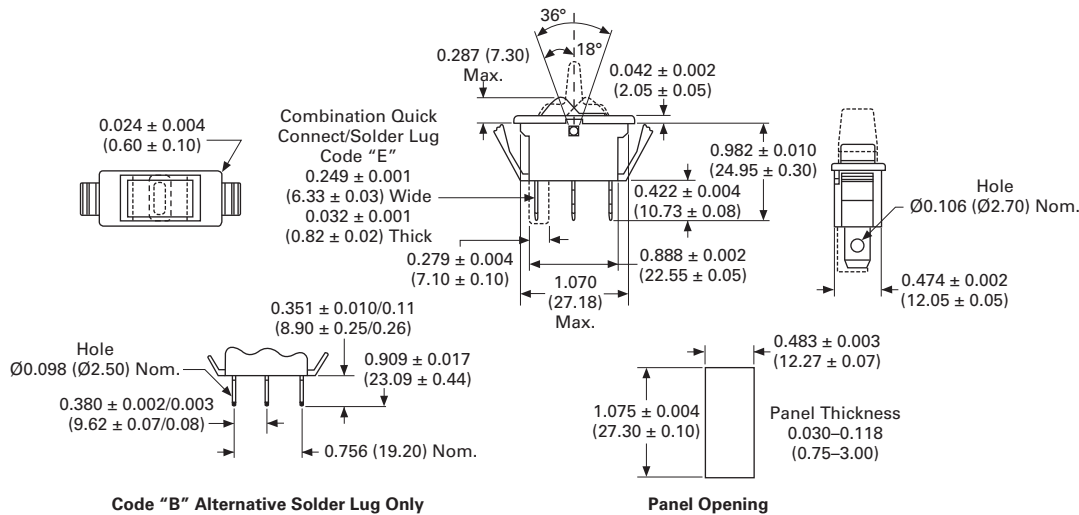
| Description              | Specification                                                |
|--------------------------|--------------------------------------------------------------|
| Ratings                  | See selection tables on <b>Pages V11-T2-48 to V11-T2-51.</b> |
| Circuits                 |                                                              |
| Standard                 | 1PST, 1PDT, 2PST, 2PDT maintained and momentary              |
| High inrush option       | 1PST, 2PST maintained                                        |
| Contact mechanism        |                                                              |
| Standard                 | Slow-make/slow-break butt contact                            |
| High inrush option       | Slow-make/slow-break butt contact with mechanical break      |
| Make—High inrush option  | 100A, 250 Vac for 10 ms for 10,000 cycles min.               |
| Break—High inrush option | 16A, 250 Vac for 10,000 cycles min.                          |
| Contact material         | Silver inlay over copper                                     |
| Contact resistance       | 10M ohms max. at 1A, 4 Vdc                                   |
| Mechanical life          | 50,000 cycles minimum                                        |

| Description                 | Specification                      |
|-----------------------------|------------------------------------|
| Insulation resistance       | 100M ohms minimum                  |
| Dielectric withstand        | 1000V rms minimum                  |
| Terminal types              |                                    |
| Standard                    | 6.3 mm tabs/0.250 in quick connect |
| Optional                    | Solder lug                         |
| Termination material        |                                    |
| Common (center)             | Copper fine silver-plated          |
| End                         | Copper                             |
| Lamp                        | Brass                              |
| Mounting                    | See dimensions below               |
| Operating temperature range | 32° to 185°F (0° to 85°C)          |

## Dimensions

Approximate Dimensions in Inches (mm)

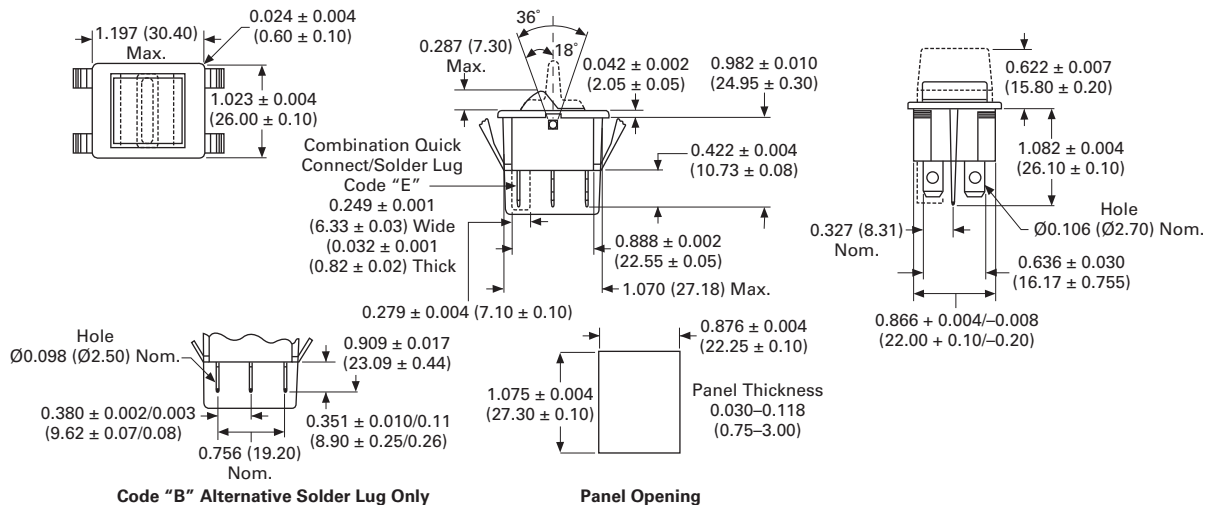
### 1600/1600H Type Base



Code "B" Alternative Solder Lug Only

Panel Opening

### 2600/2600H Type Base



Code "B" Alternative Solder Lug Only

Panel Opening

## Accessories

### Panel Cutout Fillers

If panel cutout fillers are required in anticipation of future rocker or paddle switch installation, order Catalog Number 1609DUM.

Specify color of base and filler portion by using the standard two-digit color code (base and lever) for non-illuminated switches.

Example: 1609DUM11

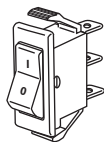
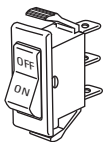
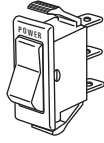
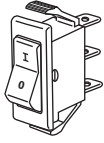
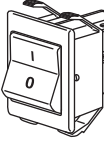
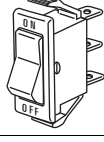
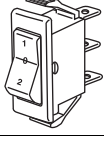
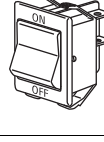
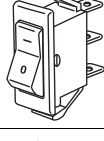
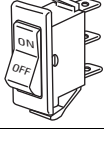
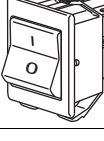
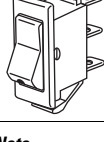
## Legends

### How To Order—Legends

To order a rocker with a legend marking, add the three-character code to the end of the catalog number. Example: 1500-21E becomes 1500-21E038.

Legends are for 1500/2500 and 1600/2600 only.

### Most Popular Legends <sup>①</sup>

| Legend                                                                              | Code | Legend                                                                              | Code | Legend                                                                              | Code | Legend                                                                               | Code |
|-------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|------|--------------------------------------------------------------------------------------|------|
|    | 014  |    | 653  |    | 714  |    | 735  |
|   | 023  |   | 656  |   | 725  |   | 746  |
|  | 038  |  | 657  |  | 730  |  | 752  |
|  | 039  |  | 671  |  | 734  |  | 760  |
|  | 630  |                                                                                     |      |                                                                                     |      |                                                                                      |      |

### Note

<sup>①</sup> For additional legend options, contact your local Eaton Sales Representative.

## Rockette Series

2



## Product Description

These rocker switches offer the widest selection of features available, providing the design flexibility needed to fill the requirements of a variety of applications. They are available in two versions: standard and sealed.

The Sealed Rockette features a silicone rubber seal that protects contacts and mechanisms. All switches resist contaminants such as sand, dust and moisture with both a base-to-frame seal and an actuator seal. Non-illuminated and illuminated versions are available. For Sealed Rockette selection, see table on **Page V11-T2-56**.

## Features and Benefits

- Voltages
  - 110 Vac neon
  - 14 Vdc and 28 Vdc

On the illuminated version, the lamp is wired to operate in conjunction with the switch on single-throw circuit; on double-throw circuits, the lamp is independent of the switch

- Mounting
  - Flush (two screws), sub-panel and snap-in mounting
- Snap-in Mounting
  - Convenient front panel or sub-panel snap-in mounting

Available in single- and two-pole non-illuminated or in single-pole illuminated Rockette switches. Contact your local Eaton Sales Representative for three- and four-pole circuits

Unless otherwise noted, all switches with snap-in mounting are UL Recognized and CSA Certified

## Contents

### Description

Rockette—General Purpose AC Rated

|                                                |                  |
|------------------------------------------------|------------------|
| Standard Rockette Switches . . . . .           | <b>V11-T2-55</b> |
| Sealed Rockette Switches . . . . .             | <b>V11-T2-56</b> |
| 8058 Series Sealed Rockette Switches . . . . . | <b>V11-T2-57</b> |
| Technical Data and Specifications . . . . .    | <b>V11-T2-58</b> |
| Dimensions . . . . .                           | <b>V11-T2-58</b> |

### Page

## Options

### Standard and Sealed

- Additional colors of rockers and bezels are available
- Hot stamped or pad printed legends on rocker and bezel
- Paddle actuators
- Single rocker operator on two- and three-pole circuits
- Dry circuits capabilities
- Special ratings
- Reversing jumpers
- Dead back cover (two-pole base) with wire leads
- Special circuits
- Printed circuit terminals and other terminal types
- Metal snap-in bezels
- Foam dust seal

### Sealed Only

- Special voltage bulbs
- Industry standard connector available
- Two-pole illuminated circuit

## Standards and Certifications

- UL Recognized
- CSA Certified
- RoHS Compliant <sup>①</sup>



### Note

<sup>①</sup> Visit [www.eaton.com/vc bu](http://www.eaton.com/vc bu) for the most up-to-date list of verified part numbers.



## Standard Rockette Switches

To determine complete catalog number, start with the appropriate base circuit number and add the appropriate code letters and/or numbers.

## Catalog Number Selection

### How To Order—Standard Rockette Switches

Example: **8132K21** → **E 6 T 50**

| Rating                                            | Poles and Throw | Circuit with Rocker in ... |                    |                     | Base Circuit Number ②                                                    | Circuit Number ④ |
|---------------------------------------------------|-----------------|----------------------------|--------------------|---------------------|--------------------------------------------------------------------------|------------------|
|                                                   |                 | UP Position                | CENTER Position    | DOWN Position       |                                                                          |                  |
| 6A, 125 Vac<br>3A, 250 Vac                        | 2PST            | ON                         | NONE               | OFF                 | <b>8132K21</b> ③                                                         | C                |
|                                                   | 2PDT            | ON<br>MOM. ON<br>MOM. ON   | OFF<br>NONE<br>OFF | ON<br>MOM. ON<br>ON | <b>8132K20</b> ③<br><b>8132K22</b> ③<br><b>8138K20</b><br><b>8138K30</b> | D                |
| 15A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 250 Vac   | 2PST            | ON<br>MOM. ON              | NONE<br>NONE       | OFF<br>OFF          | <b>8142K21</b><br><b>8147K21</b>                                         | C                |
|                                                   | 2PDT            | ON<br>MOM. ON<br>MOM. ON   | OFF<br>NONE<br>OFF | ON<br>MOM. ON<br>ON | <b>8142K20</b><br><b>8142K22</b><br><b>8148K20</b><br><b>8148K30</b>     | D                |
| 1000W, 125 Vac<br>10A, 250 Vac                    | 2PST            | ON                         | NONE               | OFF                 | <b>8150K21</b>                                                           | C                |
| 20A, 250 Vac                                      | 2PST            | ON                         | NONE               | OFF                 | <b>8155K21</b>                                                           | C                |
|                                                   | 2PDT            | ON                         | OFF<br>NONE        | ON<br>ON            | <b>8155K20</b><br><b>8155K22</b>                                         | D                |
| 6A, 125 Vac<br>3A, 250 Vac                        | 4PDT            | ON                         | OFF                | ON                  | <b>8130K20</b> ③                                                         | F                |
| 15A, 125 Vac<br>10A, 250 Vac ①<br>3/4 hp, 250 Vac | 4PST            | ON                         | NONE               | OFF                 | <b>8140K21</b>                                                           | E                |
|                                                   | 4PDT            | ON                         | OFF<br>NONE        | ON<br>ON            | <b>8140K20</b><br><b>8140K22</b>                                         | F                |

Code letters and/or numbers.  
Add to base circuit number.

| Mounting Frame ⑤                                                                                                                                                                  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| All Except<br><b>8130K20, 8140K20,<br/>8140K21, 8140K22</b>                                                                                                                       |
| <b>E</b> = Mounting, 2-pole<br><b>F</b> = Mounting, 2-pole<br><b>G</b> = Mounting, 2-pole<br><b>W</b> = Snap-in<br><b>X</b> = Snap-in<br><b>Y</b> = Snap-in<br><b>Z</b> = Snap-in |
| <b>8130K20, 8140K20,<br/>8140K21, 8140K22</b>                                                                                                                                     |
| <b>H</b> = Mounting, 4-pole                                                                                                                                                       |

| Rocker/Paddle Style ⑥                                                                  |
|----------------------------------------------------------------------------------------|
| All Except<br><b>8130K20, 8140K20,<br/>8140K21, 8140K22</b>                            |
| <b>6</b> = 2-pole<br><b>7</b> = 2-pole<br><b>20</b> = 2-pole ⑦<br><b>37</b> = 2-pole ⑧ |
| <b>8130K20, 8140K20,<br/>8140K21, 8140K22</b>                                          |
| <b>14</b> = 4-pole                                                                     |

| Rocker/Paddle Color                                    |
|--------------------------------------------------------|
| <b>M</b> = White<br><b>T</b> = Red<br><b>V</b> = Black |

| Terminal Type                                                              |
|----------------------------------------------------------------------------|
| <b>50</b> = Screw<br><b>51</b> = Solder lugs<br><b>52</b> = 0.250 in spade |

### Notes

- ① These switches also have marked rating of 7A at 277 Vac and 3/4 hp at 277 Vac.
- ② Add code letters and numbers for mounting frame, rocker style and color and terminal construction.
- ③ Also rated 2A, 277 Vac; 2.5A, L125 Vac.
- ④ See Circuit Diagrams on **Page V11-T2-78**.
- ⑤ See Frame Styles on **Page V11-T2-59**.
- ⑥ See Rocker Styles on **Page V11-T2-61**.
- ⑦ Cannot be used with snap-in mounting bezel.
- ⑧ Recommended for use with snap-in mounting.



### Sealed Rockette Switches

To determine complete catalog number, start with the appropriate base circuit number and add the appropriate code letters and/or numbers.

### Catalog Number Selection

#### How To Order—Sealed Rockette Switches, Non-Illuminated

Example: **8055K23** → **E 2 V**

| Rating                                          | Poles and Throw | Circuit with Rocker in ...                                                                    |                                                                                                   |                                                                                                 | Base Circuit Number |             |         | Circuit Number<br>① |
|-------------------------------------------------|-----------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|---------------------|-------------|---------|---------------------|
|                                                 |                 |  UP Position |  CENTER Position |  DOWN Position | Terminal Type       |             |         |                     |
|                                                 |                 |                                                                                               |                                                                                                   |                                                                                                 | 0.25 in Spade       | Solder Lugs | Screw   |                     |
| 15A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 250 Vac | 1PST            | ON                                                                                            | NONE                                                                                              | OFF                                                                                             | 8055K23             | 8055K24     | 8055K25 | A                   |
|                                                 | 1PDT            | ON                                                                                            | OFF                                                                                               | ON                                                                                              | 8055K20             | 8055K21     | 8055K22 | B                   |
|                                                 |                 | ON                                                                                            | NONE                                                                                              | ON                                                                                              | 8055K26             | 8055K27     | 8055K28 |                     |
|                                                 |                 | MOM. ON                                                                                       | OFF                                                                                               | MOM. ON                                                                                         | 8055K29             | 8055K30     | 8055K31 |                     |
| 15A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 250 Vac | 2PST            | MOM. ON                                                                                       | OFF                                                                                               | MOM. ON                                                                                         | 8055K32             | 8055K33     | 8055K34 | C                   |
|                                                 |                 | ON                                                                                            | NONE                                                                                              | OFF                                                                                             | 8055K43             | 8055K44     | 8055K45 |                     |
|                                                 |                 | ON                                                                                            | NONE                                                                                              | ON                                                                                              | 8055K41             | 8055K42     | 8055K46 |                     |
|                                                 | 2PDT            | MOM. ON                                                                                       | OFF                                                                                               | ON                                                                                              | 8055K46             | 8055K47     | 8055K48 | D                   |
| MOM. ON                                         |                 | OFF                                                                                           | MOM. ON                                                                                           | 8055K49                                                                                         | 8055K50             | 8055K51     |         |                     |
|                                                 |                 |                                                                                               |                                                                                                   |                                                                                                 | 8055K52             | 8055K53     | 8055K54 |                     |

Code letters and/or numbers.  
Add to base circuit number.

| Mounting Frame ② |
|------------------|
| E = Standard     |
| F = Standard     |
| L = Standard     |
| X = Snap-in      |
| W = Snap-in      |
| Z = Snap-in      |

| Rocker Color |
|--------------|
| M = White    |
| V = Black    |

| Rocker Style ③        |
|-----------------------|
| 1 = Two-face serrated |
| 2 = Three-face smooth |
| 7 = Concave           |

#### How To Order—Sealed Rockette Switches, Illuminated

Example: **8057K23** → **E 1 5 V 1**

| Rating                       | Poles and Throw | Circuit with Rocker in ...                                                                      |                                                                                                     |                                                                                                   | Base Circuit Number |             |         | Circuit Number<br>① |
|------------------------------|-----------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|---------------------|-------------|---------|---------------------|
|                              |                 |  UP Position |  CENTER Position |  DOWN Position | Terminal Type       |             |         |                     |
|                              |                 |                                                                                                 |                                                                                                     |                                                                                                   | 0.250 in Spade      | Solder Lugs | Screw   |                     |
| 15A, 125 Vac<br>10A, 250 Vac | 1PST            | ON                                                                                              | NONE                                                                                                | OFF                                                                                               | 8057K23             | 8057K24     | 8057K25 | G                   |
|                              | 1PDT            | MOM. ON                                                                                         | OFF                                                                                                 | ON                                                                                                | 8057K29             | 8057K30     | 8057K31 | H                   |

Code letters and/or numbers.  
Add to base circuit number.

| Mounting Frame ② |
|------------------|
| E = Standard     |
| F = Standard     |
| L = Standard     |
| X = Snap-in      |
| W = Snap-in      |
| Z = Snap-in      |

| Rocker Color |
|--------------|
| M = White    |
| V = Black    |

| Bulb Voltage        |
|---------------------|
| 1 = Neon 110V       |
| 3 = 14 Vdc filament |
| 4 = 28 Vdc filament |

| Lens Color |
|------------|
| 1 = Clear  |
| 2 = Red    |
| 4 = Amber  |
| 5 = Blue   |

| Rocker Style ③        |
|-----------------------|
| 3 = Serrated w/1 lens |
| 5 = Smooth w/1 lens   |
| 8 = Concave w/1 lens  |

#### Notes

- ① See Circuit Diagrams on **Page V11-T2-78**.
- ② See Frame Styles on **Page V11-T2-59**.
- ③ See Rocker Styles on **Page V11-T2-61**.



### 8058 Series Sealed Rockette Switches

To determine complete catalog number, start with the appropriate base circuit number and add the appropriate code letters and/or numbers.

## Catalog Number Selection

### How To Order—Sealed Rockette Switches, Non-Illuminated

Example: **8058K28** → **Z 7 V**

| Rating                                                           | Poles and Throw | Circuit with Rocker in ...                                                                    |                                                                                                   |                                                                                                 | Base Circuit Number |             |                | Circuit Number |
|------------------------------------------------------------------|-----------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|---------------------|-------------|----------------|----------------|
|                                                                  |                 |  UP Position |  CENTER Position |  DOWN Position | Terminal Type       |             |                |                |
|                                                                  |                 |                                                                                               |                                                                                                   |                                                                                                 | 0.250 in Spade      | Solder Lugs | Screw ①        |                |
| 30A, 125 Vac<br>25A, 250 Vac<br>3/4 hp, 125 Vac<br>2 hp, 250 Vac | 1PST            | ON                                                                                            | NONE                                                                                              | OFF                                                                                             | N/A                 | N/A         | <b>8058K10</b> | A              |
|                                                                  | 1PDT            | ON                                                                                            | OFF                                                                                               | ON                                                                                              | N/A                 | N/A         | <b>8058K22</b> | B              |
|                                                                  | 1PDT            | ON                                                                                            | NONE                                                                                              | ON                                                                                              | N/A                 | N/A         | <b>8058K28</b> | B              |
|                                                                  | 1PDT            | MOM ON                                                                                        | OFF                                                                                               | ON                                                                                              | N/A                 | N/A         | <b>8058K31</b> | B              |
|                                                                  | 1PDT            | MOM ON                                                                                        | OFF                                                                                               | MOM ON                                                                                          | N/A                 | N/A         | <b>8058K34</b> | B              |

Code letters and/or numbers.  
Add to base circuit number.

**Mounting Frame ③**

**E** = Standard ears up with two tapped holes  
**F** = Standard flat with two holes  
**X** = Metal snap-in  
**Z** = Standard plastic snap-in  
**W** = Contour plastic snap-in  
**L** = Standard ears up with two holes

**Rocker Color**

**M** = White  
**T** = Red  
**V** = Black

**Rocker Style ④**

**1** = Two-face serrated  
**2** = Three-face smooth  
**7** = Concave

8058K22E7V



8058K10X7T



8058K28Z7V



#### Notes

- ① Supplied with terminal screws, (Cat. No. 11-8616), unassembled.
- ② See Circuit Diagrams on **Page V11-T2-78**.
- ③ See Frame Styles on **Page V11-T2-59**.
- ④ See Rocker Styles on **Page V11-T2-61**.

## Technical Data and Specifications

### Rockette—General Purpose AC Rated

2

| Description          | Specification                                                                                                                                |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Ratings and circuits | See selection tables on <b>Pages V11-T2-55 to V11-T2-57</b> . Switch ratings at 125 Vac also apply to 28 Vdc.                                |
| Contact mechanism    | Slow-make/slow-break contact mechanism.<br>Butt action contact mechanism designed specifically for use on AC and low voltage DC applications |
| Contact material     |                                                                                                                                              |
| 3–6A rated           | Movable—Silver-plated copper<br>Stationary—Silver-plated copper                                                                              |
| 10–15A rated         | Movable—Silver-plated copper with fine or coin silver contact face button<br>Stationary—Copper with fine or coin silver contact face button  |
| 20A rated            | Movable—Silver-plated copper with cad-oxide contact face button<br>Stationary—Copper with cad-oxide contact face button                      |

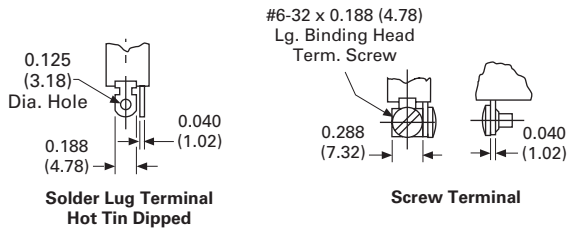
| Description          | Specification                                                                                                                                            |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1000W rated          | Movable—Checon SK015B contact material welded to contactor<br>Stationary—Copper with cad-oxide contact face button                                       |
| Terminal types       | Screw terminals—Brass designed to accept #6-32 x 3/16 binding head screws (Cat. No. 811-2), furnished unassembled<br>Solder lug—0.250 in (6.35 mm) spade |
| Termination material | Screw and spade—Brass<br>Solder—Tintillate-plated brass                                                                                                  |
| Lamp voltages        | 110 Vac neon<br>14 Vdc and 28 Vdc                                                                                                                        |
| Mounting             | Flush (two screws), sub-panel and snap-in mounting                                                                                                       |

## Dimensions

### Base Standard Rockette Switch Dimensions

Approximate Dimensions in Inches (mm)

#### Terminals

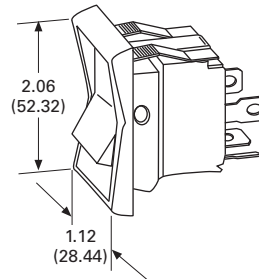


### Snap-In Mounting Dimensions

Approximate Dimensions in Inches (mm)

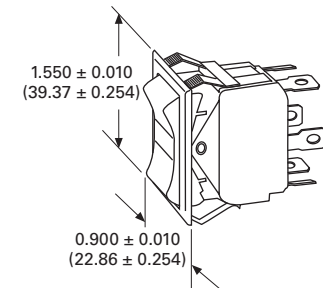
#### Type W

##### Contoured Snap-In Bezel, Two-Pole Base



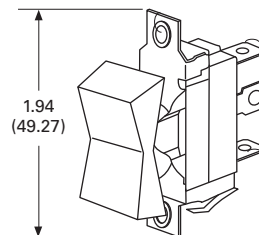
#### Type X

##### Snap-In Bezel, Single-, Two- and Four-Pole Bases



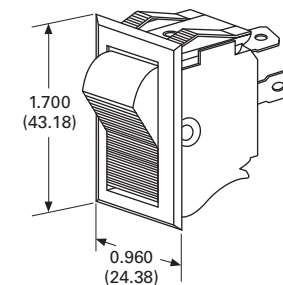
#### Type Y

##### Sub-Panel Snap-In Mounting Bezel, Single- and Two-Pole Bases

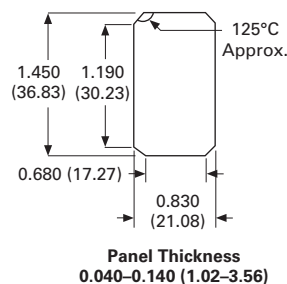


#### Type Z

##### Snap-In Mounting Bezel, Two-Pole Base Only



#### Panel Opening

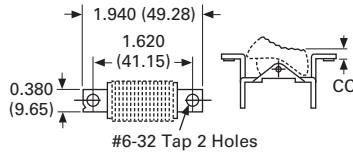


## Frame Types and Rocker/Paddle Styles for Standing Switches—Non-Illuminated Dimensions

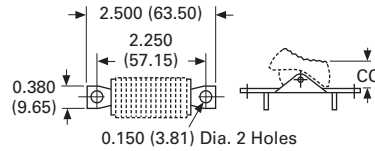
Approximate Dimensions in Inches (mm)

### Two-Pole Mounting Frame Types

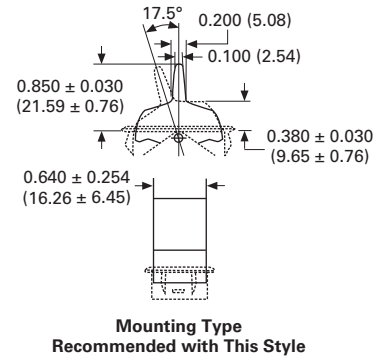
#### Type E



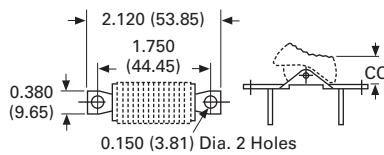
#### Type F



#### Style 37 with Type X

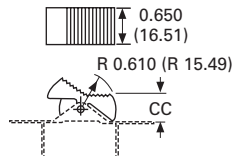


#### Type G

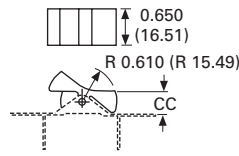


### Two-Pole Rocker Styles

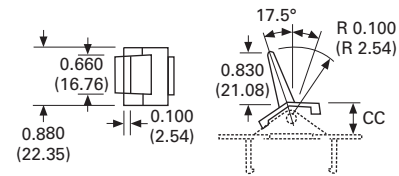
#### Style 6



#### Style 7

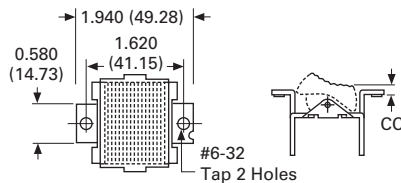


#### Style 20



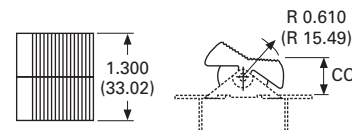
### Four-Pole Mounting Frame Type

#### Type H



### Four-Pole Rocker Styles

#### Style 14



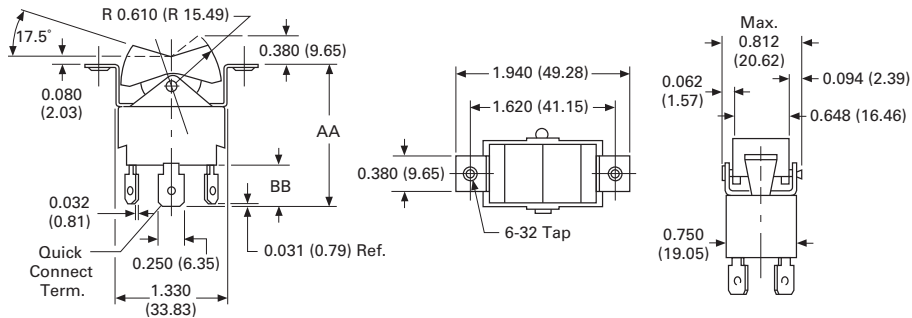
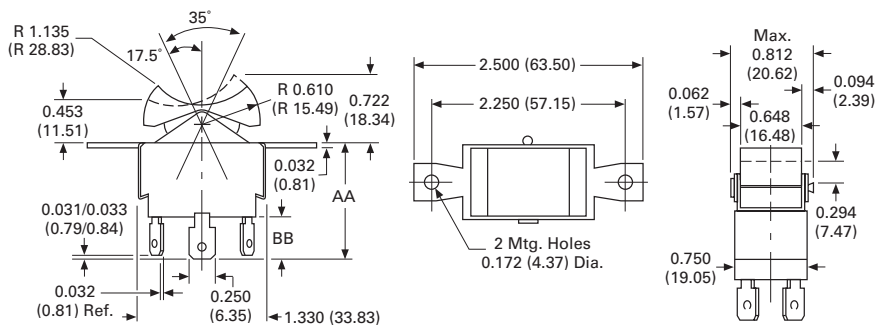
### Reference Dimension "CC" — Top of Frame to Bottom of Terminal

| Dimension in Inches (mm) |             |              |              |                             |
|--------------------------|-------------|--------------|--------------|-----------------------------|
| Mounting Frame Type      |             |              |              |                             |
| Two-Pole                 |             |              |              |                             |
| Rocker Style             | Type E      | Type F       | Type G       | Recommended Panel Opening   |
| 6                        | 0.08 (2.03) | 0.42 (10.67) | 0.42 (10.67) | 0.69 x 1.25 (17.53 x 31.75) |
| 7                        | 0.08 (2.03) | 0.42 (10.67) | 0.42 (10.67) | 0.69 x 1.25 (17.53 x 31.75) |
| 20                       | N/A         | 0.42 (10.67) | 0.42 (10.67) | N/A                         |
| 37                       | N/A         | N/A          | N/A          | N/A                         |

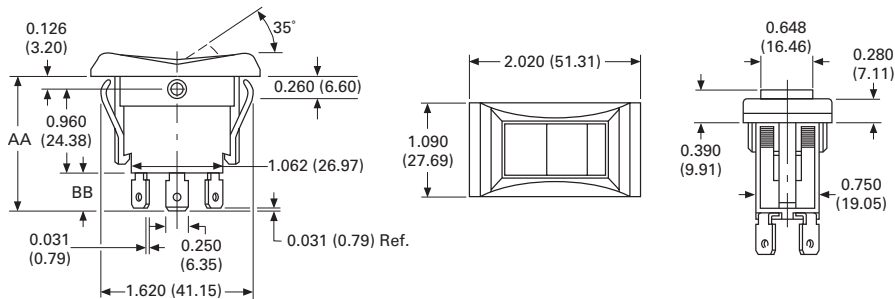
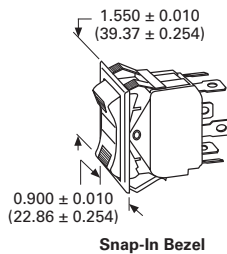
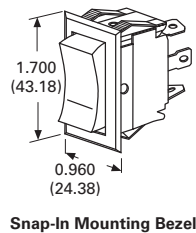
| Dimension in Inches (mm) |             |                             |
|--------------------------|-------------|-----------------------------|
| Mounting Frame Type      |             |                             |
| Four-Pole                |             |                             |
| Rocker Style             | Type H      | Recommended Panel Opening   |
| 14                       | 0.08 (2.03) | 1.34 x 1.25 (34.04 x 31.75) |

**Base Sealed Rockette Switch Dimensions**

Approximate Dimensions in Inches (mm)

**Sealed Two-Pole—Mounting Frame Type E—Rocker Style 1****Sealed Two-Pole—Mounting Frame Type F—Rocker Style 1****Snap-in Mounting Frame Dimensions**

Approximate Dimensions in Inches (mm)

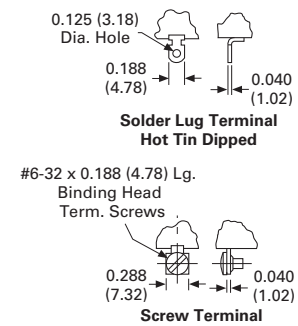
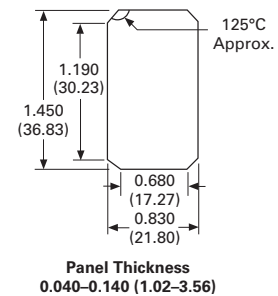
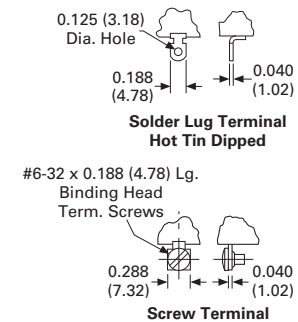
**Sealed Two-Pole Switch—Mounting Frame Type W—Rocker Style 7****Type X****Type Z****Reference Dimensions "AA" and "BB" in Inches (mm) ①**

| Terminal Type  | Dimension "AA" (Two-Pole) |               |               |               |               |               | Dimension "BB" |
|----------------|---------------------------|---------------|---------------|---------------|---------------|---------------|----------------|
|                | E Frame                   | F Frame       | L Frame       | W Frame       | X Frame       | Z Frame       | All Frames     |
| Screw          | 1.39 (35.33)              | 1.05 (26.62)  | 1.39 (35.33)  | 1.37 (34.82)  | 1.39 (35.34)  | 1.37 (34.82)  | 0.30 (7.62)    |
| Solder lug     | 1.36 (34.57)              | 1.02 (25.86)  | 1.36 (34.57)  | 1.34 (34.06)  | 1.36 (34.51)  | 1.34 (34.06)  | 0.27 (6.86)    |
| 0.250 in spade | 1.53 (38.89)              | 1.19 (30.18)  | 1.53 (38.89)  | 1.51 (38.38)  | 1.53 (38.89)  | 1.51 (38.38)  | 0.44 (11.18)   |
| 8058 Screw ②   | 1.509 (38.33)             | 1.145 (29.08) | 1.509 (38.33) | 1.808 (45.92) | 1.627 (41.33) | 1.528 (38.81) | 0.460 (11.68)  |

**Notes**

① Dimension "AA"—Top of frame to bottom of terminal; "BB"—from bottom of base to bottom of terminal.

② #8-32 x 1/4 Phillips screw.

**Terminals****Panel Opening****Terminals**

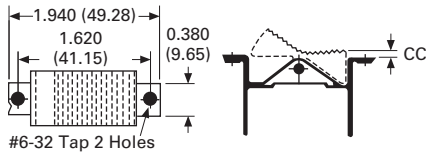
## Dimensions for Frame Type and Rocker Styles—Sealed Switches

Approximate Dimensions in Inches (mm)

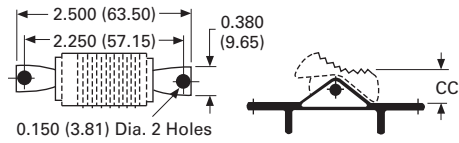
### Non-Illuminated

#### Single- and Two-Pole Mounting Frame Types

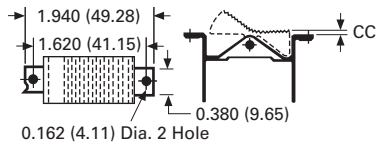
##### Type E



##### Type F

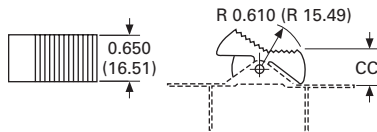


##### Type L

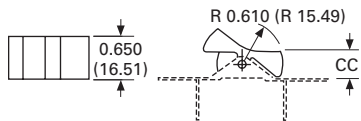


#### Single- and Two-Pole Rocker Styles

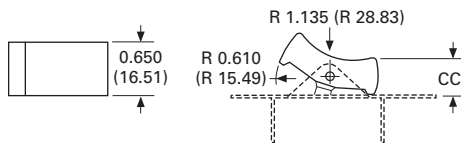
##### Style 1



##### Style 2



##### Style 7



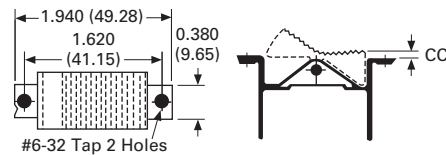
#### Reference Dimension "CC" — Top of Frame to Rocker Face

| Rocker Style | Dimension in Inches (mm)               |              |             |                             |
|--------------|----------------------------------------|--------------|-------------|-----------------------------|
|              | Mounting Frame Type                    |              |             |                             |
|              | Single- and Two-Pole (Non-Illuminated) |              |             |                             |
|              | E Frame                                | F Frame      | L Frame     | Recommended Panel Opening   |
| 1            | 0.08 (2.03)                            | 0.42 (10.67) | 0.08 (2.03) | 0.69 x 1.25 (17.53 x 31.75) |
| 2            | 0.08 (2.03)                            | 0.42 (10.67) | 0.08 (2.03) | 0.69 x 1.25 (17.53 x 31.75) |
| 7            | 0.11 (2.79)                            | 0.45 (11.43) | 0.11 (2.79) | 0.69 x 1.25 (17.53 x 31.75) |

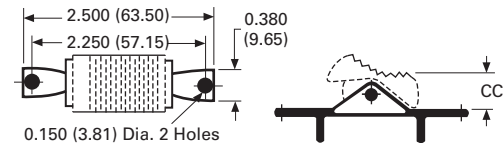
### Illuminated

#### Single-Pole Mounting Frame Types

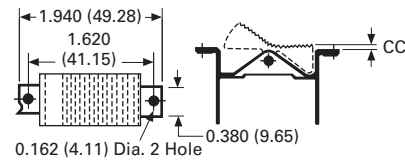
##### Type E



##### Type F

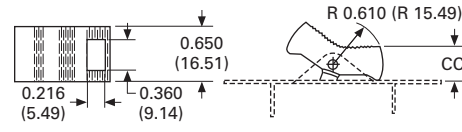


##### Type L

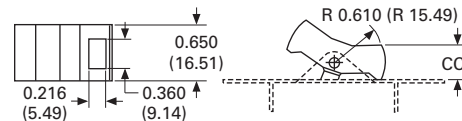


#### Single-Pole Rocker Styles

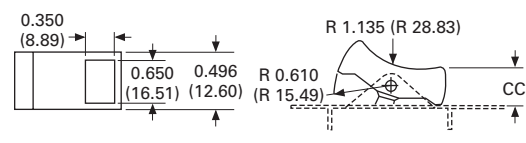
##### Style 3



##### Style 5



##### Style 8



| Rocker Style | Dimension in Inches (mm)           |              |             |                             |
|--------------|------------------------------------|--------------|-------------|-----------------------------|
|              | Mounting Frame Type                |              |             |                             |
|              | Single- and Two-Pole (Illuminated) |              |             |                             |
|              | E Frame                            | F Frame      | L Frame     | Recommended Panel Opening   |
| 3            | 0.08 (2.03)                        | 0.42 (10.67) | 0.08 (2.03) | 0.69 x 1.25 (17.53 x 31.75) |
| 5            | 0.08 (2.03)                        | 0.42 (10.67) | 0.08 (2.03) | 0.69 x 1.25 (17.53 x 31.75) |
| 8            | 0.11 (2.79)                        | 0.45 (11.43) | 0.11 (2.79) | 0.69 x 1.25 (17.53 x 31.75) |

## 8006/8007 Series

2



## Product Description

Field-proven in America's roughest off-road applications, the standard size EURO SR is one tough and reliable rocker switch. Available with the complete range of rugged single- and two-pole, illuminated or non-illuminated circuits.

The EURO SR Series offers snap-in mounting and can be provided with a durable silicone seal that resists dust and moisture.

All EURO SR switches are molded in an aesthetically pleasing matte finish and operate with a crisp tactile feel, allowing for easy actuation.

The EURO SR will accept loads up to 15A. Terminal numbers are stamped on base for easy identification.

## Features and Benefits

- **Contact Mechanism**  
Slow-make/slow-break contact mechanism. Butt action contact mechanism designed specifically for use on AC and low voltage DC applications.
- **Rocker Material**  
Thermoplastic rocker actuators. Different colors are available. Rocker and bezel are a high-grade nylon supplied with matte finish.
- **Lamps**  
Five lamp voltages—14 Vdc, 18 Vdc, 28 Vdc, 125 Vac neon and 250 Vac neon—are offered as standard. For additional lamp voltages, please contact your local Eaton Sales Representative.
- **Mounting Means**  
Snap-in mounting with plastic bezel.
- **Seal**  
Available in sealed and non-sealed versions. Sealed devices are furnished with silicone rubber seal, providing moisture and dust resistance with an IP67 rating.

## Contents

### Description

8006/8007—EURO SR

|                                             | <i>Page</i>      |
|---------------------------------------------|------------------|
| Catalog Number Selection . . . . .          | <b>V11-T2-63</b> |
| Technical Data and Specifications . . . . . | <b>V11-T2-64</b> |
| Dimensions . . . . .                        | <b>V11-T2-64</b> |

## Options

- Additional colors of rockers and bezels are available
- Special circuits
- Special ratings
- Pad-printed legends on rocker and bezel
- Special voltage bulbs
- Dry circuit capabilities
- Foam dust seal
- Reversing jumpers
- Printed circuit terminals and other terminal types
- Wire leads
- Dead back cover
- Palm guard
- Industry standard connector: 28-3426
- EURO SR panel plug: 53-3318

For information on optional features, contact your local Eaton Sales Representative.

## Lens Options

- **Lens Part Numbers**  
(if ordered separately)
- |                 |           |
|-----------------|-----------|
| Green . . . . . | 28-5415   |
| Amber . . . . . | 28-5415-2 |
| Red. . . . .    | 28-5415-3 |
| Blue . . . . .  | 28-5415-4 |
| White . . . . . | 28-5415-5 |

## Standards and Certifications

- UL Recognized and recognized component for Canada File E2702
- RoHS Compliant <sup>①</sup>



### Note

<sup>①</sup> Visit [www.eaton.com/vc bu](http://www.eaton.com/vc bu) for the most up-to-date list of verified part numbers.



## EURO SR Standard Size Euro-Style Rocker Switches

To determine complete catalog number, start with the appropriate base circuit number and add the appropriate code letters and/or numbers.

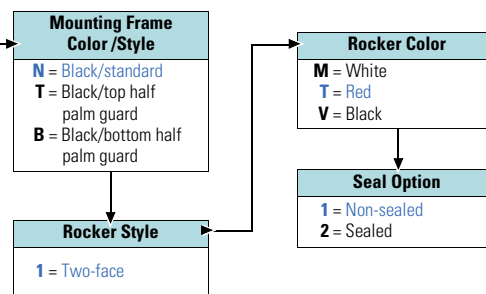
### Catalog Number Selection

#### How To Order—EURO SR, Non-Illuminated

Example: **8006K23** → **N 1 T 1**

| Rating                                      | Poles and Throw | Circuit with Rocker in ...           |                    |                                    | Terminal Type                 |                               |                               |
|---------------------------------------------|-----------------|--------------------------------------|--------------------|------------------------------------|-------------------------------|-------------------------------|-------------------------------|
|                                             |                 | UP Position                          | CENTER Position    | DOWN Position                      | 0.250 in Spade                | Solder Lugs                   | Screw                         |
| 10A, 250 Vac<br>15A, 125 Vac<br>15A, 28 Vdc | 1PST            | 2-3<br>2-3 ①                         | NONE               | OFF                                | 8006K23<br>8006K35            | 8006K24<br>8006K36            | 8006K25<br>8006K37            |
|                                             | 1PDT            | 2-3<br>2-3 ①<br>2-3 ①                | OFF<br>NONE<br>OFF | 2-1<br>2-1<br>2-1 ①                | 8006K20<br>8006K26<br>8006K29 | 8006K21<br>8006K27<br>8006K30 | 8006K22<br>8006K28<br>8006K31 |
|                                             | 2PST            | 2-3, 5-6<br>2-3, 5-6 ①               | NONE               | OFF                                | 8006K43<br>8006K55            | 8006K44<br>8006K56            | 8006K45<br>8006K57            |
|                                             | 2PDT            | 2-3, 5-6<br>2-3, 5-6 ①<br>2-3, 5-6 ① | OFF<br>NONE<br>OFF | 2-1, 5-4<br>2-1, 5-4<br>2-1, 5-4 ① | 8006K40<br>8006K46<br>8006K49 | 8006K41<br>8006K47<br>8006K50 | 8006K42<br>8006K48<br>8006K51 |
|                                             | 2PDT ②          | 2-3, 5-6                             | 5-6                | OFF                                | 8006K58                       | 8006K59                       | 8006K60                       |
|                                             | 2PDT ③          | 5-6                                  | 5-3                | 5-1                                | 8006K61                       | 8006K62                       | 8006K63                       |

Code letters and/or numbers.  
Add to base circuit number.

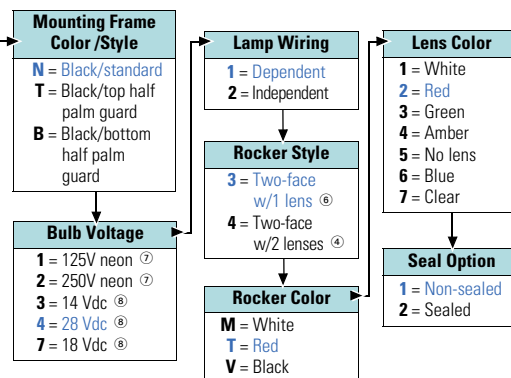


#### How To Order—EURO SR, Illuminated

Example: **8007K23** → **N 4 1 3 T 2 1**

| Rating                                      | Poles and Throw | Circuit with Rocker in ...                       |                           |                                                | Terminal Type                            |                                          |                                          |
|---------------------------------------------|-----------------|--------------------------------------------------|---------------------------|------------------------------------------------|------------------------------------------|------------------------------------------|------------------------------------------|
|                                             |                 | UP Position                                      | CENTER Position           | DOWN Position                                  | 0.250 in Spade                           | Solder Lugs                              | Screw                                    |
| 10A, 250 Vac<br>15A, 125 Vac<br>15A, 28 Vdc | 1PST            | OFF<br>NONE                                      | NONE<br>OFF               | 2-1<br>2-1 ①                                   | 8007K23<br>8007K35                       | 8007K24<br>8007K36                       | 8007K25<br>8007K37                       |
|                                             | 1PDT ④          | 2-3<br>2-3 ①<br>2-3 ①                            | OFF<br>NONE<br>OFF        | 2-1<br>2-1<br>2-1 ①                            | 8007K20<br>8007K26<br>8007K29            | 8007K21<br>8007K27<br>8007K30            | 8007K22<br>8007K28<br>8007K31            |
|                                             | 2PST            | OFF<br>2-3, 5-6 ①                                | NONE<br>OFF               | 2-1, 5-4<br>NONE                               | 8007K43<br>8007K55                       | 8007K44<br>8007K56                       | 8007K45<br>8007K57                       |
|                                             | 2PDT ④⑤         | 2-3, 5-6<br>2-1, 5-4<br>2-3, 5-6 ①<br>2-3, 5-6 ① | OFF<br>NONE<br>OFF<br>OFF | 2-1, 5-4<br>2-3, 5-6<br>2-1, 5-4<br>2-1, 5-4 ① | 8007K40<br>8007K46<br>8007K49<br>8007K52 | 8007K41<br>8007K47<br>8007K50<br>8007K53 | 8007K42<br>8007K48<br>8007K51<br>8007K54 |

Code letters and/or numbers.  
Add to base circuit number.



#### Notes

- ① Momentary contact.
- ② 3A at 250 Vac, 6A at 125 Vac.
- ③ 1/4 hp at 125–250 Vac.
- ④ All double-throw circuits, both 1PDT and 2PDT, provided with two lamps and two lenses (Rocker Style 4). When lamp is wired independent of circuit for 1PDT switches, device is supplied with lamp centered in open-pole of base.
- ⑤ Not standard with lamp wired independent of circuit. All 2PDT switches must be dependent on circuit and use Rocker Style 4.
- ⑥ Not provided standard for double-throw circuits, both 1PDT and 2PDT. Must use Rocker Style 4 for all double-throw switches.
- ⑦ Available on single-pole versions only.
- ⑧ 14 Vdc, 18 Vdc and 28 Vdc bulbs are not UL, CSA when bulb is wired dependent to switch circuit.

## Technical Data and Specifications

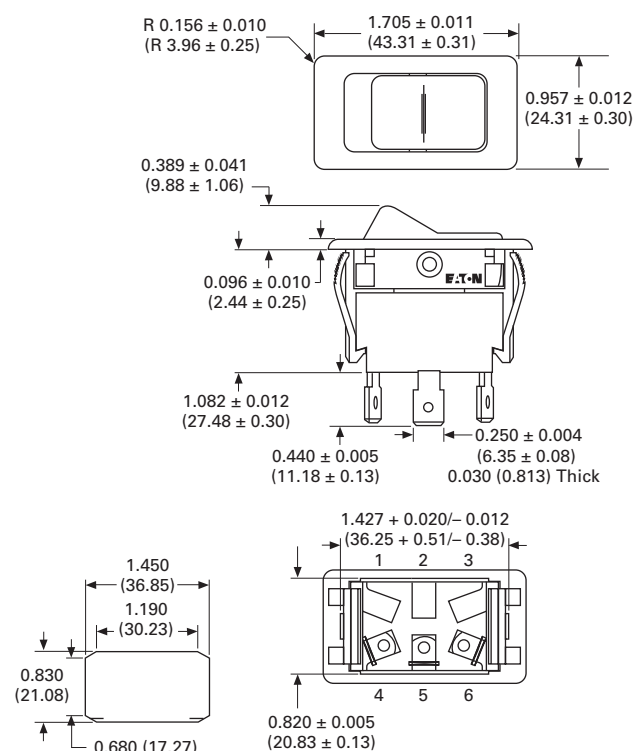
### 8006/8007—EURO SR

| Description           | Specification                                                                                                                                             |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ratings               | 15A at 125 Vac<br>10A at 250 Vac<br>3/4 hp at 250 Vac<br>(hp rating does not apply to lighted switches)<br>Switch ratings at 125 Vac also apply to 28 Vdc |
| Circuits              | 1PST, 1PDT, 2PST and 2PDT<br>Maintained and momentary action                                                                                              |
| Mechanical life       | Maintained—100,000 operations, minimum<br>Momentary—25,000 operations, minimum                                                                            |
| Electrical life       | 25,000 operations minimum at full load                                                                                                                    |
| Terminal types        | Standard 0.250 in (6.35 mm)<br>Spade—Brass<br>Screw—Brass (terminal screws provided unassembled)<br>Solder—Tin/lead-plated brass                          |
| Base material         | Thermoset molding material                                                                                                                                |
| Rocker material       | Thermoplastic rocker actuators                                                                                                                            |
| Dielectric            | 1000V rms, minimum                                                                                                                                        |
| Seal level            | IP67 (with optional seal)                                                                                                                                 |
| Mounting means        | Snap-in mounting with plastic bezel                                                                                                                       |
| Operating temperature | −40° to 185°F (−40° to 85°C)                                                                                                                              |

## Dimensions

Approximate Dimensions in Inches (mm)

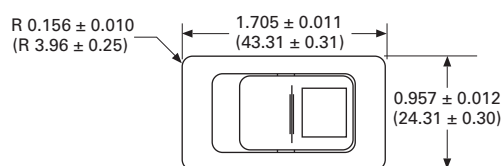
### Non-Illuminated



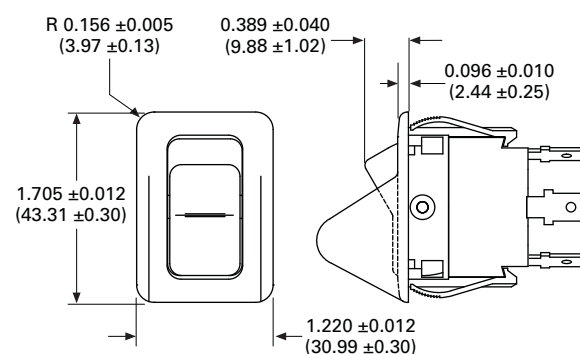
**Panel Opening**  
Reference Only  
Thickness:

0.040 to 0.140 (1.02 to 3.56)  
Best Results Obtained from:  
0.080 to 0.125 (2.03 to 3.18)

### Illuminated



### Palm Guard



8004/8005—Euro Full Size



## Product Description

Eaton's 8004 and 8005 Euro-Look Series features matte finish European styling and snap-in mounting. These durable switches, field-tested in the most demanding truck and marine applications, are available with a variety of standard actuator options. Options include concave, two-face, illuminated, non-illuminated and the recessed feature, which allows placement of your label on the face of our rocker. All switches in this rugged lineup can be fitted with a silicone rubber seal to provide moisture and dust-resistance. Additionally, these switches can be gang-mounted into a single panel opening. Panel blanks are also available.

## Features and Benefits

- **Contact Mechanism**  
Slow-make/slow-break contact mechanism. Butt action contact mechanism designed specifically for use on AC and low voltage DC applications.
- **Rocker Material**  
Custom styled, multi-colored thermoplastic rocker actuators. The rocker and bezel are supplied with a matte finish.
- **Lamps**  
Five lamp voltages—14 Vdc, 18 Vdc, 28 Vdc, 125 Vac neon and 250 Vac neon—are offered as standard. For additional lamp voltages, please contact your local Eaton Sales Representative.
- **Mounting Means**  
Snap-in mounting with plastic bezel.
- **Seal**  
Available in sealed and non-sealed versions. Sealed devices are furnished with a silicone rubber seal providing moisture and dust resistance with an IP54 rating.

## Contents

### Description

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| 8004/8005—Euro Full Size                    |                  |
| Catalog Number Selection . . . . .          | <b>V11-T2-66</b> |
| Technical Data and Specifications . . . . . | <b>V11-T2-67</b> |
| Dimensions . . . . .                        | <b>V11-T2-67</b> |

## Options

- Additional colors of rockers and mounting bezels are available
- Special circuits
- Special ratings
- Gold contacts
- Dry circuit capabilities
- Pad-printed legends on rocker and bezel
- Special lamp voltages
- Foam dust seal
- Reversing jumpers
- Printed circuit terminals and other terminal types
- Dead back cover (two-pole base) with wire leads
- Matching indicators
- Industry standard connector: 28-3426
- Full size Euro-Look gang mounting systems
- Full size Euro-Look panel plugs: 17-19544-2

For information on optional features, contact your local Eaton Sales Representative.

## Lens Options

- Lens Part Numbers (if ordered separately)
- *8005 Two-Face*
  - Green . . . . . 28-3425
  - Amber . . . . . 28-3425-2
  - Red . . . . . 28-3425-3
  - Blue . . . . . 28-3425-4
  - White . . . . . 28-3425-5
- *8005 Concave*
  - Red . . . . . 28-5148
  - Green . . . . . 28-5148-2
  - Amber . . . . . 28-5148-3
  - Blue . . . . . 28-5148-4
  - Clear . . . . . 28-5148-5

## Standards and Certifications

- UL Recognized and recognized component for Canada File E2702
- RoHS Compliant <sup>①</sup>



### Note

<sup>①</sup> Visit [www.eaton.com/vcbu](http://www.eaton.com/vcbu) for the most up-to-date list of verified part numbers.



### Full Size, Euro-Look Rocker Switches

To determine complete catalog number, start with the appropriate base circuit number and add the appropriate code letters and/or numbers.

### Catalog Number Selection

#### How To Order—Full Size Euro, Non-Illuminated

Example: **8004K23** → **N 1 T 1**

| Rating                                      | Poles and Throw | Circuit with Rocker in ...           |                    |                                    | Terminal Type                 |                               |                               |
|---------------------------------------------|-----------------|--------------------------------------|--------------------|------------------------------------|-------------------------------|-------------------------------|-------------------------------|
|                                             |                 | UP Position                          | CENTER Position    | DOWN Position                      | 0.250 in Spade                | Solder Lugs                   | Screw                         |
| 10A, 250 Vac<br>15A, 125 Vac<br>15A, 28 Vdc | 1PST            | 2-3<br>2-3 ①                         | NONE               | OFF                                | 8004K23<br>8004K35            | 8004K24<br>8004K36            | 8004K25<br>8004K37            |
|                                             | 1PDT            | 2-3<br>2-3 ①<br>2-3 ①                | OFF<br>NONE<br>OFF | 2-1<br>2-1<br>2-1 ①                | 8004K20<br>8004K26<br>8004K29 | 8004K21<br>8004K27<br>8004K30 | 8004K22<br>8004K28<br>8004K31 |
|                                             | 2PST            | 2-3, 5-6<br>2-3, 5-6 ①               | NONE               | OFF                                | 8004K43<br>8004K55            | 8004K44<br>8004K56            | 8004K45<br>8004K57            |
|                                             | 2PDT            | 2-3, 5-6<br>2-3, 5-6 ①<br>2-3, 5-6 ① | OFF<br>NONE<br>OFF | 2-1, 5-4<br>2-1, 5-4<br>2-1, 5-4 ① | 8004K40<br>8004K46<br>8004K49 | 8004K41<br>8004K47<br>8004K50 | 8004K42<br>8004K48<br>8004K51 |
|                                             | 2PDT ②          | 2-3, 5-6                             | 5-6                | OFF                                | 8004K58                       | 8004K59                       | 8004K60                       |
|                                             | 2PDT ③          | 5-6                                  | 5-3                | 5-1                                | 8004K61                       | 8004K62                       | 8004K63                       |

Code letters and/or numbers.  
Add to base circuit number.

| Mounting Frame Color |
|----------------------|
| N = Black            |
| M = White            |
| T = Red              |
| G = Gray             |

| Rocker Style |
|--------------|
| 0 = Recessed |
| 1 = Two-face |
| 6 = Paddle   |
| 7 = Concave  |

| Rocker Color |
|--------------|
| M = White    |
| T = Red      |
| V = Black    |
| G = Gray     |

| Seal Option    |
|----------------|
| 1 = Non-sealed |
| 2 = Sealed     |

#### How To Order—Full Size Euro, Illuminated

Example: **8005K23** → **N 4 1 3 T 2 1**

| Rating                                      | Poles and Throw | Circuit with Rocker in ...                       |                           |                                                | Terminal Type                            |                                          |                                          |
|---------------------------------------------|-----------------|--------------------------------------------------|---------------------------|------------------------------------------------|------------------------------------------|------------------------------------------|------------------------------------------|
|                                             |                 | UP Position                                      | CENTER Position           | DOWN Position                                  | 0.250 in Spade                           | Solder Lugs                              | Screw                                    |
| 10A, 250 Vac<br>15A, 125 Vac<br>15A, 28 Vdc | 1PST            | OFF<br>NONE                                      | NONE<br>OFF               | 2-1<br>2-1 ①                                   | 8005K23<br>8005K35                       | 8005K24<br>8005K36                       | 8005K25<br>8005K37                       |
|                                             | 1PDT ④          | 2-3<br>2-3 ①<br>2-3 ①                            | OFF<br>NONE<br>OFF        | 2-1<br>2-1<br>2-1 ①                            | 8005K20<br>8005K26<br>8005K29            | 8005K21<br>8005K27<br>8005K30            | 8005K22<br>8005K28<br>8005K31            |
|                                             | 2PST            | OFF<br>2-3, 5-6 ①                                | NONE<br>OFF               | 2-1, 5-4<br>NONE                               | 8005K43<br>8005K55                       | 8005K44<br>8005K56                       | 8005K45<br>8005K57                       |
|                                             | 2PDT ④⑤         | 2-3, 5-6<br>2-1, 5-4<br>2-3, 5-6 ①<br>2-3, 5-6 ① | OFF<br>NONE<br>OFF<br>OFF | 2-1, 5-4<br>2-3, 5-6<br>2-1, 5-4<br>2-1, 5-4 ① | 8005K40<br>8005K46<br>8005K49<br>8005K52 | 8005K41<br>8005K47<br>8005K50<br>8005K53 | 8005K42<br>8005K48<br>8005K51<br>8005K54 |

Code letters and/or numbers.  
Add to base circuit number.

| Mounting Frame Color |
|----------------------|
| N = Black            |
| M = White            |
| T = Red              |
| G = Gray             |

| Bulb Voltage    |
|-----------------|
| 1 = 125V neon ⑦ |
| 2 = 250V neon ⑦ |
| 3 = 14 Vdc ⑧    |
| 4 = 28 Vdc ⑧    |
| 7 = 18 Vdc ⑧    |

| Lamp Wiring     |
|-----------------|
| 1 = Dependent   |
| 2 = Independent |

| Rocker Style              |
|---------------------------|
| 2 = Recessed w/1 lens ⑥   |
| 3 = Two-face w/1 lens ⑥   |
| 4 = Two-face w/2 lenses ④ |
| 5 = Recessed w/2 lenses ④ |
| 8 = Concave w/1 lens ⑥    |
| 9 = Concave w/2 lenses ④  |

| Rocker Color |
|--------------|
| M = White    |
| T = Red      |
| V = Black    |
| G = Gray     |

| Lens Color  |
|-------------|
| 2 = Red     |
| 3 = Green   |
| 4 = Amber   |
| 5 = No lens |
| 6 = Blue    |

| Seal Option    |
|----------------|
| 1 = Non-sealed |
| 2 = Sealed     |

#### Notes

- ① Momentary contact.
- ② 3A at 250 Vac, 5A at 125 Vac.
- ③ 1/4 hp at 125–250 Vac.
- ④ All double-throw circuits, both 1PDT and 2PDT, provided with two lamps and two lenses (Rocker Style 4). When lamp is wired independent of circuit for 1PDT switches, device is supplied with lamp centered in open-pole of base.
- ⑤ Not standard available with lamp wired independent of circuit. All 2PDT switches must be dependent on circuit and use Rocker Style 4, 5 or 9.
- ⑥ Not provided standard for double-throw circuits, both 1PDT and 2PDT. Must use Rocker Style 4, 5 or 9 for all double-throw switches.
- ⑦ Available on single-pole versions only.
- ⑧ 14 Vdc and 28 Vdc bulbs are not UL, CSA when bulb is wired dependent to switch circuit.

## Technical Data and Specifications

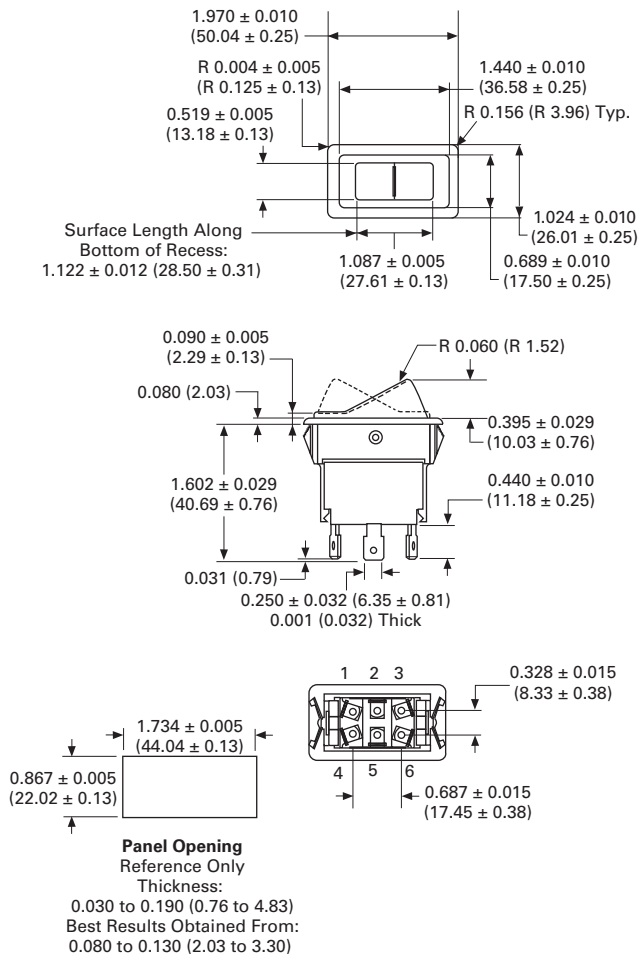
### 8004/8005—Euro Full Size

| Description      | Specification                                                                                                                                                            |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ratings          | 15A at 125 Vac; 10A at 250 Vac; 3/4 hp at 250 Vac<br>(hp rating does not apply to lighted switches)<br>Switch ratings at 125 Vac also apply to 28 Vdc                    |
| Circuits         | 1PST, 1PDT, 2PST and 2PDT; Maintained and momentary action                                                                                                               |
| Contact material | Movable—Silver-plated copper with fine or coin silver contact face button<br>Stationary—Copper with fine or coin silver contact face button                              |
| Mechanical life  | Maintained—100,000 operations, minimum<br>Momentary—25,000 operations, minimum                                                                                           |
| Electrical life  | 25,000 operations minimum at full load                                                                                                                                   |
| Terminal types   | Standard 0.250 in (6.35 mm) spade—Brass<br>Screw—Brass #6-32 x 3/16 (terminal screws provided unassembled)<br>Solder—Tintillate-plated brass; tintillate spade terminals |
| Base material    | Thermoset molding material                                                                                                                                               |
| Dielectric       | 1000V rms, minimum                                                                                                                                                       |
| Seal level       | IP54 (with optional seal)                                                                                                                                                |
| Mounting means   | Snap-in mounting with plastic bezel                                                                                                                                      |

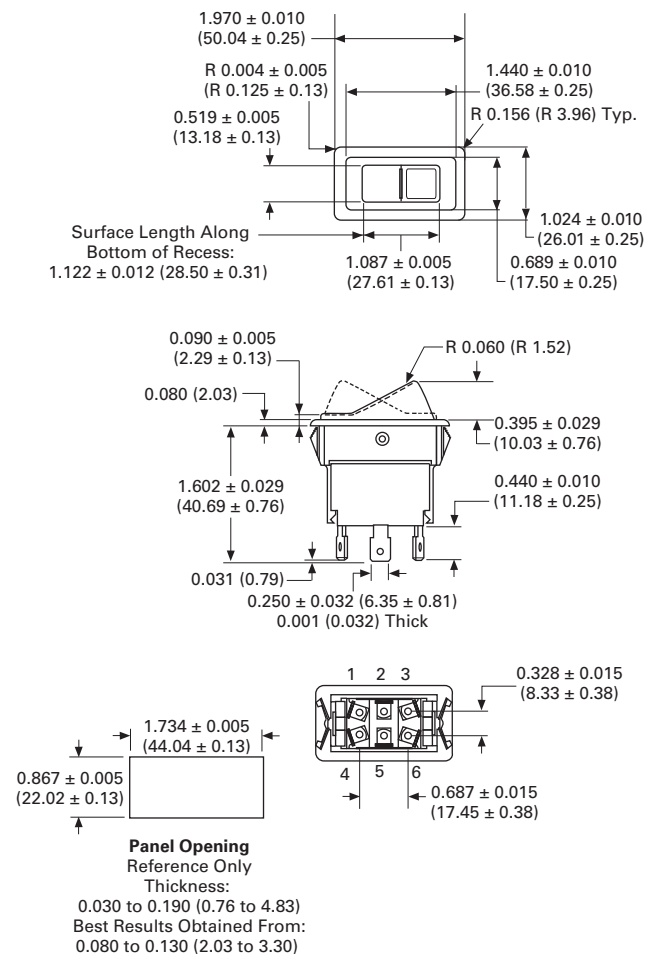
## Dimensions

Approximate Dimensions in Inches (mm)

### Non-Illuminated



### Illuminated



## X Series Rockers—XR

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## Contents

## Description

## Page

## X Series Rockers

|                                         |                  |
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| Catalog Number Selection .....          | <b>V11-T2-69</b> |
| X Series Symbols Library .....          | <b>V11-T2-70</b> |
| Technical Data and Specifications ..... | <b>V11-T2-70</b> |
| Light Diagrams .....                    | <b>V11-T2-70</b> |
| Dimensions .....                        | <b>V11-T2-71</b> |

## Product Description

The Electrical Sector is pleased to offer X Series Rockers for use in outdoor applications to meet almost every market need.

These sleek style rockers are molded in a unique smooth matte finish. The bezel is also unique with a more modern rounded-rectangular design with an oval shaped rocker. X Series Rockers are available in single- and double-pole with various circuit options, LED illumination, and laser etching.

- Frames and actuator colors are black
- Switches provided with 0.025 spade quick connect terminals

## Application Description

## Market Applications

- Agriculture
- Bus
- Commercial
- Marine
- Specialty Vehicle
- Truck

## Features and Benefits

- Seal  
Standard IP56 Sealing per IES 60529.
- Illumination  
Standard LED voltages offered include 14 Vdc and 125 Vac.
- Material  
Frames are nylon and actuators are nylon with glass fiber with both meeting UL flame: 94HB. Terminals are silver plated brass.
- Mounting Means  
Easy snap-in mounting with plastic bezel.
- Label  
Eaton part number etched on switch for easy inventory management.

## Options

- Panel plug: 53-3318
- Industry standard connector: 28-3426
- For information on optional features, contact your local Eaton Sales Representative.

## Standards and Certifications

- UL Recognized and recognized component for Canada File E2702
- T85
- RoHS Compliant

cRU<sup>®</sup>usRoHS  
COMPLIANT

## Product Selection Guide

| Seal     | Actuator               | Decorative   | Termination | Illumination          |               |
|----------|------------------------|--------------|-------------|-----------------------|---------------|
| Top ✓    | Rocker without bezel — | Laser-etch ✓ | Spade ✓     | Incandescent 6 Vdc —  | Neon 110V —   |
| Bottom — | Rocker with bezel ✓    | Pad-print —  | Solder —    | Incandescent 12 Vdc — | Neon 125V —   |
| Panel —  | Paddle —               |              | Screw —     | Incandescent 14 Vdc — | Neon 250V —   |
|          | Snap-in lens —         | <b>Poles</b> | Weld lugs — | Incandescent 18 Vdc — | 14 Vdc LED ✓  |
|          | Locking —              | Single ✓     |             | Incandescent 24 Vdc — | 28 Vdc LED —  |
|          | Label —                | Double ✓     |             | Incandescent 28 Vdc — | 125 Vac LED ✓ |
|          |                        | Four —       |             |                       | 277 Vac LED — |



## X Series Rockers

### Catalog Number Selection

Standard rating 16A 125V, 10A 277V, 3/4 hp 277V

Also recommended for use in applications up to 21A 14 Vdc

IP56 per IES 60529

### Product Selection

#### XR Series Rocker



#### X Series Rockers

| Lamp Voltage             | Switch Function          | Light Circuit <sup>③</sup> | Lens Color T. 1-4 | T. 3-6 | Switch Markings           | Catalog Number |
|--------------------------|--------------------------|----------------------------|-------------------|--------|---------------------------|----------------|
| None                     | SPST OFF-ON              | X = None                   | None              | None   | Int'l ON/OFF <sup>④</sup> | XRAXXXNV1CU    |
|                          | SPST OFF-ON              | X = None                   | None              | None   | ON/OFF <sup>④</sup>       | XRAXXXNV1DB    |
| 14 Vdc LED               | SPST OFF-ON              | E =                        | None              | Amber  | None                      | XR1AEX4NV1XX   |
|                          | SPST OFF-ON              | E =                        | None              | Green  | None                      | XR1AEX3NV1XX   |
|                          | SPST OFF-ON              | E =                        | None              | Red    | None                      | XR1AEX2NV1XX   |
|                          | SPDT ON-ON               | G =                        | Amber             | Amber  | None                      | XR1CG44NV1XX   |
|                          | SPDT ON-ON               | G =                        | Green             | Green  | None                      | XR1CG33NV1XX   |
|                          | SPDT ON-OFF-ON           | G =                        | Amber             | Amber  | None                      | XR1BG44NV1XX   |
|                          | SPDT ON-OFF-ON           | G =                        | Green             | Green  | None                      | XR1BG33NV1XX   |
|                          | SPDT (ON)-OFF-(ON)       | G =                        | Amber             | Amber  | None                      | XR1EG44NV1XX   |
|                          | SPDT (ON)-OFF-(ON)       | G =                        | Green             | Green  | None                      | XR1EG33NV1XX   |
| None                     | DPST OFF-ON <sup>②</sup> | X = None                   | None              | None   | Int'l ON/OFF <sup>④</sup> | XRXXNV1CU      |
|                          | DPST OFF-ON <sup>②</sup> | X = None                   | None              | None   | ON/OFF <sup>④</sup>       | XRXXNV1DB      |
|                          | DPST OFF-ON              | X = None                   | None              | None   | None                      | XRXXNV1XX      |
|                          | DPST ON-ON               | X = None                   | None              | None   | None                      | XRXXNV1XX      |
| 125 Vac LED <sup>①</sup> | SPST OFF-ON              | E =                        | None              | Amber  | None                      | XR3AEX4NV1XX   |
|                          | SPST OFF-ON              | E =                        | None              | Green  | None                      | XR3AEX3NV1XX   |
|                          | SPST OFF-ON              | E =                        | None              | Red    | None                      | XR3AEX2NV1XX   |
|                          | SPDT ON-ON               | G =                        | Amber             | Amber  | None                      | XR3CG44NV1XX   |
|                          | SPDT ON-ON               | G =                        | Green             | Green  | None                      | XR3CG33NV1XX   |
|                          | SPDT ON-OFF-ON           | G =                        | Amber             | Amber  | None                      | XR3BG44NV1XX   |
|                          | SPDT ON-OFF-ON           | G =                        | Green             | Green  | None                      | XR3BG33NV1XX   |
|                          | SPDT (ON)-OFF-(ON)       | G =                        | Amber             | Amber  | None                      | XR3EG44NV1XX   |
|                          | SPDT (ON)-OFF-(ON)       | G =                        | Green             | Green  | None                      | XR3EG33NV1XX   |

#### Notes

<sup>①</sup> Available in AC applications only.

<sup>②</sup> Double-pole not available illuminated; it is available laser etched.

<sup>③</sup> See Circuit Diagrams on **Page V11-T2-70**.

<sup>④</sup> See Symbols Library on **Page V11-T2-70**.

X Series Symbols Library

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| Inscription                                                                       | Catalog Number Suffix | Inscription                                                                       | Catalog Number Suffix |
|-----------------------------------------------------------------------------------|-----------------------|-----------------------------------------------------------------------------------|-----------------------|
|                                                                                   | CU                    |                                                                                   | DB                    |
|  |                       |  |                       |

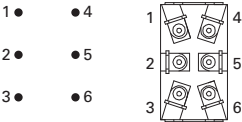
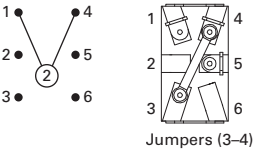
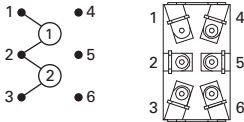
Technical Data and Specifications

X Series

| Description           | Specification                                                            |
|-----------------------|--------------------------------------------------------------------------|
| Ratings               | 16A 125V, 10A 277V, 3/4 hp 277V;<br>recommended 21A 14 Vdc or 10A 28 Vdc |
| Operating temperature | −4° to 176°F (−20° to 80°C)                                              |

Light Diagrams

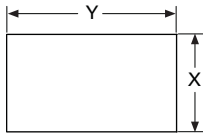
X Series

| Light Circuit Letter                                                               | Functions | Light Circuit Letter                                                               | Functions | Light Circuit Letter                                                                | Functions |
|------------------------------------------------------------------------------------|-----------|------------------------------------------------------------------------------------|-----------|-------------------------------------------------------------------------------------|-----------|
| X                                                                                  | All       | E                                                                                  | SPST      | G                                                                                   | SPDT      |
|  |           |  |           |  |           |

## Dimensions

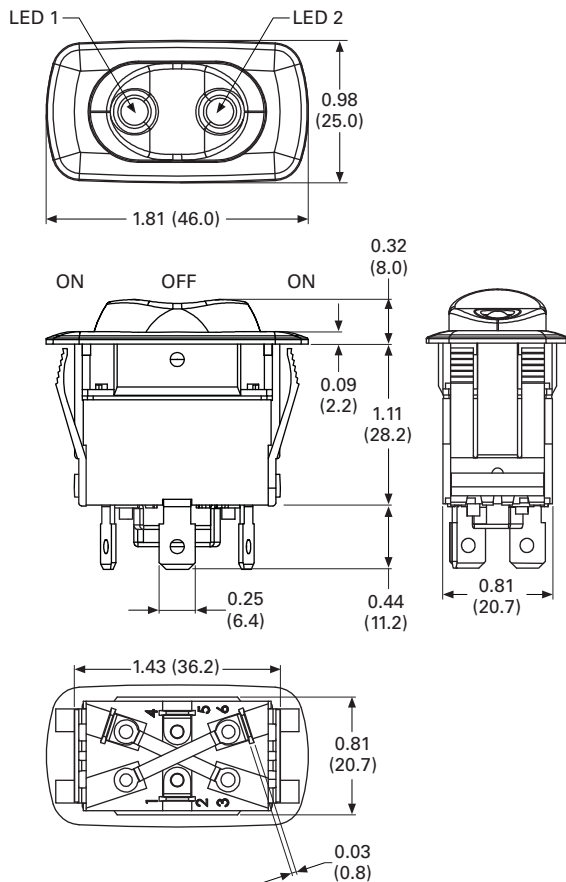
Approximate Dimensions in Inches (mm)

### Mounting Hole



| Dimensions       |                            |
|------------------|----------------------------|
| <b>Thickness</b> | 0.03–0.12<br>(0.75–3.0)    |
| <b>X</b>         | 0.83 +0.01<br>(21.2 +0.1)  |
| <b>Y</b>         | 1.46 + 0.01<br>(37.0 +0.1) |

### X Series



## 8064/8065 Series

2



## Product Description

The ergonomically designed ESPORT Series comes with a large, independent LED-illuminated indicator window that clearly identifies the switch's labeled function—your label or ours. The switch can be ordered with an LED illuminated actuator, as well. All ESPORT switches are molded in a clean matte finish and operate with a definite tactile feel. Actuation of the switch feels crisp. Also, ESPORT switches will accept loads up to 15A. Due to the LED's long life, lamp replacement should not be necessary.

Tested in America's toughest truck applications, the ESPORT switch is reliable and durable and is available with a full range of rugged single- and two-pole circuits. It has an optional polarized lock-on connector. Spade switch terminals are tin-plated for long storage life.

## Features and Benefits

- **Contact Mechanism**  
Slow-make/slow-break contact mechanism. Butt action contact mechanism designed specifically for use on AC and low voltage DC applications.
- **Rocker Material**  
Thermoplastic rocker actuators. Different colors are available. The rocker and the bezel are a high-grade nylon and are supplied with an aesthetically pleasing matte finish.
- **Lamps**  
Durable, long-life LED illumination; 14 Vdc is standard. Integral indicator is illuminated by two independent green, yellow or red LEDs while the actuator is lighted using one dependent LED. For additional LED voltages and/or colors, contact your local Eaton Sales Representative.
- **Mounting Means**  
Snap-in mounting with plastic bezel.

## Contents

### Description

8064/8065—ESPORT

|                                             | <i>Page</i>      |
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| Catalog Number Selection . . . . .          | <b>V11-T2-73</b> |
| Technical Data and Specifications . . . . . | <b>V11-T2-74</b> |
| Icon/Legend Selection . . . . .             | <b>V11-T2-74</b> |
| Dimensions . . . . .                        | <b>V11-T2-75</b> |

## Options

- Additional colors of rockers and mounting bezels are available
- Special circuits
- Special ratings
- Dry circuit capabilities
- Pad-printed legends on lens, rocker and bezel
- Special indicator legend labels
- Special LEDs and LED voltages
- Special actuators
- Reversing jumpers
- Solder terminals and other terminal types
- Wire leads
- Polarized lock-on connector: 28-5558
- Full-size Euro-Look panel plugs: 17-19544-2

For information on optional features, contact your local Eaton Sales Representative.

## Standards and Certifications

- UL Recognized and recognized component for Canada: File 2702
- RoHS Compliant <sup>①</sup>



### Note

<sup>①</sup> Visit [www.eaton.com/vcbu](http://www.eaton.com/vcbu) for the most up-to-date list of verified part numbers.



## ESPORT Full-Size Rocker Switches

To determine complete catalog number, start with the appropriate base circuit number and add the appropriate code letters and/or numbers.

### Catalog Number Selection

#### How To Order—ESPORT, Non-Illuminated

Example: **8064K10** → **L R Z 1 W 2**

| Rating                      | Poles and Throw | Circuit with Rocker in ... |                 |               | Base Circuit Number |
|-----------------------------|-----------------|----------------------------|-----------------|---------------|---------------------|
|                             |                 | UP Position                | CENTER Position | DOWN Position |                     |
| 15A, 125 Vac<br>15A, 28 Vdc | 1PST            | 5-6<br>OFF                 | NONE<br>NONE    | OFF<br>5-4    | 8064K10<br>8064K11  |
|                             | 1PDT            | 2-3                        | OFF             | 2-1           | 8064K14             |
|                             |                 | 2-3 ①                      | NONE            | 2-1           | 8064K12             |
|                             |                 | 2-3 ①                      | OFF             | 2-1 ①         | 8064K17             |
|                             | 2PST            | 2-3, 5-6                   | OFF             | 2-1 ①         | 8064K16             |
|                             |                 | OFF                        | NONE            | 2-1, 5-4 ①    | 8064K20<br>8064K21  |
|                             | 2PDT            | 2-3, 5-6                   | OFF             | 2-1, 5-4      | 8064K24             |
|                             |                 | 2-3, 5-6                   | NONE            | 2-1, 5-4      | 8064K22             |
|                             |                 | 2-3, 5-6 ①                 | OFF             | 2-1, 5-4      | 8064K27             |
|                             |                 | 2-3, 5-6 ①                 | OFF             | 2-1, 5-4      | 8064K26             |

Code letters and/or numbers.  
Add to base circuit number.

**Rocker Style**  
S = 1 in paddle  
L = 1.5 in paddle  
B = Rocker

**Indicator LED Color**  
R = Red  
Y = Yellow  
G = Green

**Rocker LED Color**  
Z = None

**LED Voltage**  
1 = 14 Vdc  
2 = 28 Vdc

**Rocker Color**  
B = Black  
W = White  
R = Red  
G = Gray

**Lens Color**  
1 = Clear  
2 = White ②

#### How To Order—ESPORT, Illuminated

Example: **8065K10** → **S R Y 1 W 2**

| Rating                      | Poles and Throw | Circuit with Rocker in ... |                 |               | Base Circuit Number |
|-----------------------------|-----------------|----------------------------|-----------------|---------------|---------------------|
|                             |                 | UP Position                | CENTER Position | DOWN Position |                     |
| 15A, 125 Vac<br>15A, 28 Vdc | 1PST            | 5-6                        | NONE            | OFF           | 8065K10             |

Code letters and/or numbers.  
Add to base circuit number.

**Rocker Style**  
B = Rocker  
S = 1 in paddle

**Indicator LED Color**  
R = Red  
Y = Yellow  
G = Green

**Rocker LED Color**  
R = Red  
Y = Yellow  
G = Green

**LED Voltage**  
1 = 14 Vdc  
2 = 28 Vdc

**Rocker Color**  
B = Black  
W = White  
R = Red  
G = Gray

**Lens Color**  
1 = Clear  
2 = White ②

#### Notes

- ① Momentary contact.
- ② White lenses are furnished unassembled.

## Technical Data and Specifications

### 8064/8065—ESPORT

2

| Description      | Specification                                                                                                                                             |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ratings          | 15A at 125 Vac; 10A at 250 Vac; 3/4 hp at 250 Vac<br>Switch ratings at 125 Vac also apply to 28 Vdc                                                       |
| Circuits         | 1PST, 1PDT, 2PST and 2PDT<br>Maintained and momentary action                                                                                              |
| Contact material | Movable—Silver-plated copper with silver contact face button<br>Stationary—Copper with silver contact face button                                         |
| Mechanical life  | Maintained—100,000 operations, minimum<br>Momentary—25,000 operations, minimum                                                                            |
| Terminal types   | Switch—Standard 0.250 in (6.35 mm) spade, tintillate-plated brass<br>Integral indicator—0.110 x 0.032 in (2.79 x 0.813 mm) spade, tintillate-plated brass |
| Base material    | Thermoset molding material                                                                                                                                |
| Dielectric       | 1000V rms, minimum                                                                                                                                        |
| Mounting means   | Snap-in mounting with plastic bezel                                                                                                                       |

## Icon/Legend Selection

- All labels below come with adhesive backing
- Label legends are distinct and easily readable when illuminated from behind
- Additional labels are available upon request. Contact your local Eaton Sales Representative

### Icons and Legends

| Legend        | Style                                                                                               | Ordering Code <sup>①</sup> | Icon                                                                                | Description                                                                                                 | Ordering Code <sup>①</sup> |
|---------------|-----------------------------------------------------------------------------------------------------|----------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------------------|
| Dome Light    |                                                                                                     | 0055                       |   | <b>Windshield Wiper</b><br>SAE Specification No. J1362-0086<br>White graphic on a black background          | 0057                       |
| Work Light    |                                                                                                     | 0056                       |                                                                                     |                                                                                                             |                            |
| TV/VCR        |                                                                                                     | 0065                       |                                                                                     |                                                                                                             |                            |
| Fridge        |                                                                                                     | 0066                       |  | <b>Windshield Washer</b><br>SAE Specification No. J1362-0087<br>White graphic on a black background         | 0986                       |
| Cruise ON/OFF |                                                                                                     | 0067                       |                                                                                     |                                                                                                             |                            |
| Brake Select  |                                                                                                     | 0068                       |                                                                                     |                                                                                                             |                            |
| Brake ON/OFF  | Helvetica Narrow<br>0.135 in (3.43 mm) high<br>White translucent letters<br>Opaque black background | 0069                       |  | <b>Master Lighting Switch</b><br>SAE Specification No. J1362-5012<br>White graphic on a black background    | 0687                       |
| Fan Override  |                                                                                                     | 0071                       |                                                                                     |                                                                                                             |                            |
| Cruise Set    |                                                                                                     | 0681                       |                                                                                     |                                                                                                             |                            |
| Engine Brake  |                                                                                                     | 0682                       |  | <b>Fog Lights</b><br>SAE Specification No. J1362-0633<br>White graphic on a black background                | 0684                       |
| Left Window   |                                                                                                     | 0683                       |                                                                                     |                                                                                                             |                            |
| Power Mirror  |                                                                                                     | 0688                       |  | <b>Clearance/Position Light</b><br>SAE Specification No. J1362-0456<br>White graphics on a black background | 0686                       |
| Right Window  |                                                                                                     | 0689                       |                                                                                     |                                                                                                             |                            |

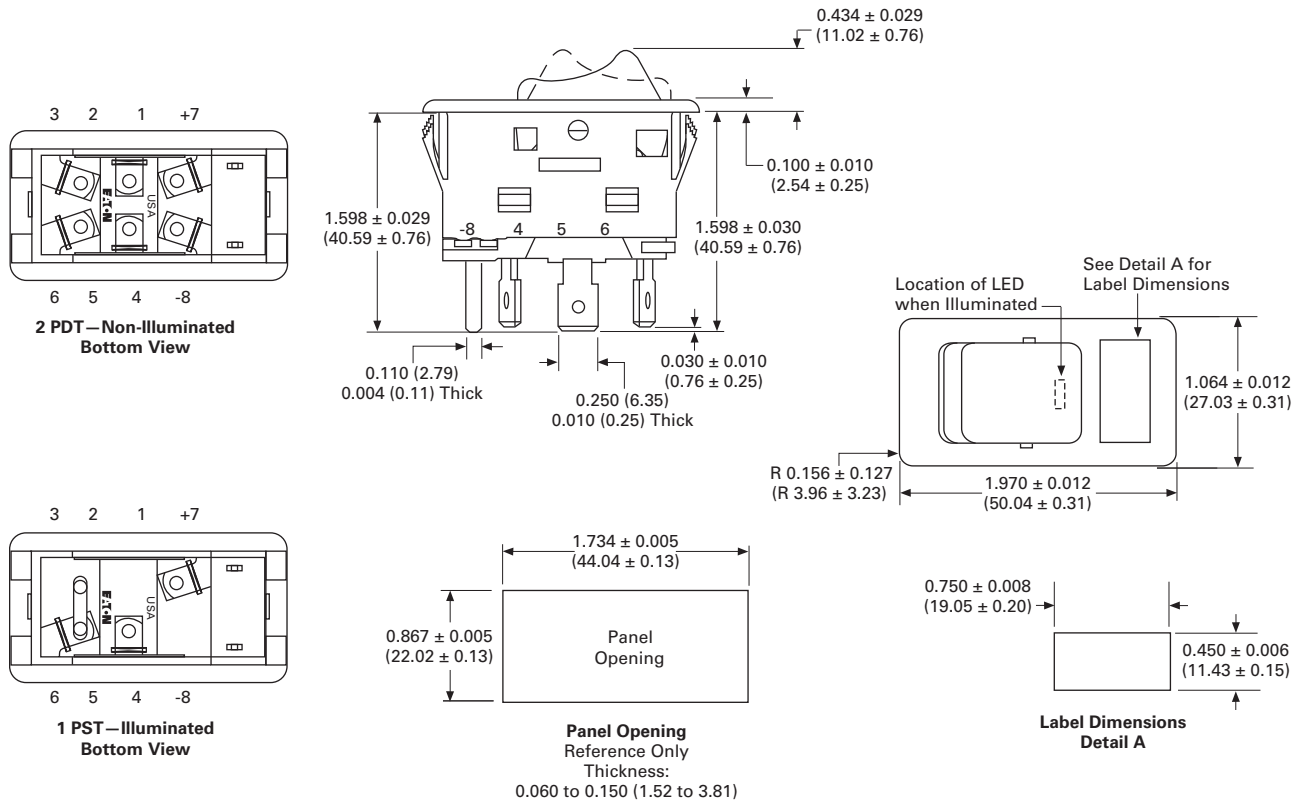
#### Note

- <sup>①</sup> Ordering Code: If a standard label is required, add the Ordering Code to the end of ESPORT Switch part number preceded by a dash. Example: To order 8065K10BYR1B1 with the 0684 Fog Lights label, the part number will be 8065K10BYR1B1-0684.

## Dimensions

Approximate Dimensions in Inches (mm)

### Non-Illuminated and Illuminated

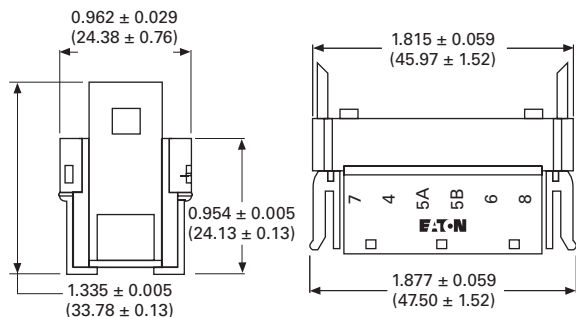


### Dimensions for NGR, EURO SR, Full Size Euro-Look and ESPORT Rocker Accessories

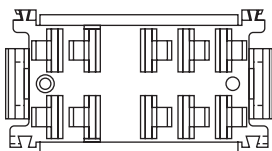
Approximate Dimensions in Inches (mm)

2

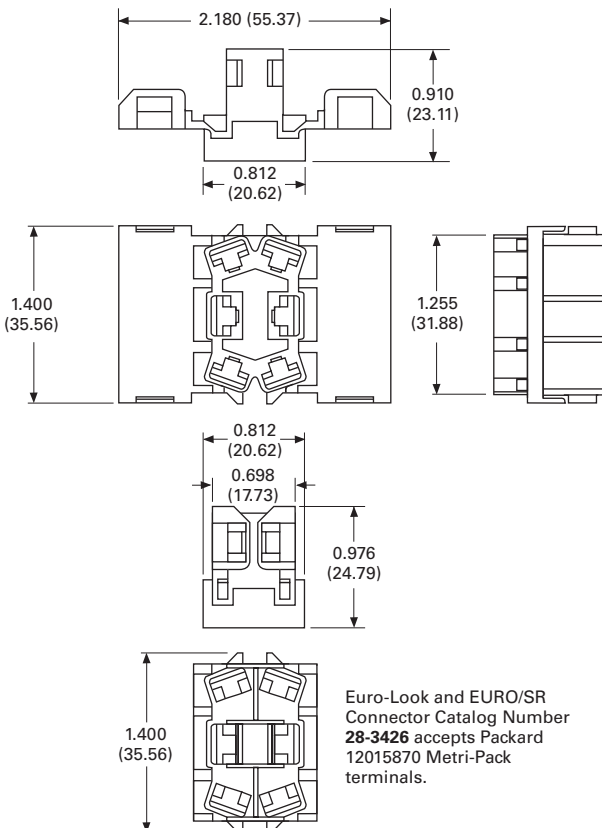
#### NGR Connector



NGR Connector Catalog Number **28-5637-2** accepts Packard 12015870 Metri-Pack terminals or AMP compatible connector **28-5940** accepts AMP terminals 42100-2.

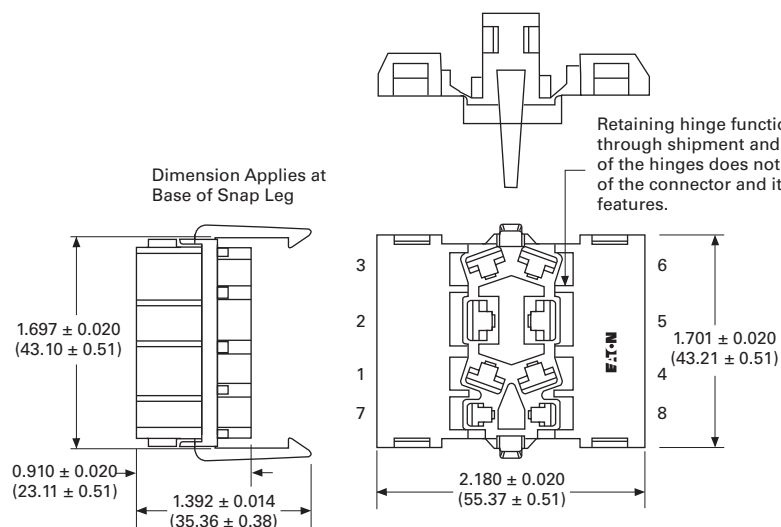


#### Euro/SR and Full Size Euro-Look Connector



Euro-Look and EURO/SR Connector Catalog Number **28-3426** accepts Packard 12015870 Metri-Pack terminals.

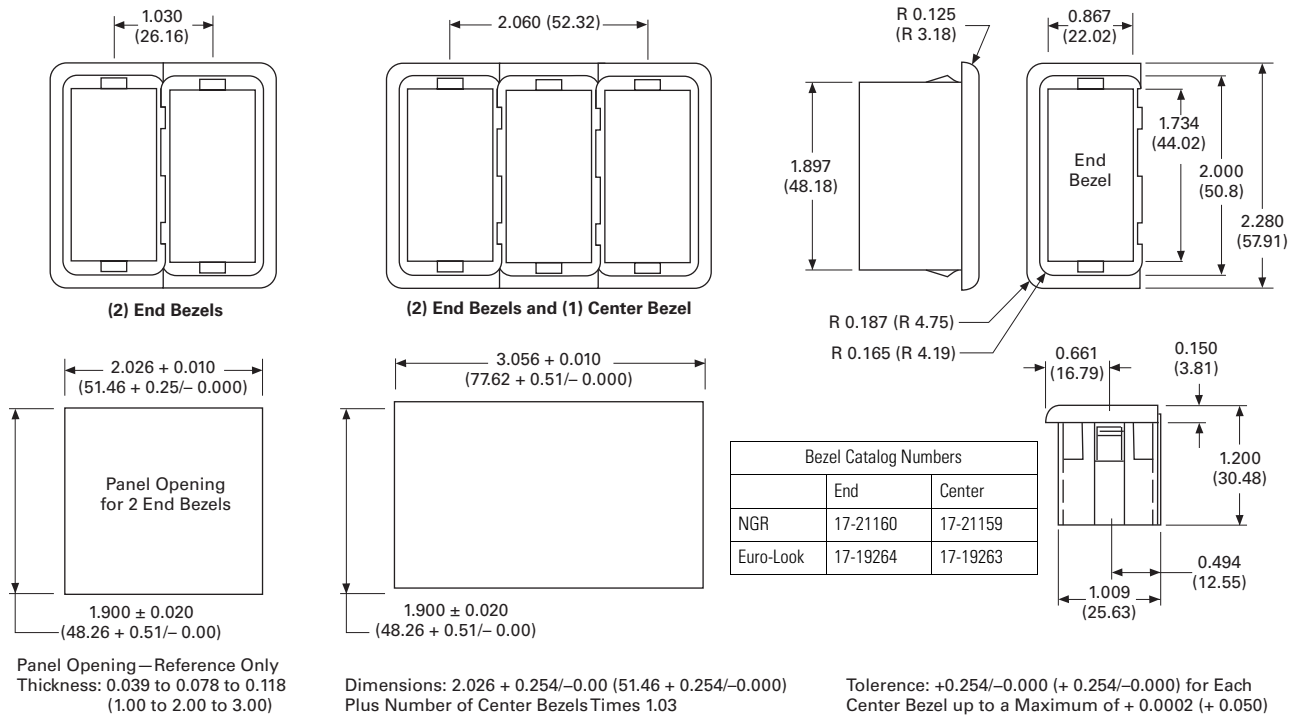
#### ESPORT Connector



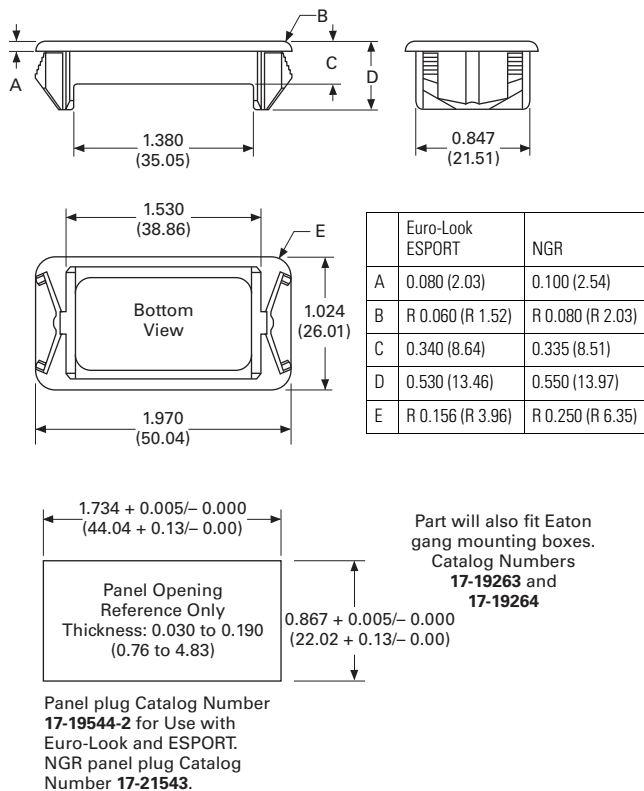
ESPORT Connector Catalog Number **28-5558**  
 Locations 1, 2, 3, 4, 5 and 6 accept Packard 12015870 Metri-Pack terminals.  
 Locations 7 and 8 accept Packard 12034046 Metri-Pack terminals.

Approximate Dimensions in Inches (mm)

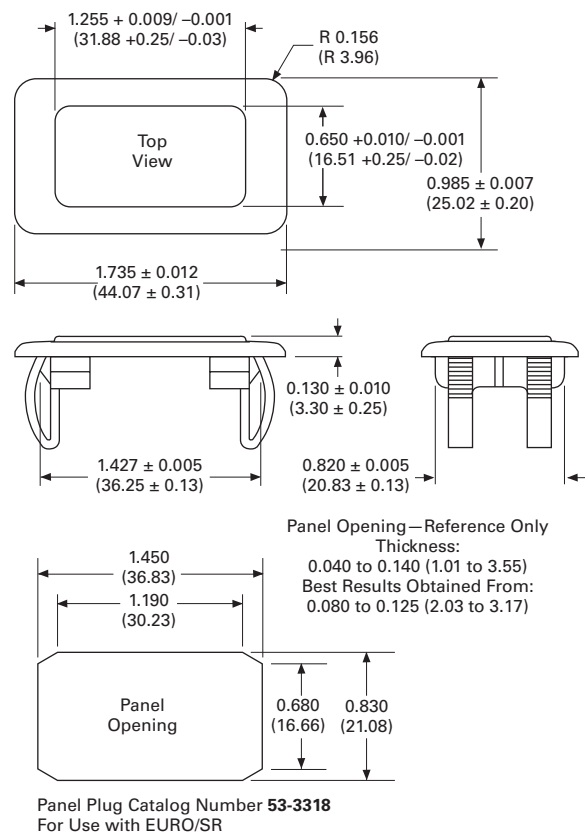
### Gang Mounting System



### NGR, Euro-Look and ESPORT Panel Plugs



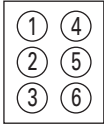
### EURO SR Panel Plugs



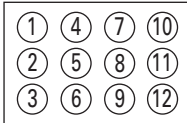
Single-Pole



Two-Pole



Four-Pole

**Terminal Identification**

When specified on order, switches will have the terminals identified as shown in the illustration at right. Terminal markings will be ink-stamped on the side of the switch case and unused terminal positions will not be identified.

All views are rear of switch with keyway or at down as applicable. Terminal numbers 2, 2 and 5 and 5 and 8 are considered inboard terminals for single-, two- and four-pole switches respectively. All others are considered outboard.

**“Three Independent” ON-ON-ON Circuit Diagram**

For switch modified with “Three Independent” ON-ON-ON special circuit. External jumpers are required. User to connect wiring per instructions given below.

**ON-ON-ON Special Circuit**

| Connection Points                | Single-Pole |
|----------------------------------|-------------|
| Connect common to terminals      | 2           |
| Connect circuit “A” to terminals | 6           |
| Connect circuit “B” to terminals | 4           |
| Connect circuit “C” to terminals | 1           |

| 3 ON Independent | No. of Poles | Circuit with Lever in ... |                              |                        |
|------------------|--------------|---------------------------|------------------------------|------------------------|
|                  |              | UP Position               | CENTER Position (Maintained) | DOWN Position (Keyway) |
| 1 PDT            | 1            | Circuit A                 | Circuit B                    | Circuit C              |
|                  |              |                           |                              |                        |

**Circuit Diagrams****Rocker Circuit Diagrams**

| Circuit Letter     | Schematic | Circuit Letter          | Schematic |
|--------------------|-----------|-------------------------|-----------|
| <b>A</b><br>1PST   |           | <b>I</b><br>2 Circuit ⑤ |           |
| <b>B</b><br>1PDT   |           | <b>J</b><br>1PST        |           |
| <b>C</b><br>2PST   |           | <b>K</b><br>1PDT        |           |
| <b>D</b><br>2PDT   |           | <b>L</b><br>2PST        |           |
| <b>E</b><br>4PST ① |           | <b>M</b><br>2PST        |           |
| <b>F</b><br>4PDT ② |           | <b>N</b> ⑥<br>2PDT      |           |
| <b>G</b> ③<br>1PST |           | <b>P</b><br>1PDT        |           |
| <b>H</b> ④<br>1PDT |           | <b>Q</b> ⑦<br>2 Circuit |           |

**Legends****Rocker Switch Legend**

| Legend | Rocker Switch Type                                   |
|--------|------------------------------------------------------|
| ●      | Contact terminal—will make contact with switch lever |
| ○      | Isolated terminal—does not make contact with lever   |
| ⌋      | Center terminal and switch lever                     |
| ⊗      | Bulb                                                 |
| ⤵      | Momentary contact                                    |
| ●      | Denotes mechanical contact portion                   |

See next page for Midsize Switch Circuit Diagrams. See **Page V11-T2-17** for NGR Circuit Diagrams.

**Notes**

- ① Poles 11 and 12 may be eliminated for three-pole devices.
- ② Poles 10, 11 and 12 may be eliminated for three-pole devices.
- ③ Dependent lamp.
- ④ Independent lamp.
- ⑤ Two circuit—indicates a special type of double-throw switch in which the two circuits being controlled may be independent of each other.
- ⑥ For 206 Series, an additional lamp is available.
- ⑦ Available in 1PDT or 2PDT.

## Midsize Switch Circuit Diagrams <sup>①</sup>

### Non-Illuminated

| Circuit Number<br>(Circuit Designator) | Schematic | Circuit with Rocker In ... |                 |             |
|----------------------------------------|-----------|----------------------------|-----------------|-------------|
|                                        |           | DOWN Position              | CENTER Position | UP Position |
| <b>1</b><br>1PST                       |           | OFF                        | NONE            | ON          |
| <b>2</b><br>1PST                       |           | OFF                        | NONE            | ON          |
| <b>3</b><br>1PST                       |           | OFF                        | NONE            | MOM. ON     |
| <b>4</b><br>1PST                       |           | OFF                        | NONE            | ON          |
| <b>5</b><br>1PDT                       |           | ON                         | NONE            | ON          |
| <b>6</b><br>1PDT                       |           | ON                         | OFF             | ON          |
| <b>7</b><br>1PDT                       |           | MOM. ON                    | NONE            | ON          |
| <b>8</b><br>1PDT                       |           | ON                         | OFF             | MOM. ON     |
| <b>9</b><br>1PDT                       |           | MOM. ON                    | OFF             | MOM. ON     |
| <b>10</b><br>2PST                      |           | OFF                        | NONE            | ON          |
| <b>11</b><br>2PST                      |           | OFF                        | NONE            | MOM. ON     |
| <b>12</b><br>2PST                      |           | MOM. OFF                   | NONE            | ON          |
| <b>13</b><br>2PDT                      |           | ON                         | NONE            | ON          |
| <b>14</b><br>2PDT                      |           | ON                         | OFF             | ON          |
| <b>15</b><br>2PDT                      |           | MOM. ON                    | NONE            | ON          |
| <b>16</b><br>2PDT                      |           | ON                         | OFF             | MOM. ON     |
| <b>17</b><br>2PDT                      |           | MOM. ON                    | OFF             | MOM. ON     |

### Illuminated

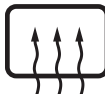
| Circuit Number<br>(Circuit Designator) | Schematic | Circuit with Rocker In ... |                 |             |
|----------------------------------------|-----------|----------------------------|-----------------|-------------|
|                                        |           | DOWN Position              | CENTER Position | UP Position |
| <b>18</b><br>1PST                      |           | OFF                        | NONE            | ON          |
| <b>19</b><br>1PST                      |           | OFF                        | NONE            | ON          |
| <b>20</b><br>1PST <sup>②</sup>         |           | OFF                        | NONE            | ON          |
| <b>21</b><br>1PST                      |           | OFF                        | NONE            | MOM. ON     |
| <b>22</b><br>1PDT                      |           | MOM. OFF                   | NONE            | ON          |
| <b>23</b><br>1PDT                      |           | ON                         | NONE            | ON          |
| <b>24</b><br>1PDT                      |           | ON                         | OFF             | ON          |
| <b>25</b><br>1PDT                      |           | MOM. ON                    | NONE            | ON          |
| <b>26</b><br>1PDT                      |           | ON                         | OFF             | ON          |
| <b>27</b><br>2PST                      |           | ON                         | OFF             | ON          |
| <b>28</b><br>2PST                      |           | ON                         | NONE            | ON          |
| <b>29</b><br>2PST <sup>③</sup>         |           | ON                         | NONE            | ON          |
| <b>30</b><br>2PDT                      |           | MOM. ON                    | NONE            | MOM. ON     |
| <b>31</b><br>2PDT                      |           | ON                         | NONE            | ON          |
| <b>32</b><br>Indicator                 |           | —                          | —               | —           |

#### Notes

- <sup>①</sup> Terminal numbers 1, 2 and 3 denote single-pole base.  
Terminal numbers 11, 12, 113, 24, 25 and 26 denote two-pole base.
- <sup>②</sup> Single-pole in two-pole base with lamp independently wired.
- <sup>③</sup> Two-pole—independently wired lamp.

NGR, SVR, E31, E32 and E33 eSM Symbols <sup>①②</sup>

2

| Inscription                                                                         | Catalog Number Suffix | Inscription                                                                         | Catalog Number Suffix | Inscription                                                                         | Catalog Number Suffix | Inscription                                                                           | Catalog Number Suffix |
|-------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------------------------------|-----------------------|
|    | AA                    |    | AQ                    |    | BF                    |    | BU                    |
|    | AB                    |    | AR                    |    | BG                    |    | BV                    |
|    | AC                    |    | AS                    |    | BH                    |    | BW                    |
|    | AD                    |    | AT                    |    | BI                    |    | BX                    |
|    | AE                    |    | AU                    |    | BJ                    |    | BY                    |
|    | AF                    |    | AV                    |    | BK                    |    | BZ                    |
|   | AG                    |   | AW                    |   | BL                    |   | CA                    |
|  | AH                    |  | AX                    |  | BM                    |  | CB                    |
|  | AJ                    |  | AY                    |  | BN                    |  | CC                    |
|  | AK                    |  | BA                    |  | BP                    |  | CD                    |
|  | AL                    |  | BB                    |  | BQ                    |  | CE                    |
|  | AM                    |  | BC                    |  | BR                    |  | CF                    |
|  | AN                    |  | BD                    |  | BS                    |  | CG                    |
|  | AP                    |  | BE                    |  | BT                    |  | CH                    |

① Additional icons are available. Contact your local Eaton Sales Representative.

② SAE Specification No. J1362.

## NGR, SVR, E31, E32 and E33 eSM Symbols <sup>①②</sup>

| Inscription                                                                         | Catalog Number Suffix | Inscription                                                                         | Catalog Number Suffix | Inscription                                                                          | Catalog Number Suffix | Inscription                                                                           | Catalog Number Suffix |
|-------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|-----------------------|--------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------------------------------|-----------------------|
| SET/COAST<br>RES/ACCEL                                                              | CI                    |    | CX                    |    | DN                    |    | EC                    |
| REGLER/<br>ROUE LIBRE                                                               | CJ                    |    | CY                    |     | DP                    |    | ED                    |
| AJUSTAR                                                                             | CK                    |    | DA                    |     | DQ                    |    | EE                    |
| CRUISE                                                                              | CL                    |    | DB                    |     | DR                    | SET                                                                                   | EF                    |
| REPRENDRE/<br>ACCEL                                                                 | CM                    |    | DC                    |     | DS                    | RESUME                                                                                | EG                    |
| VOLVERA<br>VELOCIDAD                                                                | CN                    |    | DD                    |     | DT                    | ETHER                                                                                 | EH                    |
|  | CP                    |  | DE                    |   | DU                    |  | EI                    |
|  | CQ                    |  | DF                    |   | DV                    |  | EJ                    |
|  | CR                    |  | DG                    |   | DW                    |  | EK                    |
|  | CS                    |  | DH                    | START                                                                                | DX                    |  | EL                    |
|  | CT                    |  | DJ                    | STOP                                                                                 | DY                    |  | EM                    |
|  | CU                    |  | DK                    |  | DZ                    |  | EN                    |
|  | CV                    |  | DL                    |   | EA                    | B/U<br>CAMERA                                                                         | E0                    |
|  | CW                    |  | DM                    |   | EB                    |  | EP                    |

<sup>①</sup> Additional icons are available. Contact your local Eaton Sales Representative.

<sup>②</sup> SAE Specification No. J1362.

NGR, SVR, E31, E32 and E33 eSM Symbols <sup>①②</sup>

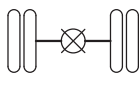
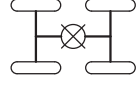
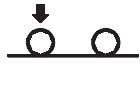
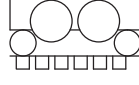
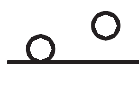
2

| Inscription                                                                         | Catalog Number Suffix | Inscription                                                                         | Catalog Number Suffix | Inscription                                                                         | Catalog Number Suffix | Inscription                                                                           | Catalog Number Suffix |
|-------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------------------------------|-----------------------|
|    | EQ                    |    | FE                    |    | FS                    | MICRO<br>WAVE                                                                         | GG                    |
|    | ER                    |    | FF                    |    | FT                    |    | GH                    |
| WC                                                                                  | ES                    |    | FG                    | LOW<br>DOCKING                                                                      | FU                    |    | GI                    |
|    | ET                    |    | FH                    | DOCKING                                                                             | FV                    | DECEL                                                                                 | GJ                    |
|    | EU                    |    | FI                    | CORNERING                                                                           | FW                    | UNLOAD<br>TAG                                                                         | GK                    |
|    | EV                    |    | FJ                    |    | FX                    |    | GL                    |
|  | EW                    |  | FK                    |  | FY                    |  | GM                    |
|  | EX                    |  | FL                    |  | FZ                    |  | GN                    |
|  | EY                    |  | FM                    |  | GA                    |  | GP                    |
|  | EZ                    |  | FN                    |  | GB                    |  | GQ                    |
|  | FA                    |  | FO                    | TEST                                                                                | GC                    |  | GR                    |
|  | FB                    |  | FP                    |  | GD                    |  | GS                    |
|  | FC                    |  | FQ                    | DEST.                                                                               | GE                    |  | GT                    |
|  | FD                    |  | FR                    | 110<br>VOLT                                                                         | GF                    |  | GU                    |

① Additional icons are available. Contact your local Eaton Sales Representative.

② SAE Specification No. J1362.

## NGR, SVR, E31, E32 and E33 eSM Symbols <sup>①②</sup>

| Inscription                                                                         | Catalog Number Suffix | Inscription                                                                         | Catalog Number Suffix | Inscription                                                                          | Catalog Number Suffix | Inscription                                                                           | Catalog Number Suffix |
|-------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|-----------------------|--------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------------------------------|-----------------------|
|    | GV                    |    | HM                    |    | JD                    | AUDIO<br>VIDEO                                                                        | JT                    |
|    | GW                    |    | HN                    |     | JE                    |    | JU                    |
|    | GY                    |    | HP                    |     | JF                    |    | JV                    |
|    | HA                    |    | HQ                    | READ                                                                                 | JG                    |    | JW                    |
| L                                                                                   | HB                    |    | HR                    | LAMP<br>TEST                                                                         | JH                    |    | JX                    |
| R                                                                                   | HC                    |    | HS                    |     | JJ                    |    | JY                    |
| CRUISE<br>ON-OFF                                                                    | HD                    | ASR<br>AUX                                                                          | HT                    | WC                                                                                   | JK                    |   | JZ                    |
|  | HE                    |  | HU                    |   | JL                    |  | KA                    |
|  | HF                    |  | HV                    |   | JM                    | MAX<br>TRAN                                                                           | KB                    |
| LUZ<br>PASILLO                                                                      | HG                    | MIRROR<br>CLEAN                                                                     | HW                    |  | JN                    | REMOTE<br>CONTROL                                                                     | KC                    |
|  | HH                    |  | HY                    | wash                                                                                 | JO                    | TRACTION<br>CONTROL                                                                   | KD                    |
|  | HJ                    | SECUENCIA DE<br>DIAGNOSTICO                                                         | JA                    |   | JP                    | BLINK<br>CODE                                                                         | KE                    |
| DUMP<br>DOOR                                                                        | HK                    |  | JB                    |   | JQ                    | HAND<br>THROT                                                                         | KF                    |
|  | HL                    |  | JC                    | km/h                                                                                 | JR                    | ENG<br>DIAG                                                                           | KG                    |
|                                                                                     |                       |                                                                                     |                       |   | JS                    |                                                                                       |                       |

<sup>①</sup> Additional icons are available. Contact your local Eaton Sales Representative.

<sup>②</sup> SAE Specification No. J1362.

NGR, SVR, E31, E32 and E33 eSM Symbols <sup>①②</sup>

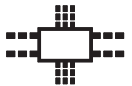
2

| Inscription                                                                         | Catalog<br>Number Suffix | Inscription                                                                         | Catalog<br>Number Suffix | Inscription                                                                         | Catalog<br>Number Suffix |
|-------------------------------------------------------------------------------------|--------------------------|-------------------------------------------------------------------------------------|--------------------------|-------------------------------------------------------------------------------------|--------------------------|
| INTARDER                                                                            | KH                       | GEN.<br>START                                                                       | KV                       | EXIT                                                                                | LJ                       |
| CMU                                                                                 | KI                       | LOW<br>12 V.                                                                        | KW                       | EXH<br>BRK                                                                          | LK                       |
|    | KJ                       | LOW<br>110 V.                                                                       | KX                       | 24V.<br>CHARGER                                                                     | LL                       |
| CRUISE<br>SET                                                                       | KK                       | AIR<br>HORN                                                                         | KY                       | AQUA<br>HOT                                                                         | LM                       |
| HIGH<br>IDLE                                                                        | KL                       | STEP<br>SLIDE                                                                       | KZ                       | HEAT<br>EXCHGR                                                                      | LN                       |
| SANDERS                                                                             | KM                       |    | LA                       | AIR<br>COMPSR                                                                       | LO                       |
|  | KN                       |   | LB                       |   | LP                       |
|  | KO                       | CRUISE<br>SELECT                                                                    | LC                       |  | LQ                       |
| OVER LOAD<br>DRIVE AXLE                                                             | KP                       | TEST<br>ALARMS                                                                      | LD                       |  | LR                       |
| TRACTION<br>CONTROL                                                                 | KQ                       |  | LE                       |  | LS                       |
|  | KR                       |  | LF                       | PA                                                                                  | LT                       |
|  | KS                       | AUX HYD<br>OVERHEAT                                                                 | LG                       | G-AUX<br>START                                                                      | LU                       |
| 12 V.<br>MASTER                                                                     | KT                       | VIDEO                                                                               | LH                       | CNTR<br>A/C                                                                         | LV                       |
| B/U<br>LIGHTS                                                                       | KU                       | ENTER                                                                               | LI                       | REAR<br>A/C                                                                         | LW                       |

① Additional icons are available. Contact your local Eaton Sales Representative.

② SAE Specification No. J1362.

NGR Only Symbols <sup>①②</sup>

| Inscription                                                                       | Catalog Number Suffix | Inscription                                                                         | Catalog Number Suffix | Inscription                                                                        | Catalog Number Suffix | Inscription                                                                                                                                                                    | Catalog Number Suffix |
|-----------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|-----------------------|------------------------------------------------------------------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
|  | LX                    | RIGHT SCENE                                                                         | ML                    |   | NB                    | REAR HEAT                                                                                                                                                                      | NP                    |
|  | LY                    | REAR SCENE                                                                          | MM                    |  | NC                    | ↑ INC.                                                                                                                                                                         | NQ                    |
| POSITION LIGHT                                                                    | LZ                    | STOP START                                                                          | MN                    |   | ND                    | ↓ DEC.                                                                                                                                                                         | NR                    |
| MASTER WARN                                                                       | MA                    | BATT IGN                                                                            | MO                    | FRONT A/C                                                                          | NE                    | 1 <br>2  | NS                    |
| UPPER WARN                                                                        | MB                    |    | MP                    | RETARDER                                                                           | NF                    | WHT LT DISABLE                                                                                                                                                                 | NT                    |
| LOWER WARN                                                                        | MC                    |    | MS                    | OPTCOM                                                                             | NG                    |                                                                                             | NU                    |
| COMPT LIGHTS                                                                      | MD                    |  | MT                    | FUEL PRIME                                                                         | NH                    | LEFT QTZ LT                                                                                                                                                                    | NV                    |
| WORK LIGHTS                                                                       | ME                    | TWO TONE HORNS                                                                      | MU                    | AERIAL PTO                                                                         | NI                    | RIGHT QTZ LT                                                                                                                                                                   | NW                    |
| FAST IDLE                                                                         | MF                    | SIREN AMP TWO TONES                                                                 | MV                    | AIRHRN HORN                                                                        | NJ                    | DECK LIGHT                                                                                                                                                                     | NX                    |
| MIRROR HEAT                                                                       | MG                    | PUMP PTO                                                                            | MW                    | SIREN HORN                                                                         | NK                    | ADD'L STROBE                                                                                                                                                                   | NY                    |
| GEN PTO                                                                           | MH                    | CRUISE                                                                              | MX                    | Q2B HORN                                                                           | NL                    | REAR QTZ LT                                                                                                                                                                    | NZ                    |
| WIGWAG                                                                            | MI                    | RES/ACCEL                                                                           | MY                    | SIREN Q2B HORN                                                                     | NM                    | MODE                                                                                                                                                                           | PA                    |
| SIREN BRAKE                                                                       | MJ                    | SET/COAST                                                                           | MZ                    | AIRHRN Q2B HORN                                                                    | NN                    |                                                                                           | PB                    |
| LEFT SCENE                                                                        | MK                    | RETARD ON/OFF                                                                       | NA                    | AIRHRN SIREN HORN                                                                  | NO                    |      | PC                    |

<sup>①</sup> Additional icons are available. Contact your local Eaton Sales Representative.

<sup>②</sup> SAE Specification No. J1362.

NGR Only Symbols <sup>①②</sup>

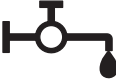
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| Inscription                                                                         | Catalog Number Suffix | Inscription                                                                         | Catalog Number Suffix | Inscription                                                                         | Catalog Number Suffix | Inscription                                                                           | Catalog Number Suffix |
|-------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------------------------------|-----------------------|
| AUX LIGHTS                                                                          | PD                    | VOLUME UP                                                                           | PS                    |    | RG                    |    | RW                    |
|    | PE                    | VOLUME DOWN                                                                         | PT                    | CHECK ENGINE                                                                        | RH                    |    | RX                    |
| FRONT BLIND                                                                         | PF                    | MUTE ON                                                                             | PU                    |    | RI                    |    | RY                    |
| SIDE BLIND                                                                          | PG                    | MUTE OFF                                                                            | PV                    |    | RJ                    |    | RZ                    |
| ON                                                                                  | PH                    |    | PW                    |    | RK                    |    | SA                    |
| OFF                                                                                 | PI                    | DISPLAY POWER                                                                       | PX                    |    | RL                    |    | SB                    |
| GEN STRT STOP/PRHT                                                                  | PJ                    | CRUISE ADJ                                                                          | PY                    |  | RM                    |  | SC                    |
| B.O. SELECT                                                                         | PK                    | HILL HOLDER                                                                         | PZ                    | ABS CODE                                                                            | RN                    |  | SD                    |
|  | PL                    |  | RA                    |  | RP                    |  | SE                    |
| B.O. LIGHTS                                                                         | PM                    | AISLE LAMPS                                                                         | RB                    |  | RQ                    |  | SF                    |
| LEFT DRV                                                                            | PN                    |  | RC                    |  | RS                    |  | SG                    |
| RIGHT DRV                                                                           | PP                    |  | RD                    |  | RT                    |  | SH                    |
| INVERTER                                                                            | PQ                    | OVER LOAD DRIVE AXLE                                                                | RE                    |  | RU                    |  | SJ                    |
|  | PR                    |  | RF                    |  | RV                    |  | SK                    |

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|-------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------------------------------|-----------------------|
|    | SL                    | GPFU                                                                                | TA                    |    | TQ                    |    | UE                    |
|    | SM                    | CHEM ALARM                                                                          | TB                    |    | TR                    |    | UF                    |
| Mode                                                                                | SN                    |    | TC                    |    | TS                    |    | UG                    |
|    | SP                    |    | TD                    |    | TT                    |    | UH                    |
|    | SQ                    |    | TE                    |    | TU                    |    | UK                    |
| OFF ROAD TRACTION                                                                   | SR                    |    | TF                    |   | TV                    |    | UL                    |
|  | SS                    | OVER LOAD DRIVE AXLE                                                                | TG                    |  | TW                    |  | UM                    |
|  | ST                    |  | TH                    |  | TX                    |  | UN                    |
| INTER-AXLE                                                                          | SU                    |  | TJ                    |  | TY                    |  | UP                    |
| 8X8                                                                                 | SV                    |  | TK                    |  | TZ                    |  | UR                    |
|  | SW                    |  | TL                    |  | UA                    |  | US                    |
|  | SX                    |  | TM                    |  | UB                    |  | UT                    |
| AUX HYD                                                                             | SY                    | SUSP RECOVER                                                                        | TN                    |  | UC                    |  | UU                    |
| HYD ENABLE                                                                          | SZ                    |  | TP                    |  | UD                    |  | UV                    |

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|-------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|-----------------------|-------------------|-----------------------|
|    | UW                    |    | VM                    |    | WC                    | MIRROR<br>HEAT    | WT                    |
|    | UX                    |    | VN                    |    | WD                    | OVHD FAN          | WU                    |
|    | UY                    |    | VP                    |    | WE                    | CEILING<br>LIGHTS | WV                    |
|    | UZ                    | DOOR<br>BYPASS                                                                      | VR                    |    | WF                    | BATTERY<br>BOOST  | WW                    |
|    | VA                    | VGT<br>BRK                                                                          | VS                    |    | WG                    | GENERATOR         | WX                    |
|    | VB                    | ASI<br>RESET                                                                        | VT                    |    | WH                    | DRVR<br>SHADE     | WY                    |
|   | VC                    | CURT.<br>UP                                                                         | VU                    |   | WJ                    | PEDALS            | WZ                    |
|  | VD                    | CURT.<br>DOWN                                                                       | VV                    |  | WK                    | ATC               | XA                    |
|  | VE                    | BROOM<br>IN                                                                         | VW                    |  | WL                    | ENGINE<br>BRAKE   | XB                    |
|  | VF                    | BROOM<br>OUT                                                                        | VX                    |  | WM                    | SHOCKS            | XC                    |
|  | VG                    | B.O.<br>LIGHTS                                                                      | VY                    |  | WN                    | AIR<br>DUMP       | XD                    |
| REAR                                                                                | VH                    | ABS<br>BLINK<br>CODE                                                                | VZ                    |  | WP                    | TAG<br>AXLE       | XE                    |
|  | VK                    |  | WA                    | MIRROR<br>SELECT                                                                    | WR                    | FOG<br>LIGHTS     | XF                    |
| OPEN                                                                                | VL                    | MUD/SNOW<br>TRACTION                                                                | WB                    | T<br>M<br>B                                                                         | WS                    | DIMMER            | XG                    |
|  | VL                    |                                                                                     |                       |                                                                                     |                       |                   |                       |

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|-------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------------------------------|-----------------------|
| HEADLIGHTS                                                                          | XH                    |    | XY                    | CNS                                                                                 | YN                    | PUMP                                                                                  | ZC                    |
| DOCKING LIGHTS                                                                      | XJ                    |    | XZ                    |    | YP                    | ROAD                                                                                  | ZD                    |
| AQUA HOT ENGINE PREHEAT                                                             | XK                    |    | YA                    |    | YQ                    |    | ZE                    |
| ENGINE BLOCK HEAT                                                                   | XL                    |    | YB                    | IGNITION                                                                            | YR                    | UNLOCK                                                                                | ZF                    |
| PORCH LIGHT                                                                         | XM                    |    | YC                    | ENGINE STOP                                                                         | YS                    | LOCK                                                                                  | ZG                    |
| HANDLE STEP LIGHTS                                                                  | XN                    | SILENT WATCH                                                                        | YD                    | ENGINE START                                                                        | YT                    | LM OVRDE                                                                              | ZH                    |
| STEP                                                                                | XP                    |  | YE                    | CAMERA AIR                                                                          | YU                    | E SHUT DWN                                                                            | ZJ                    |
| BAY LIGHTS                                                                          | XR                    |  | YF                    | WINDOW                                                                              | YV                    |  | ZK                    |
| BATT CUTOFF                                                                         | XS                    |  | YG                    |  | YW                    |  | ZL                    |
| STEP COVER                                                                          | XT                    |  | YH                    | T-CASE LOW                                                                          | YX                    |  | ZM                    |
| PASS SHADE                                                                          | XU                    | IR SELECT                                                                           | YJ                    | TANK 2                                                                              | YY                    |  | ZN                    |
| NBC                                                                                 | XV                    | IR DRIVE                                                                            | YK                    | TANK 1                                                                              | YZ                    |  | ZP                    |
| AUX SUPPLY                                                                          | XW                    | CRUISE                                                                              | YL                    |  | ZA                    |  | ZR                    |
|  | XX                    | ABS OFF-RD                                                                          | YM                    |  | ZB                    |  | ZS                    |

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| Inscription                                                                         | Catalog<br>Number Suffix | Inscription                                                                                               | Catalog<br>Number Suffix | Inscription                                                                                      | Catalog<br>Number Suffix | Inscription                                                                           | Catalog<br>Number Suffix |
|-------------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------------------------------------------------------------------------|--------------------------|---------------------------------------------------------------------------------------|--------------------------|
|    | ZT                       |                          | H1                       |                 | Y1                       | <b>PEDALS</b>                                                                         | N2                       |
|                                                                                     | ZU                       |                                                                                                           | J1                       |                                                                                                  | Z1                       | <b>GAUGE<br/>MODE</b>                                                                 | P2                       |
| <b>CAMERA</b>                                                                       |                          | <b>HP</b>                                                                                                 |                          |                 |                          |                                                                                       |                          |
|                                                                                     | ZV                       |                                                                                                           | K1                       |                 | A2                       | <b>REGEN</b>                                                                          | R2                       |
| <b>VIDEO</b>                                                                        |                          | <b>F1</b>                                                                                                 |                          | <b>ATC<br/>OFF<br/>ROAD</b>                                                                      | B2                       | <b>FRONT<br/>QTZ LT</b>                                                               | S2                       |
|    | ZW                       |                          | L1                       |                                                                                                  |                          |                                                                                       |                          |
|    | ZX                       |                          | M1                       |                 | C2                       |    | T2                       |
| <b>FRONT<br/>BRAKE</b>                                                              | ZY                       |                          | N1                       | <b>120V</b><br> | D2                       |    | U2                       |
|                                                                                     | ZZ                       |                                                                                                           | P1                       | <b>GAUGE<br/>UP/DWN</b>                                                                          | E2                       |                                                                                       | V2                       |
| <b>TIRE<br/>CHAINS</b>                                                              |                          |                        |                          |                                                                                                  | F2                       |  |                          |
|  | A1                       |                        | R1                       | <b>GAUGE<br/>MODE</b>                                                                            |                          | <b>ECO</b>                                                                            | W2                       |
|                                                                                     | B1                       |                                                                                                           | S1                       | <b>ENG<br/>AFES</b>                                                                              | G2                       |  | X2                       |
| <b>400V</b>                                                                         |                          |                        |                          | <b>CREW<br/>AFES</b>                                                                             | H2                       |  | Y2                       |
|                                                                                     | C1                       |                        | T1                       |               | J2                       |  | Z2                       |
| <b>230V</b>                                                                         |                          | <b>FRONT</b><br>       | U1                       |                                                                                                  | K2                       |  | A3                       |
| <b>MC</b>                                                                           | D1                       | <b>SIDE / REAR</b><br> | V1                       | <b>ABS<br/>DIAG</b>                                                                              |                          | <b>EXTERN</b>                                                                         |                          |
|  | E1                       |                                                                                                           | W1                       | <b>HORN<br/>Q2B</b>                                                                              | L2                       |  | B3                       |
|  | F1                       | <b>B.O.<br/>SELECT</b>                                                                                    |                          | <b>MASTER<br/>DUMP</b>                                                                           | M2                       | <b>GEN<br/>ENGAGE</b>                                                                 | C3                       |
|  | G1                       | <b>IDLE</b><br>        | X1                       |                                                                                                  |                          |                                                                                       |                          |

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|----------------------------------------------------------------------------------------------|-----------------------|--------------------------|-----------------------|-------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------------------------------|-----------------------|
|             | D3                    | AIRHRN<br>ALT AH         | T3                    | ROTO-<br>RAY                                                                        | H4                    |    | Y4                    |
|             | E3                    | DIFF<br>LOCK             | U3                    | REGEN                                                                               | J4                    |    | Z4                    |
|             | F3                    | HORN<br>AIRHORN<br>SIREN | V3                    | REGEN<br>INHBT                                                                      | K4                    |    | A5                    |
|             | G3                    | MIL                      | W3                    |    | L4                    |    | B5                    |
|             | H3                    | ATC<br>OVRDE             | X3                    |    | M4                    |    | C5                    |
|             | J3                    | OUTGR<br>LASER           | Y3                    |    | N4                    |    | D5                    |
|           | K3                    | AER<br>QTZ LT            | Z3                    | BODY<br>QTZ LT                                                                      | P4                    |  | E5                    |
| PEDAL<br> | L3                    | FOG<br>LIGHTS            | A4                    |  | R4                    |  | F5                    |
| PEDAL<br> | M3                    | BATTLE<br>SHORT          | B4                    |  | S4                    | AUX<br>PUMP                                                                           | G5                    |
| BAT<br>XOVER                                                                                 | N3                    | MENU<br>UP               | C4                    | TILT<br>UP                                                                          | T4                    | TST<br>1                                                                              | H5                    |
| BAT<br>O/RIDE                                                                                | P3                    | MENU<br>DOWN             | D4                    | TILT<br>DOWN                                                                        | U4                    | TST<br>2                                                                              | J5                    |
|           | Q3                    | ARMOR                    | E4                    |  | V4                    | TST<br>3                                                                              | K5                    |
| HORN<br>SIREN                                                                                | R3                    | NO<br>ARMOR              | F4                    |  | W4                    | SAVE                                                                                  | L5                    |
| DOMELIGHT                                                                                    | S3                    | KNEEL                    | G4                    |  | X4                    | DOOR<br>LOCK                                                                          | M5                    |

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|--------------------------|--------------------------|-----------------------------------------------------------------------------------|--------------------------|-------------------------------------------------------------------------------------|--------------------------|-------------------------------------------------------------------------------------|--------------------------|
| TELMA<br>RTDR            | N5                       | RUMBLER                                                                           | C6                       | REAR<br>CHUTE<br>EXTEND                                                             | S6                       | Q2B<br>AIRHORN<br>HORN                                                              | G7                       |
| SIREN<br>AIRHORN<br>HORN | P5                       |  | D6D6                     | LEFT<br>DUMP<br>OPEN                                                                | T6                       | A                                                                                   | H7                       |
| PUMP<br>PANEL LTS        | Q5                       | GRND<br>LT                                                                        | E6                       | RIGHT<br>DUMP<br>OPEN                                                               | U6                       | B                                                                                   | J7                       |
| REAR<br>HEATER           | R5                       | RED<br>INT LT                                                                     | F6                       | REAR<br>DUMP<br>OPEN                                                                | V6                       | SCENE<br>LT                                                                         | K7                       |
| T/G<br>OPEN              | S5                       | WHT<br>INT LT                                                                     | G6                       | LEFT<br>CHUTE<br>RETRACT                                                            | W6                       |  | L7                       |
| HYD<br>FILTER            | T5                       | VAC<br>PUMP                                                                       | H6                       | RIGHT<br>CHUTE<br>RETRACT                                                           | X6                       | BODY<br>UP                                                                          | M7                       |
| TRANS<br>TEMP            | U5                       | PRESS<br>MODE                                                                     | J6                       | REAR<br>CHUTE<br>RETRACT                                                            | Y6                       | BODY<br>DOWN                                                                        | N7                       |
| OIL<br>LEVEL             | V5                       | VENT<br>VALVE                                                                     | K6                       | LEFT<br>DUMP<br>CLOSE                                                               | Z6                       | S/S TG<br>RAISE                                                                     | P7                       |
| PUMP                     | W5                       | DRIVER<br>VALVE                                                                   | L6                       | RIGHT<br>DUMP<br>CLOSE                                                              | A7                       | S/S TG<br>LOWER                                                                     | Q7                       |
| STROBE<br>LIGHT          | X5                       | OFFICER<br>VALVE                                                                  | M6                       | REAR<br>DUMP<br>CLOSE                                                               | B7                       | S/S TG<br>LOCK                                                                      | R7                       |
| WORK<br>LIGHT            | Y5                       | REAR<br>VALVE                                                                     | N6                       |  | C7                       | S/S TG<br>UNLOCK                                                                    | S7                       |
| FLASHING<br>LIGHT        | Z5                       | MASTER<br>POWER                                                                   | P6                       | PTO                                                                                 | D7                       | C/S TG<br>RAISE                                                                     | T7                       |
| CAMERA<br>LIGHT          | A6                       | LEFT<br>CHUTE<br>EXTEND                                                           | Q6                       |  | E7                       | C/S TG<br>LOWER                                                                     | U7                       |
| PLATFORM<br>LEVEL        | B6                       | RIGHT<br>CHUTE<br>EXTEND                                                          | R6                       | Q2B<br>SIREN<br>HORN                                                                | F7                       | C/S TG<br>LOCK                                                                      | V7                       |

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|---------------------|-----------------------|------------------|-----------------------|-----------------|-----------------------|---------------------------------------------------------------------------------------|-----------------------|
| C/S TG UNLOCK       | W7                    | BODY RAISED      | L8                    | FLUSH           | A9                    | OFFSIDE AIRHORN OVRD                                                                  | Q9                    |
| AUTO PACK           | X7                    | TIPPER EXTENDED  | M8                    | TAKEDOWN LIGHTS | B9                    | OFFSIDE SIREN OVRD                                                                    | R9                    |
| PACKER EXTEND       | Y7                    | PUMP ON          | N8                    | DEC             | C9                    | OFFSIDE Q2B OVRD                                                                      | S9                    |
| PACKER RETRACT      | Z7                    | THR ADV          | P8                    | VACUUM POMPE    | D9                    | Q2B SIREN                                                                             | T9                    |
| ONE PACK            | A8                    | AUTO NEUTRAL     | Q8                    | MODE PRESSION   | E9                    | SIREN BRAKE                                                                           | U9                    |
| TWO PACK            | B8                    | HIGH IDLE        | R8                    | VALVE VENTIL.   | F9                    |    | V9                    |
| OUTSIDE CONTROLS    | C8                    | HEATER           | S8                    | VALVE C/ COND.  | G9                    |   | W9                    |
| STREETSIDE TAILGATE | D8                    | LEFT MIRROR      | T8                    | VALVE C/ OFF.   | H9                    | FLUOR LIGHT                                                                           | X9                    |
| CURBSIDE TAILGATE   | E8                    | RIGHT MIRROR     | U8                    | VALVE ARR.      | J9                    |  | Y9                    |
| TAILGATE RAISE      | F8                    | IR LIGHTS        | V8                    | MAÎTRE          | K9                    |  | Z9                    |
| TAILGATE LOWER      | G8                    | B.O. SPOT LIGHTS | W8                    | POMPE           | L9                    |  | 1A                    |
| TAILGATE LOCK       | H8                    | TANK TO PUMP     | X8                    | LUMIERE TRAVAIL | M9                    | LOAD LIMIT                                                                            | 1B                    |
| TAILGATE UNLOCK     | J8                    | THROT INC        | Y8                    | MAITRE URGENCE  | N9                    |  | 1C                    |
| HOPPER FLOOD        | K8                    | FOAM             | Z8                    | LIGHT BAR       | P9                    | OFF ROAD LTS                                                                          | 1D                    |

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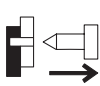
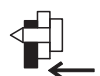
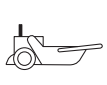
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|-------------------|--------------------------|--------------------------|--------------------------|-------------------|--------------------------|-------------------------------------------------------------------------------------|--------------------------|
| STEP<br>LT        | 1E                       | ALLEY LT<br>LEFT         | 1L                       | PTO<br>ON         | 1S                       | RIGHT<br>NOZZLE                                                                     | 1Y                       |
| ON<br>OFF         | 1F                       | PLOW<br>RAISE            | 1M                       | TAIL<br>UP        | 1T                       |  | 1Z                       |
| Drv Spr<br>Nozzle | 1G                       | PLOW<br>LOWER            | 1N                       | OVERRIDE          | 1U                       | JAKE<br>BRAKE                                                                       | 2A                       |
| Off Spr<br>Nozzle | 1H                       | PLOW<br>FLOAT            | 1P                       | COMMAND<br>LIGHT  | 1V                       | OIL<br>TEMP                                                                         | 2B                       |
| Rem Noz<br>Lt     | 1J                       | BACK-UP<br>ALRM<br>OVRRD | 1Q                       | PUMP<br>HEATER(S) | 1W                       |  | 2C                       |
| ALLEY LT<br>RIGHT | 1K                       | HOIST<br>UP              | 1R                       | LEFT<br>NOZZLE    | 1X                       |                                                                                     |                          |

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### SVR, E31, E32 and E33 eSM Symbols <sup>①②</sup>

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|-------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------------------------------|-----------------------|
|    | LX                    | SET/CST                                                                             | MM                    |    | NB                    |    | NR                    |
|    | LY                    | SHDN<br>OVRD                                                                        | MN                    |    | NC                    |    | NS                    |
| HI<br>RPM                                                                           | MA                    | EXHST<br>BRK                                                                        | MP                    |    | ND                    |    | NT                    |
| LOW<br>RPM                                                                          | MB                    |    | MQ                    |    | NE                    |    | NU                    |
|    | MC                    |    | MR                    |    | NF                    |    | NV                    |
|    | MD                    |    | MS                    |    | NG                    |    | NW                    |
| TEST<br>(P)                                                                         | ME                    |  | MT                    |  | NH                    |  | NX                    |
|  | MF                    |  | MU                    | F                                                                                   | NJ                    |  | NY                    |
|  | MG                    |  | MV                    | N                                                                                   | NK                    |  | NZ                    |
|  | MH                    |  | MW                    | AUX<br>WARN                                                                         | NL                    |  | O3                    |
|  | MI                    |  | MX                    |  | NM                    | R ≡                                                                                   | PA                    |
|  | MJ                    |  | MY                    | I                                                                                   | NN                    |  | PB                    |
|  | MK                    |  | MZ                    | OVER<br>LOAD                                                                        | NP                    |  | PC                    |
| RSM/ACC                                                                             | ML                    |  | NA                    |  | NQ                    |  | PD                    |

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|-------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------------------------------|-----------------------|
|    | PE                    |    | PT                    |    | QH                    |    | QX                    |
|    | PF                    |    | PU                    |    | QJ                    |    | QY                    |
|    | PG                    |    | PV                    |    | QK                    |    | QZ                    |
|    | PH                    |    | PW                    |    | QL                    |    | RA                    |
|    | PI                    |    | PX                    |    | QM                    |    | RB                    |
|    | PJ                    |    | PY                    |    | QN                    |    | RC                    |
|  | PK                    |  | PZ                    |  | QP                    |  | RD                    |
|  | PL                    |  | QA                    |  | QQ                    |  | RE                    |
|  | PM                    |  | QB                    |  | QR                    |  | RF                    |
|  | PN                    |  | QC                    |  | QS                    |  | RG                    |
|  | PP                    |  | QD                    |  | QT                    |  | RH                    |
|  | PQ                    |  | QE                    |  | QU                    |  | RJ                    |
|  | PR                    |  | QF                    |  | QV                    |  | RK                    |
|  | PS                    |  | QG                    |  | QW                    |  | RL                    |

① Additional icons are available. Contact your local Eaton Sales Representative.

② SAE Specification No. J1362.

SVR, E31, E32 and E33 eSM Symbols <sup>①②</sup>

| Inscription | Catalog Number Suffix | Inscription | Catalog Number Suffix | Inscription | Catalog Number Suffix | Inscription       | Catalog Number Suffix |
|-------------|-----------------------|-------------|-----------------------|-------------|-----------------------|-------------------|-----------------------|
|             | RM                    |             | SB                    |             | SR                    | <b>CLOSE</b>      | TF                    |
|             | RN                    |             | SC                    |             | SS                    | <b>OPEN</b>       | TG                    |
|             | RP                    |             | SD                    |             | ST                    |                   | TH                    |
|             | RQ                    |             | SE                    |             | SU                    |                   | TJ                    |
|             | RR                    |             | SF                    |             | SV                    | <b>RPM CTRL</b>   | TK                    |
|             | RS                    |             | SG                    |             | SW                    | <b>ON</b>         | TL                    |
|             | RT                    |             | SH                    |             | SX                    | <b>AUTO</b>       | TM                    |
|             | RU                    |             | SJ                    |             | SY                    | <b>HIGH</b>       | TN                    |
|             | RV                    |             | SK                    |             | SZ                    | <b>LOW</b>        | TP                    |
|             | RW                    |             | SL                    |             | TA                    | <b>CHEM ALARM</b> | TQ                    |
|             | RX                    |             | SM                    |             | TB                    | <b>GPFU</b>       | TR                    |
|             | RY                    |             | SN                    |             | TC                    |                   | TS                    |
|             | RZ                    |             | SP                    |             | TD                    | <b>LHS</b>        | TT                    |
|             | SA                    |             | SQ                    |             | TE                    | <b>AUTO SPNS</b>  | TU                    |

<sup>①</sup> Additional icons are available. Contact your local Eaton Sales Representative.

<sup>②</sup> SAE Specification No. J1362.

SVR, E31, E32 and E33 eSM Symbols <sup>①②</sup>

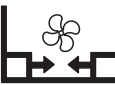
2

| Inscription    | Catalog Number Suffix | Inscription | Catalog Number Suffix | Inscription | Catalog Number Suffix | Inscription | Catalog Number Suffix |
|----------------|-----------------------|-------------|-----------------------|-------------|-----------------------|-------------|-----------------------|
| AVOID<br>OBST  | TV                    |             | UK                    |             | UZ                    |             | VP                    |
|                | TW                    |             | UL                    |             | VA                    |             | VQ                    |
|                | TX                    | WINCH       | UM                    |             | VB                    |             | VR                    |
|                | TY                    | CRANE       | UN                    |             | VC                    | FAULT       | VS                    |
| PRESS<br>CHECK | TZ                    |             | UP                    |             | VD                    | OK          | VT                    |
| FLAT<br>RUN    | UA                    |             | UQ                    |             | VE                    |             | VU                    |
| CTIS           | UB                    |             | UR                    |             | VF                    |             | VV                    |
|                | UC                    |             | US                    |             | VG                    |             | VW                    |
|                | UD                    |             | UT                    |             | VH                    |             | VX                    |
|                | UE                    |             | UU                    |             | VJ                    |             | VY                    |
|                | UF                    |             | UV                    |             | VK                    |             | VZ                    |
|                | UG                    |             | UW                    |             | VL                    | OFF         | WA                    |
|                | UH                    |             | UX                    |             | VM                    | AUTO        | WB                    |
|                | UJ                    |             | UY                    |             | VN                    |             | WC                    |
|                |                       | AUX<br>HTR  |                       |             |                       |             |                       |

① Additional icons are available. Contact your local Eaton Sales Representative.

② SAE Specification No. J1362.

## SVR, E31, E32 and E33 eSM Symbols <sup>①②</sup>

| Inscription                                                                         | Catalog Number Suffix | Inscription                                                                         | Catalog Number Suffix | Inscription                                                                         | Catalog Number Suffix | Inscription                                                                           | Catalog Number Suffix |
|-------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------------------------------|-----------------------|
|    | WD                    |    | WT                    |    | XJ                    |    | YA                    |
|    | WE                    |    | WU                    |    | XL                    |    | YB                    |
|    | WF                    |    | WV                    |    | XM                    |    | YC                    |
|    | WG                    |    | WX                    |    | XN                    | SET/RES                                                                               | YD                    |
|    | WH                    |    | WY                    | CODE                                                                                | XP                    |    | YE                    |
|    | WJ                    |    | WZ                    |    | XQ                    |    | YF                    |
|  | WK                    |  | XA                    |  | XR                    |  | YG                    |
|  | WL                    |  | XB                    |  | XS                    |  | YH                    |
| AUTO                                                                                | WM                    |  | XC                    | 1                                                                                   | XT                    |  | YJ                    |
|  | WN                    |  | XD                    | 2                                                                                   | XU                    | +                                                                                     | YK                    |
|  | WP                    |  | XE                    | 3                                                                                   | XV                    | -                                                                                     | YL                    |
|  | WQ                    | SHIFT                                                                               | XF                    |  | XW                    |  | YM                    |
|  | WR                    |  | XG                    |  | XY                    |  | YN                    |
|  | WS                    |  | XH                    |  | XZ                    |  | YP                    |
|                                                                                     |                       |  |                       |  |                       |  |                       |

① Additional icons are available. Contact your local Eaton Sales Representative.  
② SAE Specification No. J1362.

SVR, E31, E32 and E33 eSM Symbols <sup>①②</sup>

2

| Inscription                                                                         | Catalog Number Suffix | Inscription                                                                         | Catalog Number Suffix | Inscription                                                                         | Catalog Number Suffix | Inscription                                                                           | Catalog Number Suffix |
|-------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------------------------------|-----------------------|
|    | YQ                    |    | ZE                    |    | ZV                    | ENG<br>COMPT                                                                          | K1                    |
|    | YR                    |    | ZF                    |    | ZW                    |    | L1                    |
|    | YS                    |    | ZG                    |    | ZX                    |    | M1                    |
|    | YT                    |    | ZH                    |    | ZY                    | ISO                                                                                   | N1                    |
|    | YU                    |    | ZJ                    |    | ZZ                    | H                                                                                     | P1                    |
|    | YV                    |    | ZK                    |    | A1                    |    | R1                    |
|  | YW                    |  | ZL                    |  | B1                    |  | S1                    |
|  | YX                    |  | ZM                    |  | C1                    |  | T1                    |
|  | YY                    |  | ZN                    |  | D1                    |  | U1                    |
|  | YZ                    |  | ZP                    |  | E1                    |  | V1                    |
|  | ZA                    |  | ZR                    |  | F1                    |  | W1                    |
|  | ZB                    |  | ZS                    |  | G1                    | DRIVER<br>VALVE                                                                       | X1                    |
|  | ZC                    |  | ZT                    |  | H1                    | OFFICER<br>VALVE                                                                      | Y1                    |
|  | ZD                    |  | ZU                    |  | J1                    | REAR<br>VALVE                                                                         | Z1                    |

① Additional icons are available. Contact your local Eaton Sales Representative.

② SAE Specification No. J1362.

SVR, E31, E32 and E33 eSM Symbols <sup>①②</sup>

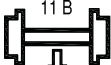
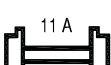
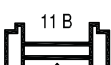
| Inscription | Catalog Number Suffix | Inscription     | Catalog Number Suffix | Inscription | Catalog Number Suffix | Inscription | Catalog Number Suffix |
|-------------|-----------------------|-----------------|-----------------------|-------------|-----------------------|-------------|-----------------------|
| ISO         | A2                    |                 | R2                    |             | G3                    |             | U3                    |
| H           | B2                    |                 | S2                    |             | H3                    |             | V3                    |
|             | C2                    |                 | T2                    |             | I3                    |             | W3                    |
| HP          | D2                    |                 | U2                    |             | J3                    |             | X3                    |
| HF          | E2                    |                 | V2                    |             | K3                    |             | Y3                    |
|             | F2                    |                 | W2                    |             | L3                    |             | Z3                    |
|             | G2                    |                 | X2                    |             | M3                    |             | A4                    |
|             | H2                    |                 | Y2                    |             | N3                    |             | B4                    |
| O/D<br>OFF  | J2                    | PUMP<br>COMP LT | Z2                    |             | O3                    |             | C4                    |
|             | K2                    |                 | A3                    |             | P3                    |             | D4                    |
|             | L2                    |                 | B3                    |             | Q3                    |             | E4                    |
| APG         | M2                    |                 | C3                    |             | R3                    |             | F4                    |
| ePTO        | N2                    |                 | D3                    |             | S3                    |             | G4                    |
|             | P2                    |                 | F3                    |             | T3                    |             | H4                    |

<sup>①</sup> Additional icons are available. Contact your local Eaton Sales Representative.

<sup>②</sup> SAE Specification No. J1362.

SVR, E31, E32 and E33 eSM Symbols <sup>①②</sup>

2

| Inscription                                                                        | Catalog Number Suffix | Inscription                                                                       | Catalog Number Suffix | Inscription                                                                       | Catalog Number Suffix | Inscription                                                                         | Catalog Number Suffix |
|------------------------------------------------------------------------------------|-----------------------|-----------------------------------------------------------------------------------|-----------------------|-----------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|-----------------------|
|   | I4                    |  | P4                    |  | V4                    |  | B5                    |
|   | J4                    |  | Q4                    |  | W4                    |  | C5                    |
|   | K4                    |  | R4                    |  | X4                    |  | D5                    |
|   | L4                    |  | S4                    |  | Y4                    |  | X5                    |
|   | M4                    |  | T4                    |  | Z4                    |  | X6                    |
|   | N4                    |  | U4                    |  | A5                    |  | X7                    |
|  | O4                    |                                                                                   |                       |                                                                                   |                       |                                                                                     |                       |

<sup>①</sup> Additional icons are available. Contact your local Eaton Sales Representative.

<sup>②</sup> SAE Specification No. J1362.

High Capacity Switch



Panel Board Switch



Keylock



Locking Rocker



|                                                                     |           |
|---------------------------------------------------------------------|-----------|
| <b>3.1 High Capacity Switches</b>                                   |           |
| Product Description . . . . .                                       | V11-T3-2  |
| Standards and Certifications . . . . .                              | V11-T3-2  |
| Product Selection . . . . .                                         | V11-T3-2  |
| Technical Data and Specifications . . . . .                         | V11-T3-2  |
| Dimensions . . . . .                                                | V11-T3-2  |
| <b>3.2 Panelboard Switches</b>                                      |           |
| Product Description . . . . .                                       | V11-T3-3  |
| Standards and Certifications . . . . .                              | V11-T3-3  |
| Product Selection . . . . .                                         | V11-T3-4  |
| Technical Data and Specifications . . . . .                         | V11-T3-4  |
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| Features . . . . .                                                  | V11-T3-5  |
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| Accessories . . . . .                                               | V11-T3-7  |
| Technical Data and Specifications . . . . .                         | V11-T3-7  |
| Dimensions . . . . .                                                | V11-T3-8  |
| <b>3.4 Locking Rocker</b>                                           |           |
| Product Description . . . . .                                       | V11-T3-9  |
| Standards and Certifications . . . . .                              | V11-T3-9  |
| Product Selection . . . . .                                         | V11-T3-9  |
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| Circuit Diagrams . . . . .                                          | V11-T3-10 |
| Dimensions . . . . .                                                | V11-T3-10 |

## High Capacity Switch

3



## Contents

**Description**

High Capacity Switches

**Product Description**

The heavy duty high capacity switch, Catalog Number 7818K1 is ideal for exceptionally high-power applications, for heavy-duty motor loads and for use in welding equipment or similar industrial applications.

By combining innovative design and quality materials, this switch is designed to carry the specified maximum inrush current for 10 milliseconds for a minimum of 20,000 ON/OFF cycles.

**Standards and Certifications**

- UL® to Standard 508, File E147754

**Product Selection****High Capacity Switch**

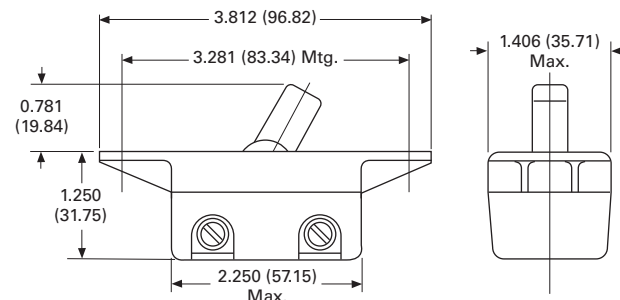
| Description                   | Catalog Number |
|-------------------------------|----------------|
| 40A, 600 Vac<br>5 hp, 250 Vac | <b>7818K1</b>  |

**Technical Data and Specifications****High Capacity Switches**

| Description          | Specification                                                                                                                                                               |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Circuits             | 2PST, maintained                                                                                                                                                            |
| Contact mechanism    | Quick-make/quick-break snap acting butt contact<br>Make: 200A peak inrush at 125 Vac for 10 ms for 20,000 cycles minimum<br>Break: 20A at 125 Vac for 20,000 cycles minimum |
| Contact material     | 10% silver cadmium oxide composite                                                                                                                                          |
| Terminal types       | Screw—brass (Catalog Number 11-6074-4) supplied. Furnish unassembled                                                                                                        |
| Mounting means       | Molded flush mounting bracket, high impact polycarbonate, 3.312 in (84.12 mm), center-to-center spacing and 2.375 in (60.33 mm) spacing for self-tapping screws             |
| Lever                | Nylon                                                                                                                                                                       |
| Base                 | Molded thermoset material                                                                                                                                                   |
| Dielectric withstand | 2200V rms minimum                                                                                                                                                           |

**Dimensions**

Approximate Dimensions in Inches (mm)

**7818K1**

Panel Board Switches



Product Description

This group of two-position power toggle switches is used by manufacturers in a wide variety of applications that require dependability and long service, such as welding equipment, commercial floor polishers, battery chargers, food processors and panelboards.

Standards and  
Certifications

- UL Recognized
- CSA® Certified as noted



Contents

Description

Panelboard Switches

|                                         |          |
|-----------------------------------------|----------|
| Product Selection .....                 | V11-T3-4 |
| Technical Data and Specifications ..... | V11-T3-4 |

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| V11-T3-4 |

## Product Selection

8980K1

## Panelboard Switches

3



8980K5



| Rating                                                               | Poles and Throw | Mounting         | Terminals  | Catalog Number              |
|----------------------------------------------------------------------|-----------------|------------------|------------|-----------------------------|
| 60A, 250 Vac/Vdc<br>2 hp, 125–250 Vac/Vdc <sup>①</sup>               | 2PST            | N/A              | N/A        | <b>8980K1</b> <sup>②</sup>  |
| 30A, 250 Vac/Vdc<br>30A, 125V “T”<br>2 hp, 120–240 Vac               | 1P double break | Frame plate      | Center bus | <b>8980K2</b>               |
| 30A, 250 Vac/Vdc<br>20A, 600 Vac<br>2 hp, 120–600 Vac                | 2PST            | Panel type strap | Screw      | <b>8980K5</b>               |
| 30A, 250 Vac/Vdc<br>20A, 600 Vac<br>2 hp, 120–600 Vac<br>Three-phase | 3PST            | Panel type       | Screw      | <b>8980K6</b>               |
| 30A, 250 Vac/Vdc<br>2 hp, 120–240 Vac<br>1 hp, 480 Vac               | 2PST            | Panel type strap | Screw      | <b>8980K14</b> <sup>③</sup> |
| 30A, 250 Vac/Vdc<br>2 hp, 120–240 Vac                                | 2PST            | Panel type strap | Screw      | <b>8980K16</b>              |

## Technical Data and Specifications

## Panelboard Switches

| Description                 | Specification                                                                                                  |
|-----------------------------|----------------------------------------------------------------------------------------------------------------|
| Rating                      | 10–60A; 120–600V<br>See Product Selection table                                                                |
| Circuits                    | 1PST, 2PST, 3PST 2 circuit, maintained<br>Except for Catalog Number 8980K13, momentary                         |
| Contact mechanism           | Quick-make/quick-break wiping action<br>Except for Catalog Number 8980K13, quick-make/quick-break butt contact |
| Contact material            | Movable—bronze; stationary—copper; Catalog Number 8980K13—silver                                               |
| Terminal types              | Screw or bus                                                                                                   |
| Termination material        | Copper                                                                                                         |
| Mounting means              | Two-hole mounting—panel type flush                                                                             |
| Dielectric withstand        | 1000 volts rms minimum                                                                                         |
| Operating temperature range | 0° to 150°F (–17.8° to 65.6°C)                                                                                 |

**Notes**

<sup>①</sup> For appliance use only; 32A, 480 Vac, 25A, 600 Vac.

<sup>②</sup> CSA Certified.

<sup>③</sup> Binding screws assembled. For binding screws provided unassembled, order Catalog Number 8980K30.

General Purpose and Heavy Duty Keylocks



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| Description                                              | Page     |
|----------------------------------------------------------|----------|
| Keylock Switches, General Purpose/Heavy Duty—AC/DC Rated |          |
| Product Selection . . . . .                              | V11-T3-6 |
| Accessories . . . . .                                    | V11-T3-7 |
| Technical Data and Specifications . . . . .              | V11-T3-7 |
| Dimensions . . . . .                                     | V11-T3-8 |

Product Description

General Purpose

These keylock switches provide reliable performance in a space-saving design. They all use quick-make/quick-break switching mechanisms, with wiping action blades for self-cleaning contacts.

Heavy Duty

These switches have a slow-make/slow-break switching mechanism with large butt type contacts. Their high current switching capability allows them to be used for locking switching circuits in power applications.

Features

Termination Types

General Purpose

Solder lugs—Brass silver-plated

Heavy Duty

- 7842 Series
- Screw terminals—Brass designed to accept #7-32 x 3/16 binding head screws

Furnished unassembled

- 7846 Series
- Quick connect terminals—Brass

Mounting Means

General Purpose

Threaded bushing—0.468 in (11.89 mm) dia.

Keyway—0.062–0.067 in wide x 0.035–0.370 deep (1.55–1.70 mm wide x 0.89–0.94 mm deep

Hardware supplied—1 hexnut (Cat. No. **15-192**) and 1 chamfered dress nut (Cat. No. **15-994-2**)

Furnished unassembled

Heavy Duty

- 7842 Series
- Slotted bushing—0.468 in (11.89 mm) dia.

Hardware supplied—4 terminal screws and 1 hexnut

Furnished unassembled

- 7846 Series
- Hardware supplied—2 hexnuts

## Product Selection

3



## General Purpose Keylock AC/DC Switches

| Rating          | Poles and Throw | Circuit with Key in ... (Keyway Down) |                          |                | Key Removal Position | Solder Lug Terminal Catalog Number |
|-----------------|-----------------|---------------------------------------|--------------------------|----------------|----------------------|------------------------------------|
|                 |                 | LEFT Position                         | CENTER Position (Keyway) | RIGHT Position |                      |                                    |
| 6A, 125 Vac/Vdc | 1PST            | —                                     | OFF                      | ON             | CENTER               | 8928K492                           |
| 3A, 250 Vac/Vdc | 1PST            | —                                     | OFF                      | ON             | CENTER and RIGHT     | 8928K493                           |
| 6A, 125 Vac/Vdc | 1PDT            | —                                     | ON                       | ON             | CENTER and RIGHT     | 8928K494                           |
| 1A, 250 Vac/Vdc | 1PDT            | —                                     | ON                       | ON             | CENTER and RIGHT     | 8928K494                           |
| 6A, 125 Vac/Vdc | 1PDT            | —                                     | ON                       | ON             | CENTER               | 8283K150                           |
| 1-1/2A, 250 Vdc | 1PDT            | —                                     | ON                       | ON             | CENTER               | 8283K150                           |
| 6A, 125 Vac/Vdc | 2PST            | —                                     | OFF                      | ON             | CENTER               | 8370K150                           |
| 3A, 250 Vdc     | 2PST            | —                                     | ON                       | OFF            | CENTER               | 8370K151                           |
| 6A, 125 Vac/Vdc | 2PST            | —                                     | OFF                      | ON             | CENTER and RIGHT     | 8928K495                           |
| 3A, 250 Vac/Vdc | 2PST            | —                                     | OFF                      | ON             | CENTER and RIGHT     | 8928K495                           |
| 6A, 125 Vac/Vdc | 2PDT            | —                                     | ON                       | ON             | CENTER               | 8373K150                           |
| 3A, 250 Vdc     | 2PDT            | —                                     | ON                       | ON             | CENTER and RIGHT     | 8373K151                           |



## Heavy Duty Keylock AC Rated Switches

| Rating                  | Circuit | Action        | Key Removal Position | Slotted Bushing Length Inches | Slotted Bushing Length mm | Type of Termination | Key Style   | Catalog Number      |
|-------------------------|---------|---------------|----------------------|-------------------------------|---------------------------|---------------------|-------------|---------------------|
| <b>7846 Type Series</b> |         |               |                      |                               |                           |                     |             |                     |
| 20A, 120 Vac            | 2PST    | OFF-ON-OFF-ON | OFF                  | 0.50                          | 12.7                      | Quick Connect       | E (13-8173) | 7846K1 <sup>①</sup> |
| 20A, 240 Vac            |         |               |                      |                               |                           |                     |             |                     |
| 1-1/2 hp, 120 Vac       |         |               |                      |                               |                           |                     |             |                     |
| 2 hp, 240 Vac           |         |               |                      |                               |                           |                     |             |                     |

**Note**<sup>①</sup> Not CSA Certified.

## Keylock Switches, General Purpose/Heavy Duty—AC/DC Rated

## Accessories

## Keys for Locking Switches

Additional keys may be ordered from the Key Selection table.

Key styles shown match those listed for specific switches in the Product Selection tables.



## Key Selection

| Where Used                            | Catalog Number |
|---------------------------------------|----------------|
| General purpose and heavy duty series | <b>13-5496</b> |
| Security locking bracket              | <b>13-8171</b> |
| 7846K1                                | <b>13-8173</b> |

## Rotary Keylock Brackets—Security Tumbler Type

This series of rotary keylock is designed for use in security applications. They provide a simple method of converting single- and two-pole toggle switches. For use with two- or three-position switches.

## Key Selection

| Where Used                                  | Catalog Number |
|---------------------------------------------|----------------|
| Key removable in counter-clockwise position | <b>8980P25</b> |
| Key removable in clockwise position         | <b>8980P27</b> |
| Key removable in either extreme position    | <b>8980P28</b> |

## Technical Data and Specifications

## Keylock Switches, General Purpose/Heavy Duty—AC/DC Rated

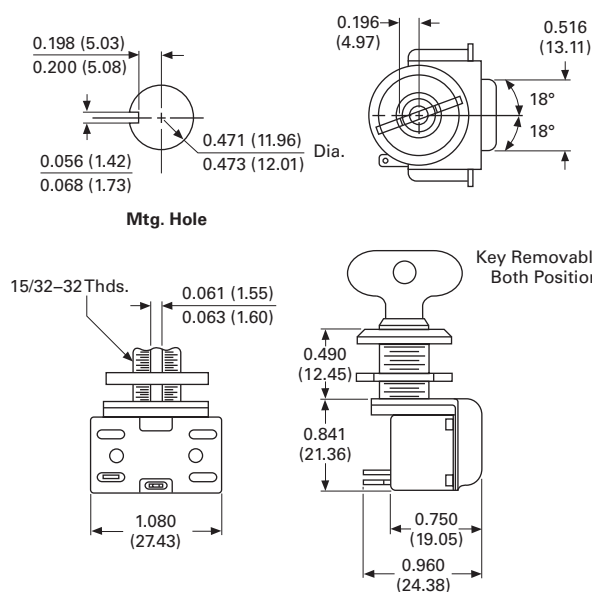
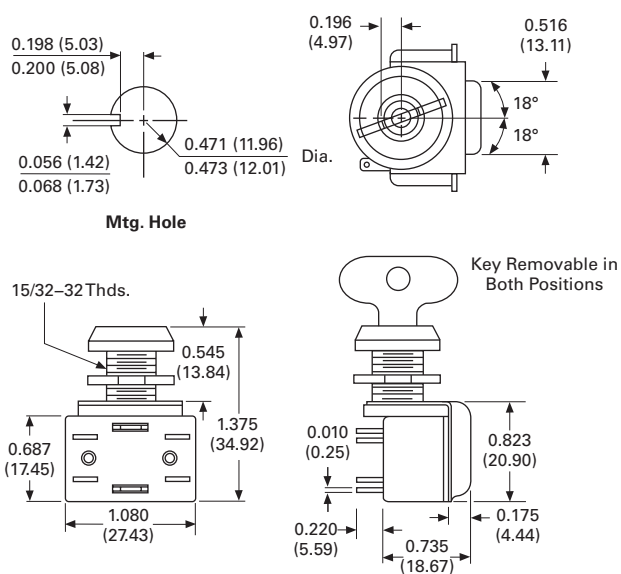
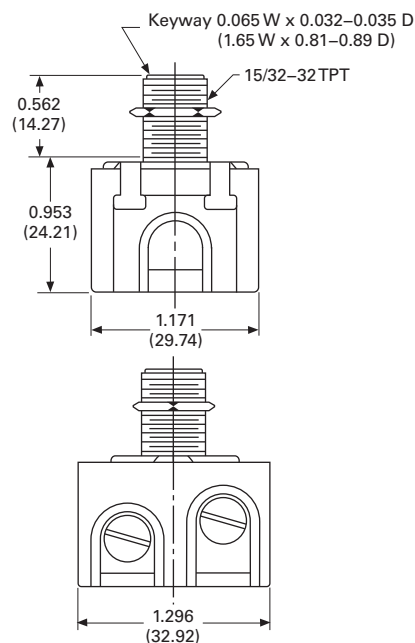
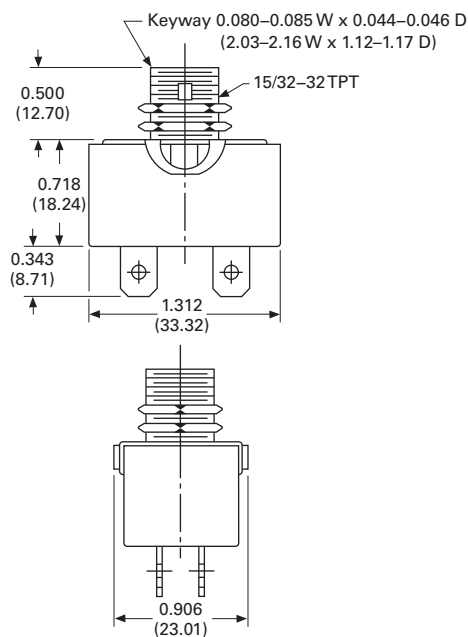
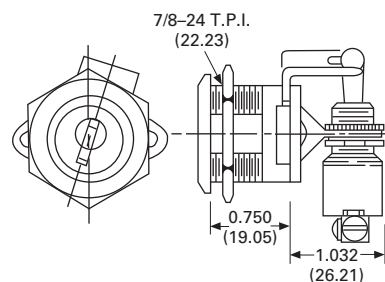
| Description       | General Purpose                                                | Heavy Duty                                                      |
|-------------------|----------------------------------------------------------------|-----------------------------------------------------------------|
| Circuits          | 1PST, 1PDT, 2PST, 2PDT<br>Maintained action                    | 2PST, 2-circuit<br>maintained                                   |
| Contact mechanism | Quick-make/quick-break wiping action                           | Slow-make/slow-break butt contact                               |
| Contact material  | Movable—Bronze silver-plated<br>Stationary—Brass silver-plated | Movable—Silver cadmium oxide<br>Stationary—Silver cadmium oxide |

## Rotary Keylock Brackets

| Description                      | Specification                              |
|----------------------------------|--------------------------------------------|
| Bushing                          | 7/8 in dia., 24 threads/inch               |
| Mounting hardware and keys       |                                            |
| 1 hexagon locknut                | Cat. No. 15-2528-2                         |
| 1 bright chrome plated dress nut | Cat. No. 15-2528-2 (furnished unassembled) |
| 2 keys                           | Cat. No. 13-8171                           |
| Finish                           |                                            |
| Lock bushing                     | Diecast zinc                               |
| Lock barrel and dress nut        | Chrome plated brass                        |
| Keys                             | Brass                                      |

**Dimensions**

Approximate Dimensions in Inches (mm)

**8928K493—1PST/1PDT****8373K151—2PST/2PDT****7842K2—2PST****7846K1—2PST****8980P27**

## Locking Rockers



## Contents

## Description

## Locking Rockers

|                                             |           |
|---------------------------------------------|-----------|
| Accessories . . . . .                       | V11-T3-10 |
| Technical Data and Specifications . . . . . | V11-T3-10 |
| Circuit Diagrams . . . . .                  | V11-T3-10 |
| Dimensions . . . . .                        | V11-T3-10 |

## Product Description

This unique switch features a patented internal locking mechanism, which allows the switch to be locked in the OFF position to prevent unauthorized or accidental operation. The key to locking

or unlocking the switch is a removable paddle rocker cap, which must be inserted in order to move the switch to the ON position. The switch can still be turned OFF.

The locking rocker is ideally suited for such markets as portable tools, computers, lawn and garden equipment, marine and construction.

## Standards and Certifications

- UL Recognized
- CSA Certified
- RoHS Compliant <sup>①</sup>



**Note:** Contact your local Eaton Sales Representative for selection information and optional features.

## Product Selection

## Locking Rocker Switch

| Circuit with Rocker in ... |                 |                                                                                     |                |                                                                                     |                    |                                                                                     |                  |                                         |                   |
|----------------------------|-----------------|-------------------------------------------------------------------------------------|----------------|-------------------------------------------------------------------------------------|--------------------|-------------------------------------------------------------------------------------|------------------|-----------------------------------------|-------------------|
| Rating ②                   | Poles and Throw |  | UP<br>Position |  | CENTER<br>Position |  | DOWN<br>Position | Base Circuit<br>(See Page<br>V11-T3-10) | Catalog<br>Number |
|                            |                 |                                                                                     |                |                                                                                     |                    |                                                                                     |                  |                                         |                   |
| Without Palm Guard Feature |                 |                                                                                     |                |                                                                                     |                    |                                                                                     |                  |                                         |                   |
| 20A, 125 Vac               | 1PST            | ON                                                                                  |                | NONE                                                                                |                    | OFF                                                                                 |                  | A                                       | 8166K27           |
| 20A, 250 Vac               | 1PDT            | ON                                                                                  |                | NONE                                                                                |                    | ON                                                                                  |                  | B                                       | 8166K28           |
| 1 hp, 125 Vac              | 2PST            | ON                                                                                  |                | NONE                                                                                |                    | OFF                                                                                 |                  | C                                       | 8166K25           |
| 2 hp, 250 Vac              | 2PDT            | ON                                                                                  |                | NONE                                                                                |                    | ON                                                                                  |                  | D                                       | 8166K26           |
| With Palm Guard Feature    |                 |                                                                                     |                |                                                                                     |                    |                                                                                     |                  |                                         |                   |
| 20A, 125 Vac               | 1PST            | ON                                                                                  |                | NONE                                                                                |                    | OFF                                                                                 |                  | A                                       | 8166K23           |
| 20A, 250 Vac               | 1PDT            | ON                                                                                  |                | NONE                                                                                |                    | ON                                                                                  |                  | B                                       | 8166K24           |
| 1 hp, 125 Vac              | 2PST            | ON                                                                                  |                | NONE                                                                                |                    | OFF                                                                                 |                  | C                                       | 8166K21           |
| 2 hp, 250 Vac              | 2PDT            | ON                                                                                  |                | NONE                                                                                |                    | ON                                                                                  |                  | D                                       | 8166K22           |

## Notes

<sup>①</sup> Visit [www.eaton.com/vcbu](http://www.eaton.com/vcbu) for the most up-to-date list of verified part numbers.

<sup>②</sup> Ratings listed for 125 Vac also apply at 28 Vdc. Also supplied with a 20A, 277 Vac rating as standard.

## Accessories

53-3021-2

## Replacement Cap



| Description                       | Catalog Number |
|-----------------------------------|----------------|
| Red paddle rocker replacement cap | 53-3021-2      |

## Technical Data and Specifications

## Locking Rocker Switch

| Description       | Specification                                                                                                     |
|-------------------|-------------------------------------------------------------------------------------------------------------------|
| Contact mechanism | Butt action contact mechanism designed specifically for use on AC and low voltage DC applications                 |
| Contact material  | Movable—Silver-plated copper w/cad-oxide contact face button<br>Stationary—Copper w/cad-oxide contact face button |
| Terminal types    | 0.25 in spade terminals are standard                                                                              |
| Rocker material   | Custom styled, red thermoplastic rocker key with "REMOVE TO LOCK" across the top of the key in raised letters     |
| Dielectric        | 1000V rms minimum                                                                                                 |

## Circuit Diagrams

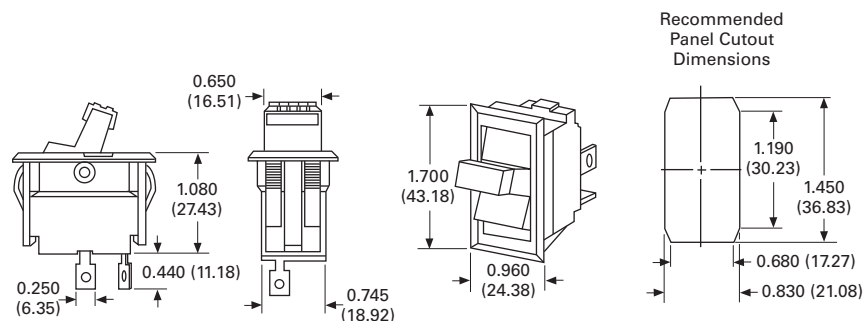
## Locking Rocker Circuit Diagrams

| Circuit Letter   | Schematic | Circuit Letter   | Schematic |
|------------------|-----------|------------------|-----------|
| <b>A</b><br>1PST |           | <b>C</b><br>2PST |           |
| <b>B</b><br>1PDT |           | <b>D</b><br>2PDT |           |

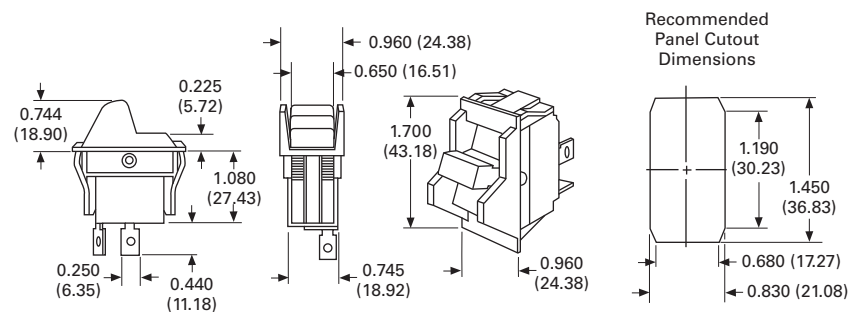
## Dimensions

Approximate Dimensions in Inches (mm)

## Locking Rocker Switch without Palm Guard



## Locking Rocker Switch with Palm Guard



**Military**



**Illuminated AC Rated**



**General Purpose AC/DC Rated**



**X Series Toggles**



## 4.1 Introduction

Product Selection Guide ..... V11-T4-2

## 4.2 Military Purpose Toggles

Product Selection ..... V11-T4-3

Technical Data and Specifications ..... V11-T4-6

Dimensions ..... V11-T4-7

## 4.3 Illuminated AC Rated Toggles

Catalog Number Selection ..... V11-T4-9

Technical Data and Specifications ..... V11-T4-10

Dimensions ..... V11-T4-10

## 4.4 General Purpose Toggles—AC Rated

Product Selection ..... V11-T4-12

Technical Data and Specifications ..... V11-T4-16

Dimensions ..... V11-T4-16

## 4.5 General Purpose Toggles—AC/DC Rated

Product Selection ..... V11-T4-20

Technical Data and Specifications ..... V11-T4-21

Dimensions ..... V11-T4-21

## 4.6 X Series Toggles

Product Description ..... V11-T4-24

Accessories ..... V11-T4-25

Technical Data and Specifications ..... V11-T4-25

Dimensions ..... V11-T4-26

## 4.7 Heavy Duty Hesitation Switches

Product Description ..... V11-T4-27

Technical Data and Specifications ..... V11-T4-29

Dimensions ..... V11-T4-29

## 4.8 Accessories

Mounting Hardware ..... V11-T4-31

Decorator Facenuts ..... V11-T4-33

Panel Seal ..... V11-T4-33

Replacement Terminal Screws ..... V11-T4-33

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## 4.9 Technical Data

Circuit Diagrams ..... V11-T4-35

## Toggle Switches



## Contents

**Description**

|                                               |                  |
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| Illuminated AC Rated Toggles . . . . .        | <b>V11-T4-9</b>  |
| General Purpose Toggles—AC Rated . . . . .    | <b>V11-T4-11</b> |
| General Purpose Toggles—AC/DC Rated . . . . . | <b>V11-T4-20</b> |
| X Series Toggles . . . . .                    | <b>V11-T4-24</b> |
| Heavy Duty Hesitation Switches . . . . .      | <b>V11-T4-27</b> |
| Accessories . . . . .                         | <b>V11-T4-31</b> |
| Technical Data . . . . .                      | <b>V11-T4-35</b> |

## Product Selection Guide

## Toggle Switches

|                            | Military Purpose Toggles                                                               | Illuminated AC Rated Switches                                                                                                          | General Purpose Toggles—<br>AC Rated                                                                                                |
|----------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
|                            |     |                                                     |                                                 |
| <b>Product Selection</b>   | Page V11-T4-3                                                                          | Page V11-T4-9                                                                                                                          | Page V11-T4-20                                                                                                                      |
| <b>Circuit Diagram</b>     | Page V11-T4-35                                                                         | —                                                                                                                                      | Page V11-T4-35                                                                                                                      |
| <b>Product Description</b> | Eaton's military purpose switches are designed to meet the requirements of MIL-S-83731 | These illuminated switches are available only in single-pole circuitry. A two-pole base is utilized with single-pole housing the lamp. | These AC rated toggle switches offer the widest selection of features and the design flexibility to meet a variety of applications. |

|                            | General Purpose Toggles—<br>AC/DC Rated                                                                                                             | X Series Toggles                                                                                                                      | Heavy Duty Hesitation Switches                                                                                                                                                  |
|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                            |                                                                  |                                                    |                                                                                             |
| <b>Product Selection</b>   | Page V11-T4-20                                                                                                                                      | Page V11-T4-24                                                                                                                        | Page V11-T4-27                                                                                                                                                                  |
| <b>Circuit Diagram</b>     | Page V11-T4-35                                                                                                                                      | —                                                                                                                                     | Page V11-T4-35                                                                                                                                                                  |
| <b>Product Description</b> | This line of switches employs a quick-make/quick-break contact mechanism. These switches are especially suited for use in small motor applications. | Eaton's new, competitively priced, AC rated X Series toggles offer a standard high rating for both single- and two-pole applications. | The most common application for this switch is to help prevent motor damage resulting from the high current generation by counter EMF of the armature at the time of reversing. |

## Military Purpose Toggles



## Contents

## Description

Military Purpose Toggles

|                                             |          |
|---------------------------------------------|----------|
| Technical Data and Specifications . . . . . | V11-T4-6 |
| Dimensions . . . . .                        | V11-T4-7 |

## Product Description

Eaton's military purpose switches are designed to meet the requirements of MIL-S-83731. Sealed Switches have a silicone rubber lever seal assembled between the lever and the bushing to resist the entrance of contaminants such as dust, sand or water into the contact structure.

The switch mechanisms are completely enclosed to resist the entrance of contaminants into the switch. All metal parts are plated to resist corrosion. The heavy duty switches are offered in both standard toggle lever and lever lock versions. Circuit designations are stamped on the side of each switch.

## Standards and Certifications

- MIL-S-83731

## Product Selection

## AC/DC Rated (Medium Duty) MIL-S-83731



| Current Ratings    | Poles and Throw | Circuit with Toggle in ...                                                                      |                                                                                                     |                                                                                                            | Base Circuit See Page V11-T4-35 | Dimension "A" Inches (mm) | Dimension "B" Inches (mm) | Military Solder Lug Terminals                               |                                                    |
|--------------------|-----------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|---------------------------------|---------------------------|---------------------------|-------------------------------------------------------------|----------------------------------------------------|
|                    |                 | UP Position  | CENTER Position  | DOWN Position  (Keyway) |                                 |                           |                           | MIL-S-83731 with Sealed Lever                               | Catalog Number                                     |
| Single-Pole        |                 |                                                                                                 |                                                                                                     |                                                                                                            |                                 |                           |                           |                                                             |                                                    |
| See <b>A</b> below | 1PST            | ON<br>ON<br>OFF                                                                                 | NONE<br>NONE<br>NONE                                                                                | OFF<br>MOM. OFF<br>MOM. ON                                                                                 | A                               | —                         | 0.906 (23.01)             | <b>MS25098-22</b><br><b>MS25098-29</b><br><b>MS25098-30</b> | <b>8261K22</b><br><b>8261K29</b><br><b>8261K30</b> |
| See <b>A</b> below | 1PDT            | ON<br>ON                                                                                        | NONE<br>NONE                                                                                        | ON<br>MOM. ON                                                                                              | B                               | 0.937 (23.80)             | —                         | <b>MS25098-23</b><br><b>MS25098-26</b>                      | <b>8261K23</b><br><b>8261K26</b>                   |
| Two-Pole           |                 |                                                                                                 |                                                                                                     |                                                                                                            |                                 |                           |                           |                                                             |                                                    |
| See <b>B</b> below | 2PST            | ON<br>ON<br>OFF                                                                                 | NONE<br>NONE<br>NONE                                                                                | OFF<br>MOM. OFF<br>MOM. ON                                                                                 | C                               | —                         | 0.906 (23.01)             | <b>MS25100-22</b><br><b>MS25100-29</b><br><b>MS25100-30</b> | <b>8262K22</b><br><b>8262K29</b><br><b>8262K30</b> |
| See <b>C</b> below | 2PDT            | ON<br>ON                                                                                        | NONE<br>NONE                                                                                        | ON<br>MOM. ON                                                                                              | D                               | 0.937 (23.80)             | —                         | <b>MS25100-23</b><br><b>MS25100-26</b>                      | <b>8262K23</b><br><b>8262K26</b>                   |

## Current Ratings

| Part Number |                    | Current Capacity in Amperes per Pole = 125 Vac, 60 Hz |                |
|-------------|--------------------|-------------------------------------------------------|----------------|
|             |                    | Resistive Load                                        | Inductive Load |
| <b>A</b>    | All MS25098        | 3.0                                                   | 1.5            |
| <b>B</b>    | MS25100-22, 29, 30 | 3.0                                                   | 1.5            |
| <b>C</b>    | MS25100-23, 26     | 1.0                                                   | 1.0            |



## AC Rated (Heavy Duty) MIL-S-83731 with Lever Seal

|                                          |                   | Circuit with Toggle in ...                                                                                               |                                                                                                                |                                                                                                                                    |                                 |                                |                              | Screw Terminals with Sealed Lever                                                                                          |                                                                                                                                           |
|------------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|--------------------------------|------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Current Ratings                          | Poles and Throw   | UP Position                                                                                                              | CENTER Position                                                                                                | DOWN Position                                                                                                                      | Base Circuit See Page V11-T4-35 | Bushing Length "A" Inches (mm) | Lever Length "B" Inches (mm) | MS Part Number                                                                                                             | Catalog Number                                                                                                                            |
|                                          |                   |                                         |                               |  (Keyway)                                         |                                 |                                |                              |                                                                                                                            |                                                                                                                                           |
| Single-Pole                              |                   |                                                                                                                          |                                                                                                                |                                                                                                                                    |                                 |                                |                              |                                                                                                                            |                                                                                                                                           |
| See <b>A</b> below<br>See <b>B</b> below | 1PST              | ON<br>ON<br>ON<br>ON<br>NONE<br>OFF                                                                                      | NONE<br>OFF<br>NONE<br>MOM. OFF<br>OFF<br>NONE                                                                 | OFF<br>NONE<br>MOM. OFF<br>NONE<br>MOM. ON<br>MOM. ON                                                                              | A                               | 0.468 (11.89)                  | 0.687 (17.45)                | <b>MS35058-22</b><br><b>MS35058-24</b><br><b>MS35058-29</b><br><b>MS35058-25</b><br><b>MS35058-28</b><br><b>MS35058-30</b> | <b>8801K22</b><br><b>8801K23</b><br><b>8813K17</b><br><b>8813K18</b><br><b>8811K18</b><br><b>8811K17</b>                                  |
| See <b>A</b> below<br>See <b>B</b> below | 1PDT              | ON<br>ON<br>ON<br>MOM. ON<br>ON                                                                                          | OFF<br>NONE<br>NONE<br>OFF<br>OFF                                                                              | ON<br>ON<br>MOM. ON<br>MOM. ON<br>MOM. ON                                                                                          | B                               | 0.468 (11.89)                  | 0.687 (17.45)                | <b>MS35058-21</b><br><b>MS35058-23</b><br><b>MS35058-26</b><br><b>MS35058-27</b><br><b>MS35058-31</b>                      | <b>8800K16</b><br><b>8810K15</b><br><b>8804K13</b><br><b>8812K14</b><br><b>8809K16</b>                                                    |
| Two-Pole                                 |                   |                                                                                                                          |                                                                                                                |                                                                                                                                    |                                 |                                |                              |                                                                                                                            |                                                                                                                                           |
| See <b>C</b> below<br>See <b>D</b> below | 2PST              | ON<br>ON<br>ON<br>ON<br>NONE<br>OFF                                                                                      | NONE<br>OFF<br>NONE<br>MOM. OFF<br>OFF<br>NONE                                                                 | OFF<br>NONE<br>MOM. OFF<br>NONE<br>MOM. ON<br>MOM. ON                                                                              | C                               | 0.468 (11.89)                  | 0.687 (17.45)                | <b>MS35059-22</b><br><b>MS35059-24</b><br><b>MS35059-29</b><br><b>MS35059-25</b><br><b>MS35059-28</b><br><b>MS35059-30</b> | <b>8822K20</b><br><b>8822K21</b><br><b>8828K13</b><br><b>8828K12</b><br><b>8826K14</b><br><b>8826K15</b>                                  |
| See <b>C</b> below<br>See <b>D</b> below | 2PDT              | ON<br>ON<br>ON<br>MOM. ON<br>ON                                                                                          | OFF<br>NONE<br>NONE<br>OFF<br>OFF                                                                              | ON<br>ON<br>MOM. ON<br>MOM. ON<br>MOM. ON                                                                                          | D                               | 0.468 (11.89)                  | 0.687 (17.45)                | <b>MS35059-21</b><br><b>MS35059-23</b><br><b>MS35059-26</b><br><b>MS35059-27</b><br><b>MS35059-31</b>                      | <b>8820K16</b><br><b>8824K14</b><br><b>8830K13</b><br><b>8834K5</b><br><b>8832K6</b>                                                      |
| See <b>E</b> below                       | 1P3T in a 2P base | ON <sup>①</sup><br>ON <sup>①</sup><br>MOM. ON <sup>①</sup><br>ON <sup>①</sup><br>ON <sup>①</sup><br>MOM. ON <sup>①</sup> | ON <sup>②</sup><br>ON <sup>②</sup><br>ON <sup>②</sup><br>ON <sup>③</sup><br>ON <sup>③</sup><br>ON <sup>③</sup> | ON <sup>④</sup><br>MOM. ON <sup>④</sup><br>MOM. ON <sup>④</sup><br>ON <sup>④</sup><br>MOM. ON <sup>④</sup><br>MOM. ON <sup>④</sup> | See Page V11-T4-35              | 0.468 (11.89)                  | 0.687 (17.45)                | <b>MS25201-4</b><br><b>MS25201-5</b><br><b>MS25201-6</b><br><b>MS25201-7</b><br><b>MS25201-8</b><br><b>MS25201-9</b>       | <b>8860K4</b><br><b>8860K5</b><br><b>8860K6</b><br><b>8860K7</b> <sup>⑤</sup><br><b>8860K8</b> <sup>⑤</sup><br><b>8860K9</b> <sup>⑤</sup> |
| Four-Pole                                |                   |                                                                                                                          |                                                                                                                |                                                                                                                                    |                                 |                                |                              |                                                                                                                            |                                                                                                                                           |
| See <b>F</b> below<br>See <b>G</b> below | 4PST              | ON<br>ON<br>ON<br>NONE<br>OFF                                                                                            | NONE<br>OFF<br>MOM. OFF<br>OFF<br>NONE                                                                         | OFF<br>NONE<br>NONE<br>MOM. ON<br>MOM. ON                                                                                          | E                               | 0.468 (11.89)                  | 0.687 (17.45)                | —<br><b>MS25068-24</b><br><b>MS25068-25</b><br><b>MS25068-28</b><br>—                                                      | <b>7660K12</b><br><b>7660K13</b><br><b>7668K7</b><br><b>7666K9</b><br><b>7666K6</b>                                                       |
| See <b>F</b> below<br>See <b>G</b> below | 4PDT              | ON<br>ON<br>ON<br>MOM. ON<br>ON                                                                                          | OFF<br>NONE<br>NONE<br>OFF<br>OFF                                                                              | ON<br>ON<br>MOM. ON<br>MOM. ON<br>MOM. ON                                                                                          | F                               | 0.468 (11.89)                  | 0.687 (17.45)                | <b>MS25068-21</b><br><b>MS25068-23</b><br><b>MS25068-26</b><br><b>MS25068-27</b><br><b>MS25068-31</b>                      | <b>7662K7</b><br><b>7664K5</b><br><b>7674K5</b><br><b>7672K5</b><br><b>7670K6</b>                                                         |

## Current Ratings

|                  |                   | Current Capacity in Amperes per Pole |                |                |                |                |                |                 |                |                |
|------------------|-------------------|--------------------------------------|----------------|----------------|----------------|----------------|----------------|-----------------|----------------|----------------|
|                  |                   | 28 Vdc                               |                |                | 115 Vac, 60 Hz |                |                | 115 Vac, 400 Hz |                |                |
| Switch           | Type of Operation | Lamp Load                            | Resistive Load | Inductive Load | Lamp Load      | Resistive Load | Inductive Load | Lamp Load       | Resistive Load | Inductive Load |
| <b>A</b> MS35058 | Maintained        | 7                                    | 25             | 15             | —              | 10             | 10             | 3               | 10             | 10             |
| <b>B</b> MS35058 | Momentary         | 5                                    | 20             | 10             | —              | 10             | 7              | —               | —              | —              |
| <b>C</b> MS35059 | Maintained        | 7                                    | 20             | 15             | —              | 20             | —              | 4               | 20             | 15             |
| <b>D</b> MS35059 | Momentary         | 5                                    | 18             | 10             | —              | 11             | —              | —               | —              | —              |
| <b>E</b> MS25201 | ON-ON-ON          | 5                                    | 18             | 10             | 2              | 11             | 8              | 2               | 11             | 8              |
| <b>F</b> MS25068 | Maintained        | 5                                    | 20             | 12             | —              | —              | —              | 4               | 20             | 15             |
| <b>G</b> MS25068 | Momentary         | 4                                    | 18             | 10             | —              | —              | —              | 2               | 11             | 5              |

## Notes

- <sup>①</sup> Across terminals 2-3 and 5-6.  
<sup>②</sup> Across terminals 1-2 and 5-6.  
<sup>③</sup> Across terminals 2-3 and 4-5.  
<sup>④</sup> Across terminals 1-2 and 4-5.  
<sup>⑤</sup> For "INDEPENDENT ON-ON-ON" circuit arrangement, see Page V11-T4-35.



## AC Rated (Heavy Duty) MIL-S-83731 Lever Lock with Lever Seal

| Current Ratings    | Poles and Throw | Circuit with Toggle in ...                                                                    |                                                                                                   |                                                                                                          | Base Circuit See Page V11-T4-35 | Lever Lock Bushing Style <sup>①</sup> | Bushing Length "A" Inches (mm) | Lever Lock Length "B" Inches (mm) | Screw Terminals with Sealed Lever |                |
|--------------------|-----------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|---------------------------------|---------------------------------------|--------------------------------|-----------------------------------|-----------------------------------|----------------|
|                    |                 | UP Position  | CENTER Position  | DOWN Position (Keyway)  |                                 |                                       |                                |                                   | MS Part Number                    | Catalog Number |
| Single-Pole        |                 |                                                                                               |                                                                                                   |                                                                                                          |                                 |                                       |                                |                                   |                                   |                |
| See <b>A</b> below | 1PST            | ON                                                                                            | NONE                                                                                              | ← OFF                                                                                                    | A                               | 3                                     | 0.562 (14.27)                  | 1.000 (25.40)                     | MS25125-C2                        | 8857K47        |
|                    |                 | ON →                                                                                          | NONE                                                                                              | ← OFF                                                                                                    |                                 | 4                                     |                                |                                   | MS25125-E2                        | 8857K48        |
|                    |                 | ON →                                                                                          | ← OFF                                                                                             | NONE                                                                                                     |                                 | 5                                     |                                |                                   | MS25125-J4                        | 8857K49        |
| See <b>A</b> below | 1PDT            | ON                                                                                            | ← OFF →                                                                                           | ON                                                                                                       | B                               | 2                                     | 0.562 (14.27)                  | 1.000 (25.40)                     | MS25125-B1                        | 8857K40        |
|                    |                 | ON                                                                                            | NONE                                                                                              | ← ON                                                                                                     |                                 | 3                                     |                                |                                   | MS25125-C3                        | 8857K45        |
|                    |                 | ON →                                                                                          | NONE                                                                                              | ← ON                                                                                                     |                                 | 4                                     |                                |                                   | MS25125-E3                        | 8857K44        |
| Two-Pole           |                 |                                                                                               |                                                                                                   |                                                                                                          |                                 |                                       |                                |                                   |                                   |                |
| See <b>B</b> below | 2PDT            | ON →                                                                                          | ← OFF →                                                                                           | ← ON                                                                                                     | C                               | 1                                     | 0.562 (14.27)                  | 1.000 (25.40)                     | MS25126-A1                        | 8858K39        |
|                    |                 | ON                                                                                            | ← OFF →                                                                                           | ON                                                                                                       |                                 | 2                                     |                                |                                   | MS25126-B1                        | 8858K40        |
|                    |                 | ON →                                                                                          | NONE                                                                                              | ← ON                                                                                                     |                                 | 4                                     |                                |                                   | MS25126-E3                        | 8858K44        |
| Four-Pole          |                 |                                                                                               |                                                                                                   |                                                                                                          |                                 |                                       |                                |                                   |                                   |                |
| See <b>C</b> below | 4PDT            | ON →                                                                                          | NONE                                                                                              | ← ON                                                                                                     | F                               | 4                                     | 0.562 (14.27)                  | 1.000 (25.40)                     | MS25127-E3                        | 8859K44        |

← Indicates direction against which lever is locked.

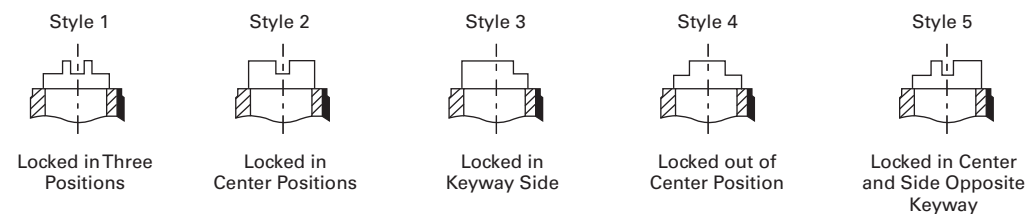
## Current Ratings

| Switch           | Type of Operation | Current Capacity in Amperes per Pole |                |                |                |                |                |                 |                |                |
|------------------|-------------------|--------------------------------------|----------------|----------------|----------------|----------------|----------------|-----------------|----------------|----------------|
|                  |                   | 28 Vdc                               |                |                | 115 Vac, 60 Hz |                |                | 115 Vac, 400 Hz |                |                |
|                  |                   | Lamp Load                            | Resistive Load | Inductive Load | Lamp Load      | Resistive Load | Inductive Load | Lamp Load       | Resistive Load | Inductive Load |
| <b>A</b> MS25125 | Maintained        | 5                                    | 20             | 15             | —              | —              | —              | 3               | 10             | 10             |
| <b>B</b> MS25126 | Maintained        | 7                                    | 20             | 15             | —              | —              | —              | 4               | 20             | 15             |
| <b>C</b> MS25127 | Maintained        | 5                                    | 20             | 15             | —              | —              | —              | 4               | 20             | 15             |

## Note

① See illustrations below for lever lock bushing styles.

## Lever Lock Bushing Styles



These illustrations are for pictorial representation only—keyway on right-hand side.

## AC Rated (Heavy Duty) Military with Unsealed Lever

| Current Ratings                              | Poles and Throw | Circuit with Toggle in ...                                                        |                                                                                   |                                                                                            | Base Circuit See Page V11-T4-35 | Bushing Length "A" Inches (mm) | Lever Length "B" Inches (mm) | Solder Lug Terminals Catalog Number                                                    | Screw Terminals Catalog Number                                                         |
|----------------------------------------------|-----------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|---------------------------------|--------------------------------|------------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
|                                              |                 | UP Position                                                                       | CENTER Position                                                                   | DOWN Position                                                                              |                                 |                                |                              |                                                                                        |                                                                                        |
|                                              |                 |  |  |  (Keyway) |                                 |                                |                              |                                                                                        |                                                                                        |
| Single-Pole                                  |                 |                                                                                   |                                                                                   |                                                                                            |                                 |                                |                              |                                                                                        |                                                                                        |
| See <b>A</b> below<br>See <b>B</b> below     | 1PST            | ON<br>ON<br>OFF                                                                   | NONE<br>NONE<br>NONE                                                              | OFF<br>MOM. OFF<br>MOM. ON                                                                 | A                               | 0.468 (11.89)                  | 0.688 (17.45)                | <b>7300K38</b><br><b>7304K38</b><br><b>7303K38</b>                                     | <b>7300K36</b><br><b>7304K36</b><br><b>7303K36</b>                                     |
| See <b>A</b> below<br><br>See <b>B</b> below | 1PDT            | ON<br>ON<br>ON<br>MOM. ON<br>ON                                                   | OFF<br>NONE<br>NONE<br>OFF<br>OFF                                                 | ON<br>ON<br>MOM. ON<br>MOM. ON<br>MOM. ON                                                  | B                               | 0.468 (11.89)                  | 0.688 (17.45)                | <b>7301K38</b><br><b>7302K38</b><br><b>7307K38</b><br><b>7306K38</b><br><b>7305K38</b> | <b>7301K36</b><br><b>7302K36</b><br><b>7307K36</b><br><b>7306K36</b><br><b>7305K36</b> |
| Two-Pole                                     |                 |                                                                                   |                                                                                   |                                                                                            |                                 |                                |                              |                                                                                        |                                                                                        |
| See <b>C</b> below<br>See <b>D</b> below     | 2PST            | ON<br>ON<br>OFF                                                                   | NONE<br>NONE<br>NONE                                                              | OFF<br>MOM. OFF<br>MOM. ON                                                                 | C                               | 0.468 (11.89)                  | 0.688 (17.45)                | <b>7310K38</b><br><b>7314K38</b><br><b>7313K38</b>                                     | <b>7310K36</b><br><b>7314K36</b><br><b>7313K36</b>                                     |
| See <b>C</b> below<br><br>See <b>D</b> below | 2PDT            | ON<br>ON<br>ON<br>MOM. ON<br>ON                                                   | OFF<br>NONE<br>NONE<br>OFF<br>OFF                                                 | ON<br>ON<br>MOM. ON<br>MOM. ON<br>MOM. ON                                                  | D                               | 0.468 (11.89)                  | 0.688 (17.45)                | <b>7311K38</b><br><b>7312K38</b><br><b>7317K38</b><br><b>7316K38</b><br><b>7315K38</b> | <b>7311K36</b><br><b>7312K36</b><br><b>7317K36</b><br><b>7316K36</b><br><b>7315K36</b> |

## Current Ratings

| Type of Operation   | Current Capacity in Amperes per Pole |                |                |                |                |            |                |                |            |
|---------------------|--------------------------------------|----------------|----------------|----------------|----------------|------------|----------------|----------------|------------|
|                     | 30 Vdc                               |                |                | 125 Vac, 60 Hz |                |            | 250 Vac, 60 Hz |                |            |
|                     | Lamp Load                            | Resistive Load | Inductive Load | Resistive Load | Inductive Load | Horsepower | Resistive Load | Inductive Load | Horsepower |
| <b>Single-Pole</b>  |                                      |                |                |                |                |            |                |                |            |
| <b>A</b> Maintained | 5                                    | 20             | 15             | 15             | —              | —          | 6              | —              | —          |
| <b>B</b> Momentary  | 4                                    | 15             | 10             | 15             | —              | —          | 6              | —              | —          |
| <b>Two-Pole</b>     |                                      |                |                |                |                |            |                |                |            |
| <b>C</b> Maintained | 7                                    | 30             | 15             | 25             | —              | —          | 9              | —              | —          |
| <b>D</b> Momentary  | 5                                    | 20             | 10             | 15             | —              | —          | 6              | —              | —          |

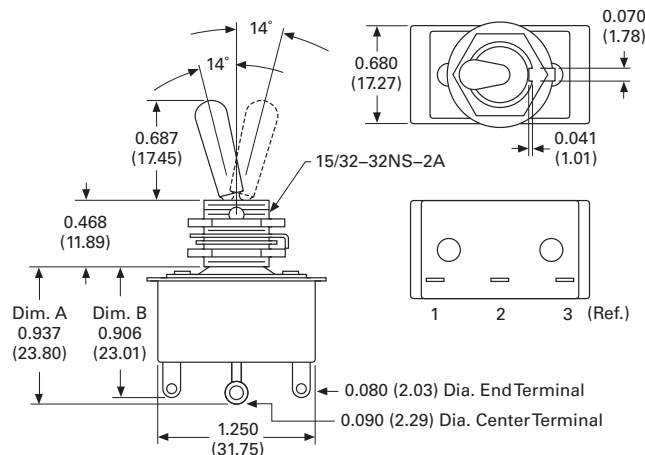
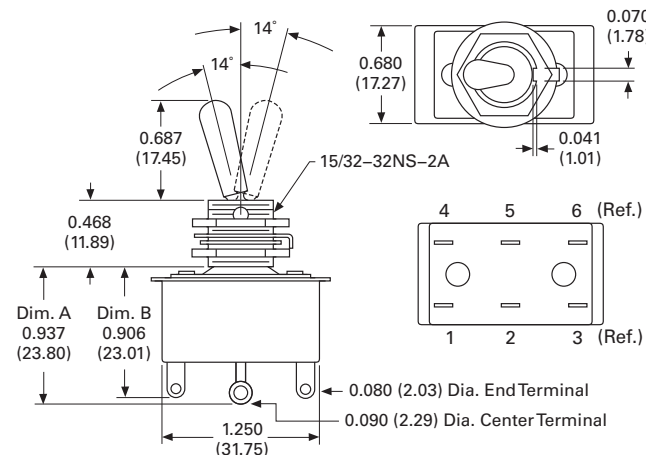
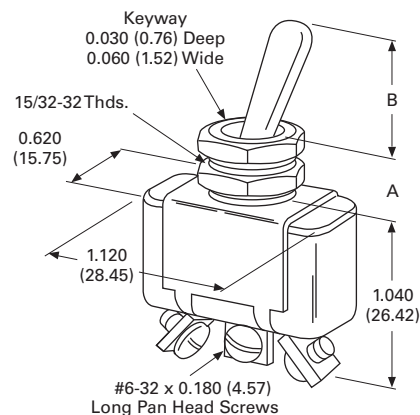
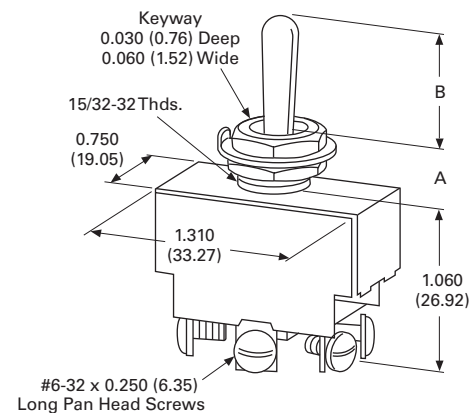
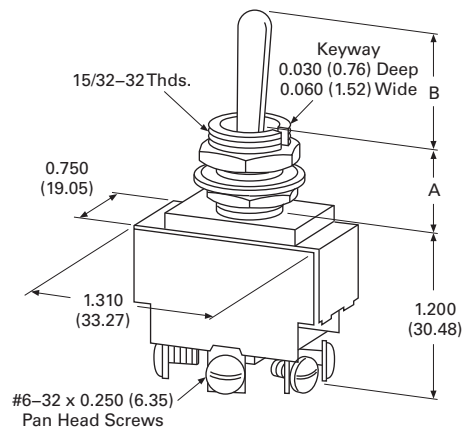
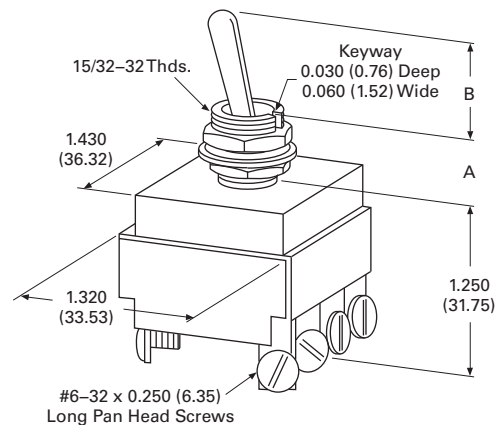
## Technical Data and Specifications

## Military Purpose Switches

| Description                 | Specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ratings                     | See Product Selection tables                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Circuits                    | 1PST, 1PDT, 2PST, 2PDT, 1P3T (ON-ON-ON), 4PST and 4PDT; maintained and momentary action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Contact action              | Heavy duty—Slow-make/slow-break butt contact<br>Medium duty—Quick-make/quick-break, wiping action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Contact material            | Heavy duty:<br>Movable—silver-plated copper with fine or coin silver contact face button<br>Stationary—copper with fine or coin silver contact face button<br>Medium duty:<br>Movable—copper silver-plated<br>Stationary—bronze silver-plated                                                                                                                                                                                                                                                                                                                                                                                                 |
| Terminal types              | Heavy duty MIL-S-83731 types:<br>Screw terminals—brass designed to accept #6-32 x 6.35 mm (0.250 in) pan head (Catalog Number 11-1893) screws and Si bronze #6 helical lockwasher (Catalog Number 16-1096). Furnished unassembled. Terminal screws are tin dipped to facilitate soldering if required<br>Heavy duty JAN-S-23 types:<br>Screw terminals—brass designed to accept #6-32 x 4.78 mm (0.188 in) binding head (Catalog Number 811-2) screws. Furnished unassembled<br>Solder lug terminals—tintillate plated brass<br>Medium duty MIL-S-83731 types:<br>Solder lugs—brass silver-plated furnished with 0.094 in (2.39 mm) dia. hole |
| Base material               | Thermoset molding material                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Mounting means              | Threaded bushing—0.468 in (11.89 mm) dia., 32 threads/inch<br>Keyway—0.068 x 0.035 in (1.73 x 0.89 mm) deep; provides anti-rotation feature<br>Hardware supplied:<br>MIL-S-83731 types—2 hexagon facenuts (Catalog Number 15-966-6), 1 locking ring (Catalog Number 29-761) and 1 internal tooth lockwasher (Catalog Number 16-886).<br>Furnished unassembled<br>JAN-S-23 types—2 hexagon facenuts (Catalog Number 15-966-6). Furnished unassembled                                                                                                                                                                                           |
| Dielectric                  | 1000V minimum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Operating temperature range | 0° to 150°F (–17.8° to 65.6°C)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

**Dimensions**

Approximate Dimensions in Inches (mm)

**AC/DC Rated (Medium Duty) MIL-83731 Switches****1PDT Maintained Action (Solder Lug)****2PDT Maintained Action (Solder Lug)****AC Rated (Heavy Duty) MIL-83731 Switches with Lever Seal****Single-Pole Maintained and Momentary Action****Two-Pole Maintained Action****Two-Pole Momentary Action and 3 ON Circuits****Four-Pole Maintained and Momentary Action**

# 4.2

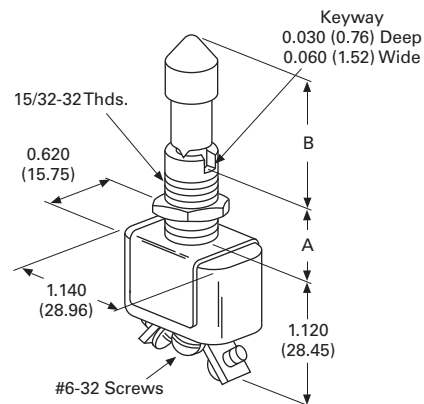
## Toggle Switches

### Military Purpose Toggles

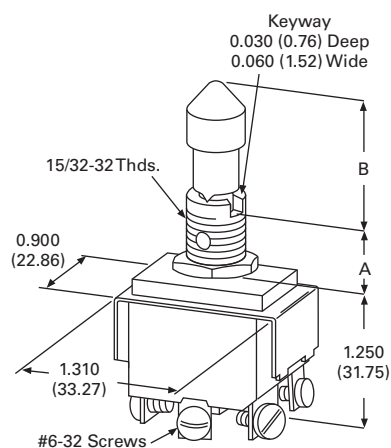
Approximate Dimensions in Inches (mm)

#### AC Rated (Heavy Duty) MIL-83731 Lever Lock Switches with Lever Seal

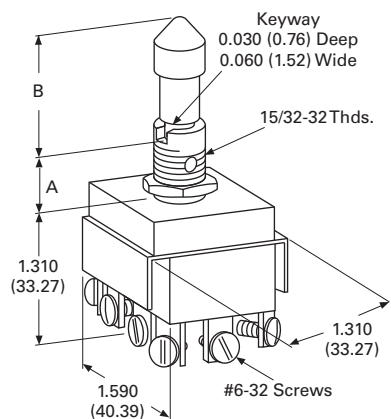
##### Single-Pole



##### Two-Pole

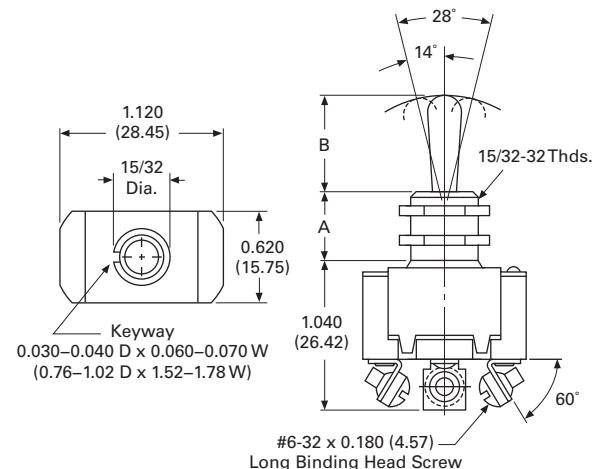


##### Four-Pole

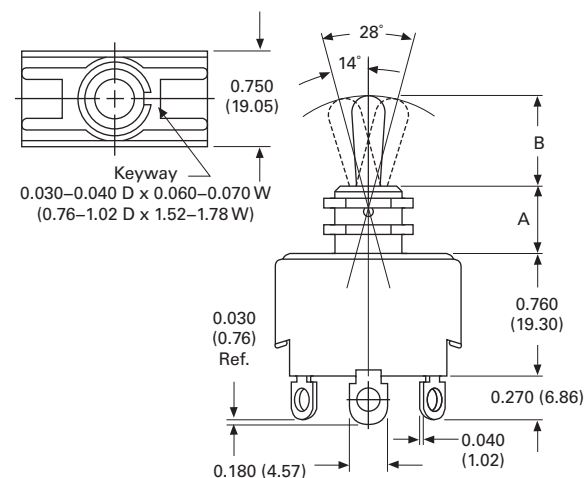


#### AC Rated (Heavy Duty)

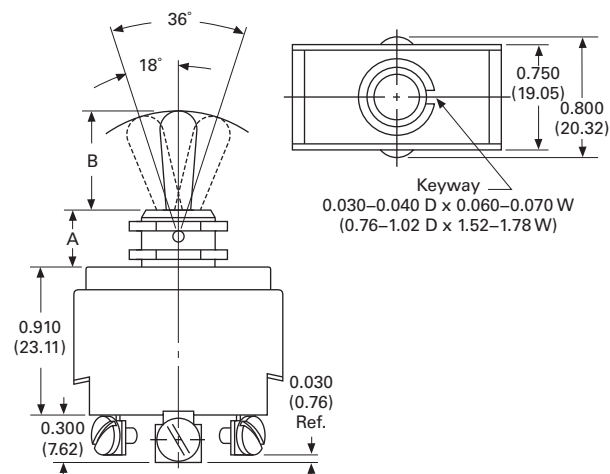
##### 1PDT Maintained Action



##### 2PDT Maintained Action



##### 2PDT Momentary Action



## Illuminated AC Rated Toggles



## Contents

## Description

## Page

Illuminated AC Rated Switches

Technical Data and Specifications . . . . . V11-T4-10

Dimensions . . . . . V11-T4-10

## Product Description

These illuminated toggles are available only in single-pole circuitry. A two-pole base is utilized with single-pole housing the lamp. On single-throw circuits, the lamp is wired to operate in conjunction with the switch.

On double-throw circuits, the lamp is independent of the switch. On the sealed versions, a silicone rubber seal is fitted to the paddle lever to provide a moisture- and dust-resistant seal between the lever and bushing.

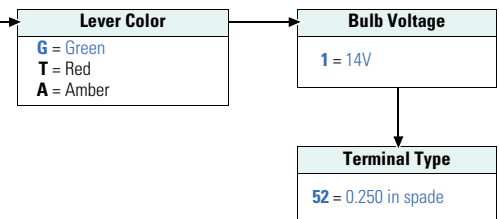
## Catalog Number Selection

## How To Order—Illuminated AC Rated Toggles

Example: **7071K21** → **G 1 52**

| Rating                                          | Poles and Throw | Circuit with Toggle in ...                                                                         |                                                                                                        |                                                                                                                  | Base Catalog Number | Circuit Number See Page V11-T4-35 |
|-------------------------------------------------|-----------------|----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|---------------------|-----------------------------------|
|                                                 |                 | UP Position<br> | CENTER Position<br> | DOWN Position<br>(Keyway)<br> |                     |                                   |
| Standard                                        |                 |                                                                                                    |                                                                                                        |                                                                                                                  |                     |                                   |
| 15A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 250 Vac | 1PST            | ON                                                                                                 | NONE                                                                                                   | OFF                                                                                                              | 7071K21             | G                                 |
| Sealed                                          |                 |                                                                                                    |                                                                                                        |                                                                                                                  |                     |                                   |
| 15A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 250 Vac | 1PST            | ON                                                                                                 | NONE                                                                                                   | OFF                                                                                                              | 7073K21             | G                                 |
|                                                 | 1PDT            | ON<br>MOM. ON                                                                                      | OFF<br>OFF                                                                                             | ON<br>MOM. ON                                                                                                    | 7073K20<br>7073K25  | H                                 |

Code letters and/or numbers—add to base circuit number.



## Technical Data and Specifications

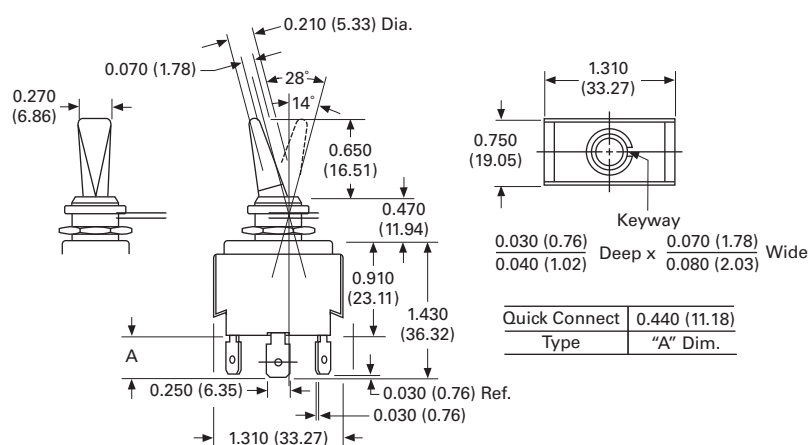
### Illuminated AC Rated Toggles

| Description      | Specification                                                   |
|------------------|-----------------------------------------------------------------|
| Ratings          | See Catalog Number Selection                                    |
| Circuits         | 1PST and 1PDT; maintained and momentary action                  |
| Contact material | Movable—silver-plated copper<br>Stationary—silver-plated copper |
| Terminal types   | Spade—brass                                                     |
| Base material    | Colored thermoplastic paddle lever                              |

## Dimensions

Approximate Dimensions in Inches (mm)

### Illuminated



## General Purpose Toggles



## Product Description

These AC rated toggle switches offer the widest selection of features and the design flexibility to meet a variety of applications.

## Features

The optional features shown below may not be available on all toggle models. Contact your local Eaton Sales Representative.

**7500, 7600, 7700 and 7900 Series**

- 3-independent ON Circuit (2PDT or 4PDT only, see **Page V11-T4-14**)
- Short (11/32 in) bushing
- Tall (15/32 in) bushing
- White nylon designer lever, see Dimensions on **Page V11-T4-16**
- Black nylon designer lever, see Dimensions on **Page V11-T4-16**
- Hardware—furnished assembled
- Reversing jumpers (not for use with 3-independent ON circuit)
- Short (15/32 in) bat lever
- Tall (11/16 in) bat lever (not available with short bushing)
- Rotate keyway 180°
- Lever seal
- Omit one pole (2P, 3P, 4P only. Not for use with 3-independent ON circuit)

## Contents

**Description****Page**

## General Purpose Toggles—AC Rated

|                                             |                  |
|---------------------------------------------|------------------|
| Product Selection . . . . .                 | <b>V11-T4-12</b> |
| Technical Data and Specifications . . . . . | <b>V11-T4-16</b> |
| Dimensions . . . . .                        | <b>V11-T4-16</b> |

## Options

**Combi-Term Option**

This is an extension of our AC rated general purpose toggle switch. The “Combi-Term” design allows the user the option of screw terminals, 0.25 in quick connects or solder termination all on the same switch. The special clips and screws are provided in a poly bag with the switch.

**Circuits**

- 1PST, 1PDT, 2PST, 2PDT, 3PST, 3PDT, 4PST and 4PDT
- Maintained and momentary

**Standards and Certifications**

- UL<sup>®</sup> Recognized
- CSA<sup>®</sup> Certified (except as noted)
- RoHS Compliant <sup>①</sup>

**Note**

<sup>①</sup> Visit [www.eaton.com/vcbu](http://www.eaton.com/vcbu) for the most up-to-date list of verified part numbers.

## Product Selection

4



## AC Rated Toggle Switches—Single-Pole

| Rating                                                              | Poles and Throw | Circuit with Toggle in ... |                 |                        | Base Circuit See Page V11-T4-35 | Bushing Length "A" Inches (mm) | Lever Length "B" Inches (mm)   | Catalog Number                   |                                                            |                                  |
|---------------------------------------------------------------------|-----------------|----------------------------|-----------------|------------------------|---------------------------------|--------------------------------|--------------------------------|----------------------------------|------------------------------------------------------------|----------------------------------|
|                                                                     |                 | UP Position                | CENTER Position | DOWN Position (Keyway) |                                 |                                |                                | Solder Lugs                      | Screw Terminals                                            | 0.250 in Spade Terminals         |
| 6A, 125 Vac<br>3A, 250 Vac                                          | 1PST            | ON                         | NONE            | OFF                    | A                               | 0.344 (8.74)<br>0.469 (11.91)  | 0.563 (14.30)<br>0.563 (14.30) | <b>7580K7</b><br><b>7580K6</b>   | <b>7580K5</b><br><b>7580K4</b>                             | <b>7580K9</b><br><b>7580K8</b>   |
|                                                                     | 1PDT            | ON                         | OFF             | ON                     | B                               | 0.469 (11.91)                  | 0.563 (14.30)                  | <b>7581K6</b>                    | <b>7581K4</b>                                              | <b>7581K8</b>                    |
|                                                                     | 1PDT            | ON                         | NONE            | ON                     | B                               | 0.469 (11.91)                  | 0.563 (14.30)                  | <b>7582K6</b>                    | <b>7582K4</b>                                              | <b>7582K8</b>                    |
|                                                                     | 1PDT            | ON<br>MOM. ON              | NONE<br>OFF     | MOM. ON<br>MOM. ON     | B                               | 0.469 (11.91)                  | 0.563 (14.30)                  | <b>7585K6</b><br><b>7587K6</b>   | <b>7585K4</b><br><b>7587K4</b>                             | <b>7585K8</b><br><b>7587K8</b>   |
| 10A, 250 Vac<br>1/2 hp, 250 Vac                                     | 1PST            | OFF                        | NONE            | MOM. ON                | A                               | 0.469 (11.91)                  | 0.563 (14.30)                  | <b>7506K3</b>                    | <b>7506K4</b>                                              | <b>7506K6</b>                    |
|                                                                     | 1PST            | OFF                        | NONE            | MOM. ON                | A                               | 0.469 (11.91)                  | 0.688 (17.48)                  | <b>7506K38</b>                   | <b>7506K36</b>                                             | <b>7506K40</b>                   |
|                                                                     | 1PDT            | MOM. ON<br>ON              | OFF<br>NONE     | MOM. ON<br>MOM. ON     | B                               | 0.469 (11.91)                  | 0.563 (14.30)                  | <b>7509K4</b><br><b>7510K6</b>   | <b>7509K5</b><br><b>7510K7</b>                             | <b>7509K7</b><br><b>7510K9</b>   |
|                                                                     | 1PDT            | ON<br>MOM. ON              | OFF<br>OFF      | MOM. ON<br>MOM. ON     | B                               | 0.469 (11.91)                  | 0.688 (17.48)                  | <b>7508K38</b><br><b>7509K38</b> | <b>7508K36</b><br><b>7509K36</b>                           | <b>7508K40</b><br><b>7509K40</b> |
| 15A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 250 Vac<br>1/2 hp, 125V Vac | 1PST            | ON                         | NONE            | OFF                    | A                               | 0.344 (8.74)<br>0.469 (11.91)  | 0.563 (14.30)<br>0.563 (14.30) | <b>7501K12</b><br><b>7501K13</b> | <b>7500K13</b> <sup>①</sup><br><b>7500K14</b> <sup>①</sup> | <b>7501K14</b><br><b>7501K15</b> |
|                                                                     | 1PDT            | ON                         | OFF             | ON                     | B                               | 0.469 (11.91)                  | 0.563 (14.30)                  | <b>7503K13</b> <sup>①</sup>      | <b>7502K13</b>                                             | <b>7503K15</b>                   |
| 15A, 125 Vac<br>10A, 250 Vac<br>1/2 hp, 125 Vac<br>3/4 hp, 250 Vac  | 1PDT            | ON                         | NONE            | ON                     | B                               | 0.469 (11.91)                  | 0.563 (14.30)                  | <b>7505K4</b>                    | <b>7504K4</b> <sup>①</sup>                                 | <b>7505K6</b>                    |
|                                                                     | 1PST            | ON                         | NONE            | OFF                    | A                               | 0.469 (11.91)                  | 0.688 (17.48)                  | <b>7546K38</b>                   | <b>7546K36</b>                                             | <b>7546K40</b>                   |
| 20A, 125 Vac<br>10A, 250 Vac<br>1/2 hp, 125 Vac<br>3/4 hp, 250 Vac  | 1PST            | ON                         | NONE            | OFF                    | A                               | 0.344 (8.74)                   | 0.563 (14.30)                  | —                                | <b>7576K2</b>                                              | —                                |

## Notes

<sup>①</sup> Also 4.2A L at 125 Vac rating.

<sup>②</sup> Single-pole switch in two-pole base.

## AC Rated Toggle Switches—Two-Pole



| Rating                                                                                                                                         | Poles and Throw | Circuit with Toggle in ... |                 |                        | Base Circuit See Page V11-T4-35 | Bushing Length "A" Inches (mm) | Lever Length "B" Inches (mm)   | Catalog Number                |                               |                               |                      |
|------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------------------|-----------------|------------------------|---------------------------------|--------------------------------|--------------------------------|-------------------------------|-------------------------------|-------------------------------|----------------------|
|                                                                                                                                                |                 | UP Position                | CENTER Position | DOWN Position (Keyway) |                                 |                                |                                | Solder Lugs                   | Screw Terminals               | 0.250 in Spade Terminals      | Combi-Term           |
| 6A, 125 Vac<br>3A, 250 Vac<br>2A, 277 Vac<br>2.5A, L at 125 Vac                                                                                | 2PST            | ON                         | NONE            | OFF                    | C                               | 0.469 (11.91)                  | 0.563 (14.30)                  | 7590K6                        | 7590K4                        | 7590K8                        | —                    |
| 6A, 125 Vac<br>3A, 250 Vac<br>2.5A, L at 125 Vac                                                                                               | 2PDT            | ON                         | OFF             | ON                     | D                               | 0.469 (11.91)                  | 0.563 (14.30)                  | 7591K6                        | 7591K4                        | 7591K8                        | —                    |
|                                                                                                                                                | 2PDT            | ON                         | NONE            | ON                     | D                               | 0.469 (11.91)                  | 0.563 (14.30)                  | 7592K6                        | 7592K4                        | 7592K8                        | —                    |
| 6A, 125 Vac<br>3A, 250 Vac                                                                                                                     | 2PDT            | MOM. ON                    | OFF             | MOM. ON                | D                               | 0.469 (11.91)                  | 0.563 (14.30)                  | 7597K6                        | 7597K4                        | 7597K8                        | —                    |
|                                                                                                                                                | 2PDT            | ON                         | ON              | OFF                    | 7530                            | 0.469 (11.91)                  | 0.563 (14.30)                  | 7530K1                        | 7530K3                        | 7530K2                        | —                    |
| 10A 250 Vac,<br>15A 125 Vac, 1/4 hp<br>125–250 Vac                                                                                             | 2PDT            | ON                         | ON              | ON                     | 7555                            | 0.469 (11.91)                  | 0.563 (14.30)                  | 7555K12                       | 7555K11                       | 7555K13                       | —                    |
| 15A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 250 Vac<br>1/2 hp, 125 Vac                                                                             | 2PST            | ON                         | NONE            | OFF                    | C                               | 0.344 (8.74)<br>0.469 (11.91)  | 0.563 (14.30)<br>0.563 (14.30) | 7561K5<br>7561K4              | 7560K6<br>7560K5              | 7561K7<br>7561K6              | —                    |
|                                                                                                                                                | 2PDT            | ON                         | OFF             | ON                     | D                               | 0.344 (8.74)<br>0.469 (11.91)  | 0.563 (14.30)<br>0.563 (14.30) | 7563K5<br>7563K4              | 7562K5<br>7562K4              | 7563K7<br>7563K6              | —                    |
| 15A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 250 Vac                                                                                                | 2PDT            | ON                         | NONE            | ON                     | D                               | 0.469 (11.91)                  | 0.563 (14.30)                  | 7565K5                        | 7564K6                        | 7565K7                        | —                    |
| 15A, 125 Vac<br>10A, 250 Vac<br>1/2 hp, 250 Vac                                                                                                | 2PST            | OFF                        | NONE            | MOM. ON                | C                               | 0.469 (11.91)                  | 0.563 (14.30)                  | 7566K4                        | 7566K5                        | 7566K7                        | —                    |
|                                                                                                                                                | 2PDT            | ON                         | OFF             | MOM. ON                | D                               | 0.469 (11.91)                  | 0.563 (14.30)                  | 7568K3 <sup>①</sup><br>7569K1 | 7568K2 <sup>①</sup><br>7569K2 | 7568K4 <sup>①</sup><br>7569K3 | —<br>—               |
|                                                                                                                                                |                 | MOM. ON                    | OFF             | MOM. ON                | D                               |                                |                                | 7570K4                        | 7570K5                        | 7570K7                        | —                    |
|                                                                                                                                                | 2PDT            | MOM. ON                    | OFF             | MOM. ON                | D                               | 0.469 (11.91)                  | 0.688 (17.48)                  | 7569K38                       | 7569K36                       | 7569K40                       | —                    |
| 20A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 250 Vac<br>1/2 hp, 125 Vac                                                                             | 2PST            | ON                         | NONE            | OFF                    | C                               | 0.469 (11.91)                  | 0.688 (17.48)                  | 7630K38                       | 7630K36                       | 7630K40                       | —                    |
|                                                                                                                                                | 2PDT            | ON                         | NONE            | ON                     | D                               | 0.469 (11.91)                  | 0.688 (17.48)                  | 7632K38                       | 7632K36                       | 7632K40                       | —                    |
| Section A<br>10A 250 Vac;<br>15A 125 Vac,<br>3/4 hp 250 Vac,<br>4.2A L 125 Vac;<br>Section B<br>10A 250 Vac,<br>15A 125 Vac,<br>1/4 hp 250 Vac | 2PDT            | OFF                        | 1 ON            | 2 ON                   | 7571                            | 0.469 (11.91)                  | 0.563 (14.30)                  | 7571K2                        | 7571K4                        | 7571K6                        | —                    |
| 20A, 125 Vac<br>10A, 250 Vac<br>1 hp, 120–240 Vac                                                                                              | 2PST            | ON                         | NONE            | OFF                    | C                               | 0.469 (11.91)                  | 0.688 (17.48)                  | 7803K11                       | 7803K31                       | 7803K21 <sup>②</sup>          | 7803K41              |
|                                                                                                                                                | 2PDT            | ON                         | OFF             | ON                     | D                               | 0.469 (11.91)                  | 0.688 (17.48)                  | 7803K12                       | 7803K32                       | 7803K22 <sup>③</sup>          | 7803K42              |
|                                                                                                                                                |                 | ON                         | NONE            | ON                     | D                               |                                |                                | 7803K13                       | 7803K33                       | 7803K23 <sup>④</sup>          | 7803K43              |
|                                                                                                                                                |                 | MOM. ON                    | OFF             | MOM. ON                | D                               |                                |                                | 7803K17 <sup>②</sup>          | 7803K37 <sup>②</sup>          | 7803K27 <sup>②</sup>          | 7803K47 <sup>②</sup> |

## Notes

① Also 1/2 hp at 125–250 Vac Rating.

② Not CSA Certified.

③ Also 7.5A, 277 Vac, 3/4 hp, 120–240–277 Vac.



## AC Rated Toggle Switches—Three-Pole

| Rating           | Poles and Throw | Circuit with Toggle in ... |                 |               | Base Circuit See Page V11-T4-35 | Bushing Length "A" Inches (mm) | Lever Length "B" Inches (mm) | Catalog Number |                 |                          |            |
|------------------|-----------------|----------------------------|-----------------|---------------|---------------------------------|--------------------------------|------------------------------|----------------|-----------------|--------------------------|------------|
|                  |                 | UP Position                | CENTER Position | DOWN Position |                                 |                                |                              | Solder Lugs    | Screw Terminals | 0.250 in Spade Terminals | Combi-Term |
| 15A, 125 Vac     | 3PST            | ON                         | NONE            | OFF           | E                               | 0.469 (11.91)                  | 0.688 (17.48)                | 7700K1         | 7700K2          | 7700K3                   | —          |
| 10A, 250 Vac     | 3PDT            | ON                         | OFF             | ON            | F                               | 0.469 (11.91)                  | 0.688 (17.48)                | 7701K1         | 7701K2          | 7701K3                   | —          |
| 3/4 hp, 250 Vac  |                 | ON                         | NONE            | ON            |                                 |                                |                              | 7702K1         | 7702K2          | 7702K3                   | —          |
| 1 hp, 3 Ph       |                 |                            |                 |               |                                 |                                |                              |                |                 |                          |            |
| 125–600 Vac      |                 |                            |                 |               |                                 |                                |                              |                |                 |                          |            |
| 1 hp, 1 and 2 Ph |                 |                            |                 |               |                                 |                                |                              |                |                 |                          |            |
| 125–480 Vac      |                 |                            |                 |               |                                 |                                |                              |                |                 |                          |            |
| 15A, 125 Vac     | 3PDT            | MOM. ON                    | OFF             | ON            | F                               | 0.469 (11.91)                  | 0.688 (17.48)                | 7704K1         | 7704K2          | 7704K3                   | —          |
| 10A, 250 Vac     |                 | MOM. ON                    | NONE            | ON            |                                 |                                |                              | 7705K1         | 7705K2          | 7705K3                   | —          |
| 3/4 hp, 250 Vac  |                 |                            |                 |               |                                 |                                |                              |                |                 |                          |            |
| 20A, 125 Vac     | 3PDT            | ON                         | OFF             | ON            | F                               | 0.469 (11.91)                  | 0.688 (17.48)                | 7804K12        | 7804K32         | 7804K22                  | 7804K42    |
| 10A, 250 Vac     |                 |                            |                 |               |                                 |                                |                              | (2)(4)         | (2)             | (2)                      | (2)        |
| 1 hp, 120 Vac    |                 |                            |                 |               |                                 |                                |                              |                |                 |                          |            |
| 1, 2 and 3 Ph    |                 |                            |                 |               |                                 |                                |                              |                |                 |                          |            |



## AC Rated Toggle Switches—Four-Pole

| Rating            | Poles and Throw | Circuit with Toggle in ... |                 |               | Base Circuit See Page V11-T4-35 | Bushing Length "A" Inches (mm) | Lever Length "B" Inches (mm) | Catalog Number |                 |                          |            |
|-------------------|-----------------|----------------------------|-----------------|---------------|---------------------------------|--------------------------------|------------------------------|----------------|-----------------|--------------------------|------------|
|                   |                 | UP Position                | CENTER Position | DOWN Position |                                 |                                |                              | Solder Lugs    | Screw Terminals | 0.250 in Spade Terminals | Combi-Term |
| 15A, 125 Vac      | 4PST            | ON                         | NONE            | OFF           | E                               | 0.469 (11.91)                  | 0.688 (17.48)                | 7691K14        | 7690K8          | —                        | —          |
| 10A, 250 Vac      | 4PDT            | ON                         | OFF             | ON            | F                               | 0.469 (11.91)                  | 0.688 (17.48)                | 7693K2         | 7692K13         | —                        | —          |
| 3/4 hp, 250 Vac   |                 | ON                         | NONE            | ON            |                                 |                                |                              | 7695K5         | 7694K4          | —                        | —          |
| 20A, 125 Vac      | 4PST            | ON                         | NONE            | OFF           | E                               | 0.469 (11.91)                  | 0.688 (17.48)                | 7933K38        | 7933K36         | 7933K40                  | —          |
| 10A, 250 Vac      | 4PDT            | ON                         | OFF             | ON            | F                               | 0.469 (11.91)                  | 0.688 (17.48)                | 7934K38        | 7934K36         | 7934K40                  | —          |
| 3/4 hp, 250 Vac   |                 | ON                         | NONE            | ON            |                                 |                                |                              | 7935K38        | 7935K36         | 7935K40                  | —          |
| 1/2 hp, 125 Vac   |                 |                            |                 |               |                                 |                                |                              |                |                 |                          |            |
| 20A, 125 Vac      | 4PDT            | ON                         | OFF             | ON            | F                               | 0.469 (11.91)                  | 0.688 (17.48)                | 7805K12        | 7805K32         | 7805K22                  | 7805K42    |
| 10A, 250 Vac      |                 |                            |                 |               |                                 |                                |                              | (2)            | (2)             | (2)                      | (2)        |
| 1 hp, 125–240 Vac |                 |                            |                 |               |                                 |                                |                              |                |                 |                          |            |
| 2 and 3 Ph        |                 |                            |                 |               |                                 |                                |                              |                |                 |                          |            |

## Notes

- ① Also 1/2 hp at 125–250 Vac Rating.  
 ② Not CSA Certified.  
 ③ Also 7.5A, 277 Vac, 3/4 hp, 120–240–277 Vac.  
 ④ 1 hp at 240–480 Vac single- or two-phase and 240–600 Vac three-phase.

## AC Rated Sealed ① Toggle Switches—Single-Pole

| Rating                                                                  | Poles and Throw | Circuit with Toggle in ...                                                                    |                                                                                                   |                                                                                                          | Base Circuit See Page V11-T4-35 | Bushing Length "A" Inches (mm) | Lever Length "B" Inches (mm) | Catalog Number |                 |                          |
|-------------------------------------------------------------------------|-----------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|---------------------------------|--------------------------------|------------------------------|----------------|-----------------|--------------------------|
|                                                                         |                 | UP Position  | CENTER Position  | DOWN Position (Keyway)  |                                 |                                |                              | Solder Lugs    | Screw Terminals | 0.250 in Spade Terminals |
| 10A, 250 Vac<br>1/2 hp, 250 Vac                                         | 1PST            | OFF                                                                                           | NONE                                                                                              | MOM. ON                                                                                                  | A                               | 0.469 (11.91)                  | 0.563 (14.30)                | —              | 7506K20         | 7506K21                  |
|                                                                         | 1PDT            | MOM. ON                                                                                       | OFF                                                                                               | MOM. ON                                                                                                  | B                               | 0.469 (11.91)                  | 0.563 (14.30)                | —              | 7509K20         | 7509K21                  |
|                                                                         |                 | ON                                                                                            | NONE OFF                                                                                          | MOM. ON                                                                                                  |                                 |                                |                              | —              | 7510K20         | 7510K21                  |
| 15A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 250 Vac<br>1/2 hp, 125V–250 Vac | 1PST            | ON                                                                                            | NONE                                                                                              | OFF                                                                                                      | A                               | 0.469 (11.91)                  | 0.563 (14.30)                | 7501K22        | 7500K20 ②       | 7501K21                  |
|                                                                         | 1PDT            | ON                                                                                            | OFF                                                                                               | ON                                                                                                       | B                               | 0.469 (11.91)                  | 0.563 (14.30)                | —              | 7502K20         | 7503K21                  |
|                                                                         | 1PDT            | ON                                                                                            | NONE                                                                                              | ON                                                                                                       | B                               | 0.469 (11.91)                  | 0.563 (14.30)                | —              | 7504K20 ②       | 7505K21                  |

## AC Rated Sealed ① Toggle Switches—Two-Pole

| Rating                                                             | Poles and Throw | Circuit with Toggle in ...                                                                    |                                                                                                   |                                                                                                          | Base Circuit See Page V11-T4-35 | Bushing Length "A" Inches (mm) | Lever Length "B" Inches (mm) | Catalog Number |                 |                          |
|--------------------------------------------------------------------|-----------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|---------------------------------|--------------------------------|------------------------------|----------------|-----------------|--------------------------|
|                                                                    |                 | UP Position  | CENTER Position  | DOWN Position (Keyway)  |                                 |                                |                              | Solder Lugs    | Screw Terminals | 0.250 in Spade Terminals |
| 15A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 250 Vac<br>1/2 hp, 125 Vac | 2PST            | ON                                                                                            | NONE                                                                                              | OFF                                                                                                      | C                               | 0.469 (11.91)                  | 0.563 (14.30)                | —              | 7560K20         | 7561K21                  |
|                                                                    | 2PDT            | ON                                                                                            | OFF                                                                                               | ON                                                                                                       | D                               | 0.469 (11.91)                  | 0.563 (14.30)                | —              | 7562K20         | 7563K21                  |
|                                                                    | 2PDT            | ON                                                                                            | NONE                                                                                              | ON                                                                                                       | D                               | 0.469 (11.91)                  | 0.563 (14.30)                | —              | 7564K20         | 7565K21                  |
| 15A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 250 Vac                    | 2PST            | OFF                                                                                           | NONE                                                                                              | MOM. ON                                                                                                  | C                               | 0.469 (11.91)                  | 0.563 (14.30)                | —              | 7566K20         | 7566K21                  |
|                                                                    | 2PDT            | ON                                                                                            | OFF                                                                                               | MOM. ON                                                                                                  | D                               | 0.469 (11.91)                  | 0.563 (14.30)                | —              | 7568K20 ②       | 7568K21 ②                |
|                                                                    |                 | MOM. ON                                                                                       | OFF                                                                                               | MOM. ON                                                                                                  |                                 |                                |                              | —              | 7569K20         | 7569K21                  |
| 1/2 hp, 250 Vac                                                    |                 | ON                                                                                            | NONE                                                                                              | MOM. ON                                                                                                  |                                 |                                |                              | —              | 7570K20         | 7570K21                  |

## AC Rated Special Circuit Toggle Switches—Two-Pole

| Rating                                              | Poles and Throw | Circuit with Toggle in ...                                                                      |                                                                                                     |                                                                                                            | Base Circuit See Page V11-T4-35 | Bushing Length "A" Inches (mm) | Lever Length "B" Inches (mm) | Catalog Number |                 |                          |
|-----------------------------------------------------|-----------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|---------------------------------|--------------------------------|------------------------------|----------------|-----------------|--------------------------|
|                                                     |                 | UP Position  | CENTER Position  | DOWN Position (Keyway)  |                                 |                                |                              | Solder Lugs    | Screw Terminals | 0.250 in Spade Terminals |
| 15A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 125–250 Vac | 2PDT            | 2-3, 5-6                                                                                        | OFF                                                                                                 | 2-6, 5-3                                                                                                   | D                               | 0.469 (11.91)                  | 0.563 (14.30)                | 7563K24        | 7562K23         | 7563K25                  |
|                                                     | 2PDT            | 2-3, 5-6                                                                                        | NONE                                                                                                | 2-6, 5-3                                                                                                   | D                               | 0.469 (11.91)                  | 0.563 (14.30)                | 7565K24        | 7564K23         | 7565K25                  |
|                                                     | 2PDT            | 2-3, 5-6                                                                                        | NONE                                                                                                | 2-6, 5-3                                                                                                   | D                               | 0.469 (11.91)                  | 0.563 (14.30)                | 7565K24        | 7564K23         | 7565K25                  |

## Notes

① Seal is lever seal only and is dust and splash resistant. Panel seal is available, Part Number 32-341.

② Also 1/2 hp at 125–250 Vac Rating.

## Technical Data and Specifications

### General Purpose Toggles—AC Rated

| Description                 | Specification                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ratings                     | See Product Selection tables; Switch ratings at 125 Vac also apply to 28 Vdc                                                                                                                                                                                                                                                                                               |
| Contact mechanism           | Slow-make/slow-brake butt contact                                                                                                                                                                                                                                                                                                                                          |
| Terminal types              | Screw terminals—brass designed to accept #6-32x 3/16 binding head (Cat. No. 811-2) screws<br>Furnished unassembled<br>Solder lug terminals—tintillate-plated brass<br>Spade terminals—combi-term—brass                                                                                                                                                                     |
| Base material               | Thermoset molding material                                                                                                                                                                                                                                                                                                                                                 |
| Mounting means              | Threaded bushing—0.468 in (11.89 mm) dia., 32 threads/in<br>Keyway—0.068 x 0.035 in (1.73 x 0.89 mm) deep, provides anti-rotation feature<br>Hardware supplied—1 hexagon locknut (Cat. No. 15-192) and 1 bright nickel-plated knurled facenut (Cat. No. 15-124F1), except 7700–7705, which have bright nickel hexagon facenut (Cat. No. 15-966-2)<br>Furnished unassembled |
| Finish                      | Bright nickel-plated toggle lever and bushing                                                                                                                                                                                                                                                                                                                              |
| Dielectric withstand        | 1000V rms minimum                                                                                                                                                                                                                                                                                                                                                          |
| Operating temperature range | 0° to 150°F (–17.8° to 65.6°C)                                                                                                                                                                                                                                                                                                                                             |

### Contact Material

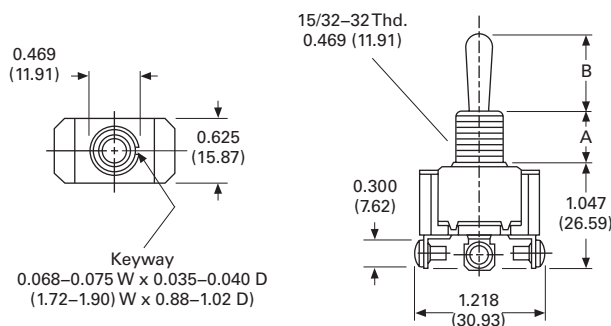
| Ampere                                           | Movable                                     | Stationary                               |
|--------------------------------------------------|---------------------------------------------|------------------------------------------|
| <b>7500, 7600, 7700 and 7900 Series Switches</b> |                                             |                                          |
| 3 to 6                                           | Silver-plated copper                        | Silver-plated copper                     |
| 10 to 20                                         | Silver-plated copper with silver buttons    | Silver-plated copper with silver buttons |
| 20 to 30                                         | Silver-plated copper with cad oxide buttons | Copper with cad oxide buttons            |
| <b>7800 Series Switches</b>                      |                                             |                                          |
| 3 to 6                                           | Silver-plated copper                        | Silver-plated copper                     |
| 10 to 20                                         | Copper with silver buttons                  | Copper with silver buttons               |

## Dimensions

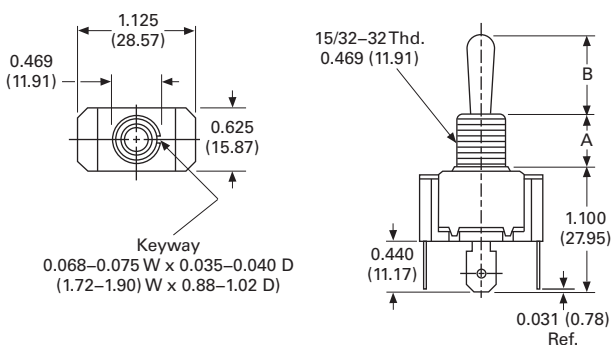
Approximate Dimensions in Inches (mm)

### 7500, 7600, 7700 and 7900 Series

#### 1PST Maintained and Momentary (Screw Terminals)



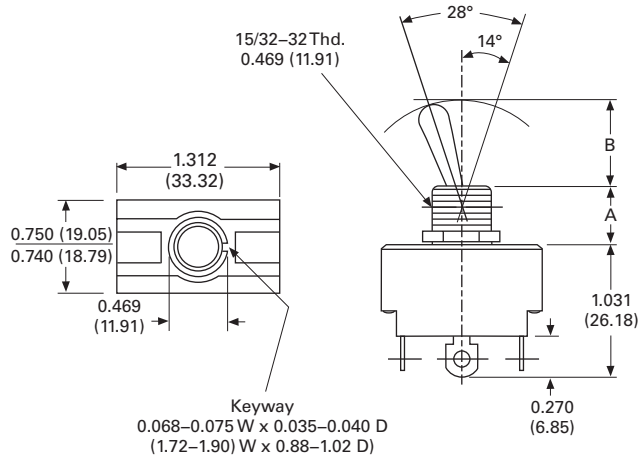
#### 1PDT Maintained and Momentary (Spade Terminals)



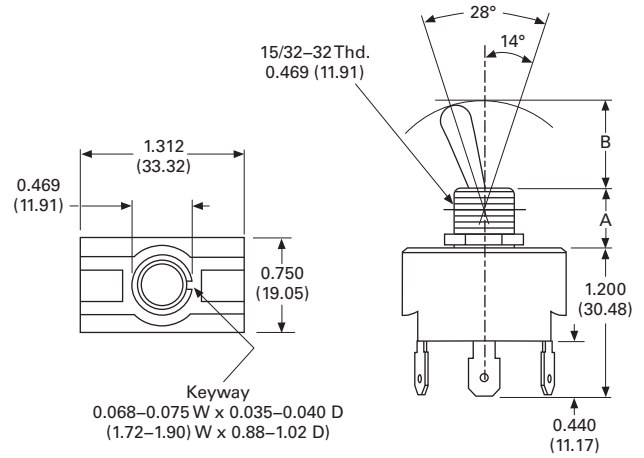
Approximate Dimensions in Inches (mm)

### 7500, 7600, 7700 and 7900 Series, continued

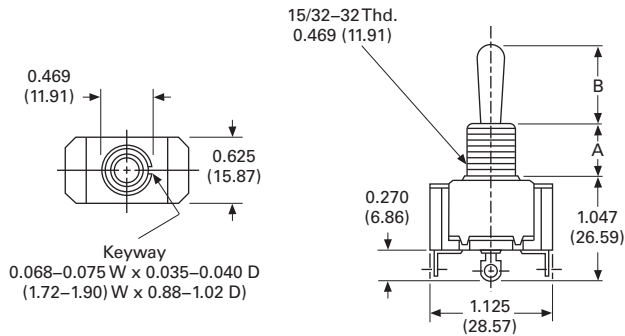
#### 2PDT Maintained (Solder Lugs)



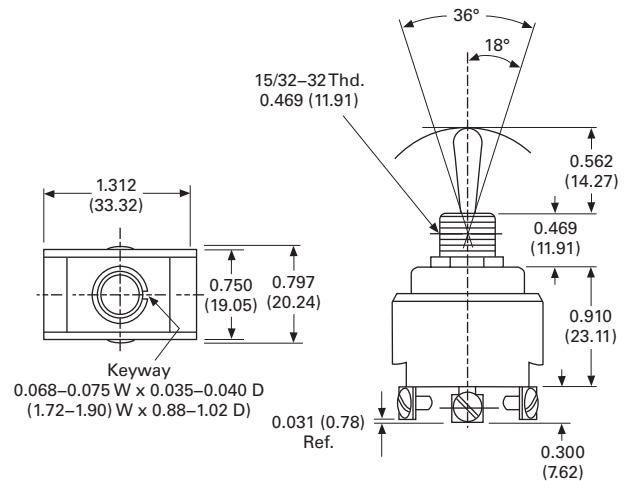
#### 2PDT Maintained (Spade Terminals)



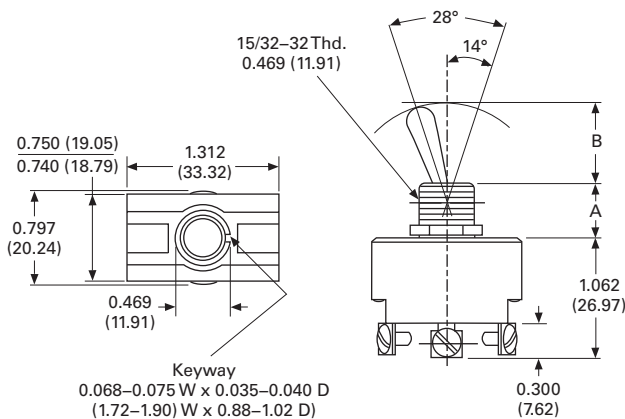
#### 1PDT Maintained and Momentary (Solder Lugs)



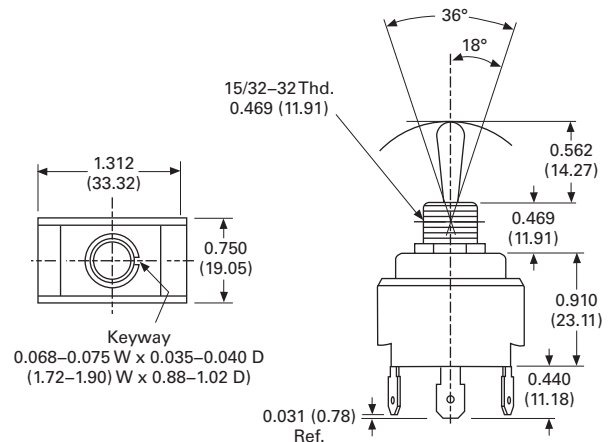
#### 2PDT Momentary (Screw Terminals)



#### 2PDT Maintained (Screw Terminals)



#### 2PDT Momentary (Spade Terminals)



# 4.4

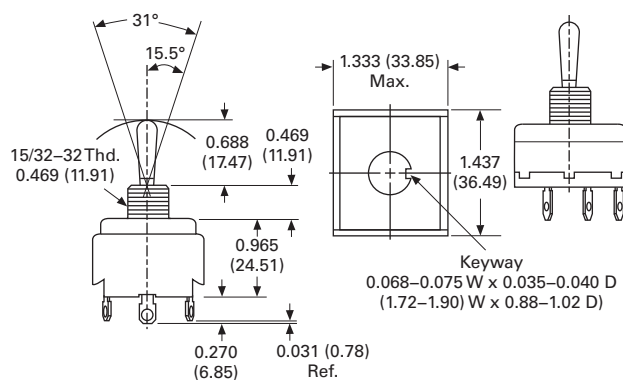
## Toggle Switches

### General Purpose Toggles—AC Rated

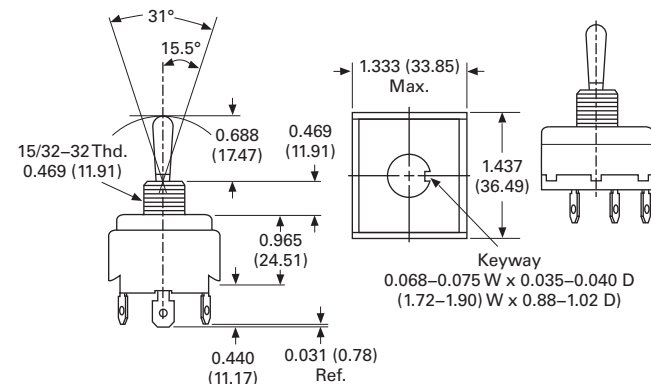
Approximate Dimensions in Inches (mm)

#### 7500, 7600, 7700 and 7900 Series, continued

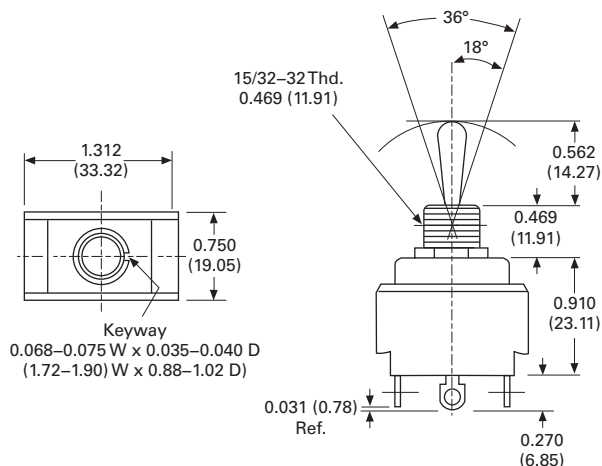
##### 3PDT Maintained and Momentary (Solder Lugs)



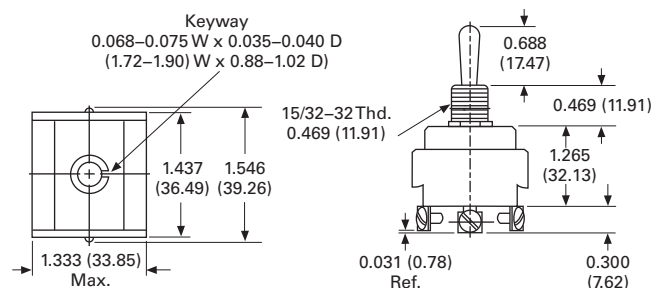
##### 3PDT Maintained and Momentary (Spade Terminals)



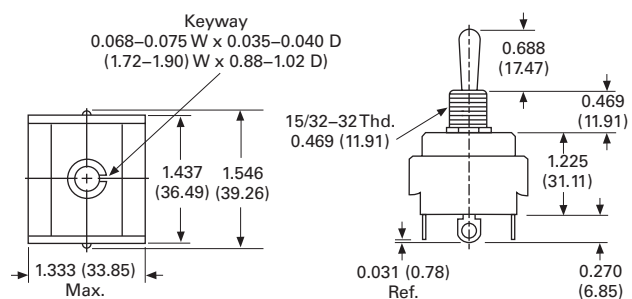
##### 2PDT Momentary (Solder Lugs)



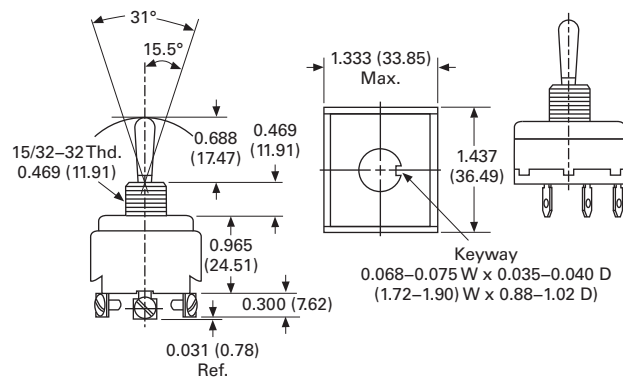
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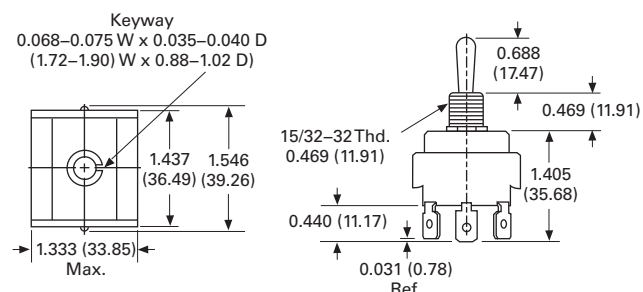
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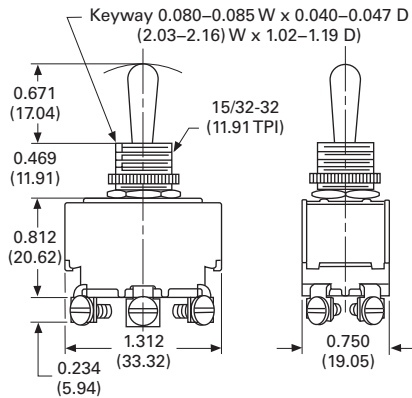
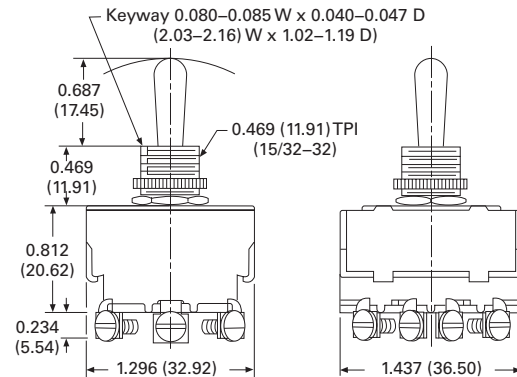
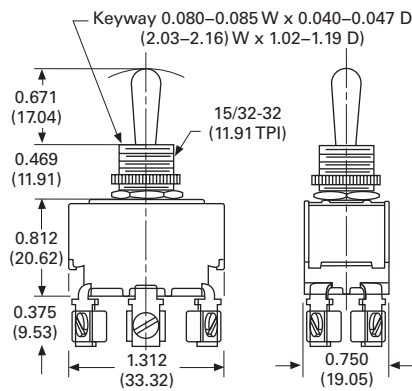
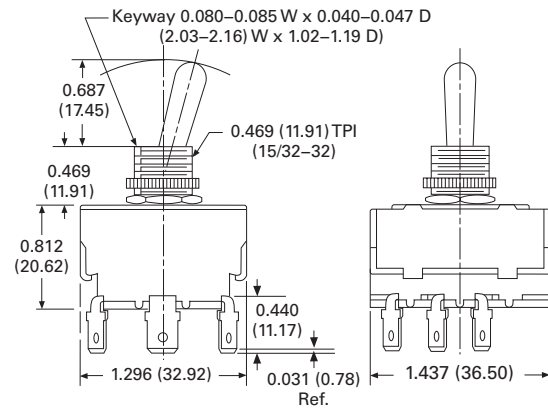
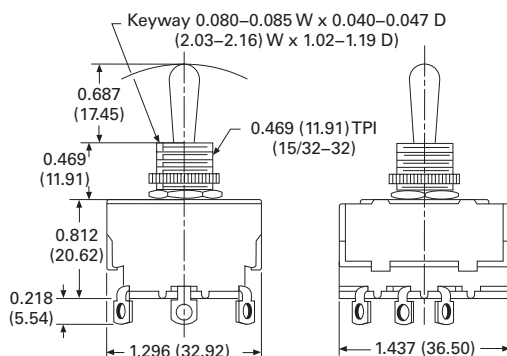
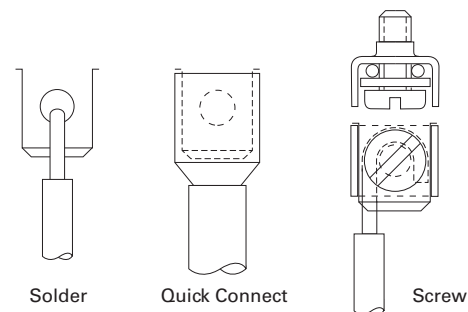
##### 3PDT Maintained and Momentary (Screw Terminals)



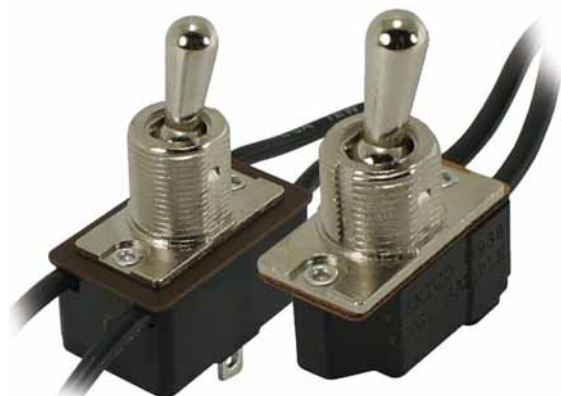
##### 4PDT Maintained and Momentary (Spade Terminals)



Approximate Dimensions in Inches (mm)

**7800 Series****2PDT Maintained (Screw Terminals)****4PDT Maintained (Screw Terminals)****2PDT Maintained (Combi-Terminals)****3PDT Maintained (0.25 in Spade Terminals)****3PDT Maintained (Screw Terminals)****Combi-Term Termination Options**

## General Purpose Toggles



4

## Contents

## Description

## Page

General Purpose Toggles—AC/DC Rated

Technical Data and Specifications . . . . . V11-T4-21

Dimensions . . . . . V11-T4-21

## Product Description

This line of switches employs a quick-make/quick-break contact mechanism. The resultant high-speed movement eliminates the “teasing” of the switch and reduces the pitting of the

contact surfaces due to arcing. Self-cleaning and wiping contact action assures positive contact on switch operation. These switches are especially suited for use in small motor applications.

## Options

- Lever—11/16 in
- Lever seal
- Mounting hardware; furnished assembled
- Other lead lengths

## Standards and Certifications

- UL Recognized
- CSA Certified
- RoHS Compliant <sup>①</sup>



## Note

<sup>①</sup> Visit [www.eaton.com/vcbu](http://www.eaton.com/vcbu) for the most up-to-date list of verified part numbers.

## Product Selection

## AC/DC Rated Toggle Switches—Single-Pole



| Rating                         | Poles and Throw | Circuit with Toggle in ... |                 |               | Base Circuit See Page V11-T4-35 | Bushing Length “B” Inches (mm) | Lever Length “A” Inches (mm) | Catalog Number |                 |            |
|--------------------------------|-----------------|----------------------------|-----------------|---------------|---------------------------------|--------------------------------|------------------------------|----------------|-----------------|------------|
|                                |                 | UP Position                | CENTER Position | DOWN Position |                                 |                                |                              | Solder Lugs    | Screw Terminals | Wire Leads |
| 3A, 250 Vdc                    | 1PST            | ON                         | NONE            | OFF           | A                               | 0.344 (8.74)                   | 0.500 (12.70)                | 8280K115       | 8295K107        | 8290K115   |
| 6A, 125 Vac/Vdc<br>3A, 250 Vdc | 1PST            | ON                         | NONE            | OFF           | A                               | 0.344 (8.74)                   | 0.500 (12.70)                | 8381K107       | 8396K107        | 8391K107   |
|                                |                 | ON                         | NONE            | OFF           |                                 | 0.469 (11.91)                  | 0.500 (12.70)                | 8381K108       | 8396K108        | 8391K108   |
|                                |                 | MOM. ON                    | NONE            | OFF           |                                 | 0.469 (11.91)                  | 0.500 (12.70)                | 8928K478       | —               | —          |
|                                | 1PDT            | ON                         | NONE            | ON            | B                               | 0.469 (11.91)                  | 0.500 (12.70)                | 8928K479       | —               | —          |

## AC/DC Rated Toggle Switches—Two-Pole



| Rating                  | Poles and Throw | Circuit with Toggle in ... |                 |               | Base Circuit See Page V11-T4-35 | Bushing Length “B” Inches (mm) | Lever Length “A” Inches (mm) | Catalog Number        |                       |            |
|-------------------------|-----------------|----------------------------|-----------------|---------------|---------------------------------|--------------------------------|------------------------------|-----------------------|-----------------------|------------|
|                         |                 | UP Position                | CENTER Position | DOWN Position |                                 |                                |                              | Solder Lugs           | Screw Terminals       | Wire Leads |
| 7A, 125V<br>3A, 250 Vdc | 2PST            | ON                         | NONE            | OFF           | C                               | 0.469 (11.91)                  | 0.500 (12.70)                | 8370K107              | 8372K107              | 8371K107   |
|                         |                 | MOM. ON                    | NONE            | OFF           |                                 | 0.469 (11.91)                  | 0.500 (12.70)                | 8928K481 <sup>①</sup> | 8928K482 <sup>①</sup> | —          |
|                         |                 | ON                         | NONE            | ON            |                                 | 0.469 (11.91)                  | 0.500 (12.70)                | 8373K108              | 8375K108              | 8374K108   |
|                         | 2PDT            | ON                         | NONE            | ON            | D                               | 0.344 (8.74)                   | 0.500 (12.70)                | 8373K107              | 8375K107              | 8374K107   |

## Note

<sup>①</sup> Rating: 6A, 125 Vac/Vdc and 3A, 250 Vdc.

## Technical Data and Specifications

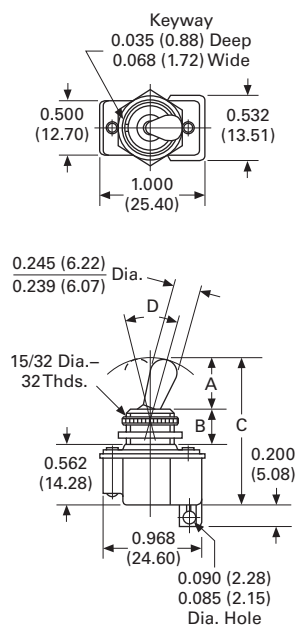
### General Purpose Toggles—AC/DC Rated

| Description                 | Specification                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ratings                     | See Product Selection table; Switch ratings at 125 Vac also apply to 28 Vdc                                                                                                                                                                                                                                                                     |
| Circuits                    | 1PST, 1PDT, 2PST, 2PDT<br>Maintained and momentary toggle action                                                                                                                                                                                                                                                                                |
| Contact mechanism           | Quick-make/quick-break wiping action                                                                                                                                                                                                                                                                                                            |
| Contact material            | Bronze silver-plated                                                                                                                                                                                                                                                                                                                            |
| Terminal types              | Screw terminals—brass designed to accept #5-40 x 5/32 in (Cat. No. 11-26) screws<br>Furnished unassembled<br>Solder lug terminals—brass silver-plated with 0.085–0.090 in (2.16–2.29 mm) dia. hole<br>Integrated wire leads—18 gauge, 6 in long and skinned 3/4 in<br>Special wire leads lengths beyond 6 in are available at additional charge |
| Base material               | Thermoset molding material                                                                                                                                                                                                                                                                                                                      |
| Mounting means              | Threaded bushing—0.468 in (11.89 mm) dia., 32 threads/inch<br>Keyway—0.068 x 0.035 in (1.73 x.89 mm) deep, provides anti-rotation feature<br>Hardware supplied—1 hexagon locknut (Cat. No. 15-192) and 1 bright nickel-plated knurled facenut (Cat. No. 15-124F1)<br>Furnished unassembled                                                      |
| Finish                      | Bright nickel-plated toggle lever and bushing                                                                                                                                                                                                                                                                                                   |
| Operating temperature range | 0° to 150°F (–17.8° to 65.6°C)                                                                                                                                                                                                                                                                                                                  |

## Dimensions

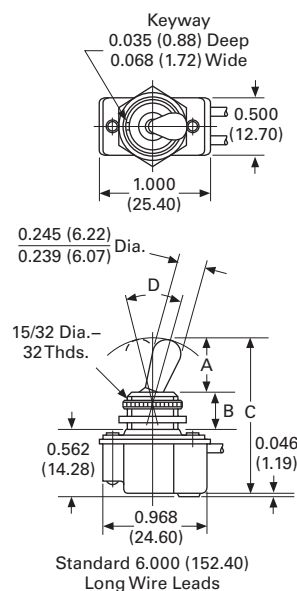
Approximate Dimensions in Inches (mm)

**8280K115**  
**1PST Maintained**  
**(Solder Lug)**



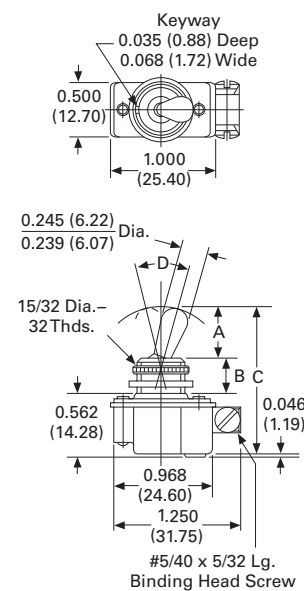
| "A"<br>Lever<br>Dim. | "B"<br>Bushing<br>Dim. | "C"<br>Overall<br>Dim. | "D"<br>Throw<br>Dim. |
|----------------------|------------------------|------------------------|----------------------|
| 0.500<br>(12.70)     | 0.344<br>(8.74)        | 1.411<br>(35.84)       | 29-1/2°              |

**8290K115**  
**1PST Maintained**  
**(Wire Lead)**



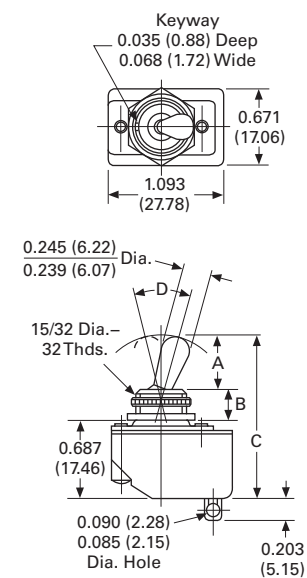
| "A"<br>Lever<br>Dim. | "B"<br>Bushing<br>Dim. | "C"<br>Overall<br>Dim. | "D"<br>Throw<br>Dim. |
|----------------------|------------------------|------------------------|----------------------|
| 0.500<br>(12.70)     | 0.344<br>(8.74)        | 1.406<br>(35.71)       | 29-1/2°              |

**8295K107**  
**1PST Maintained**  
**(Screw Terminals)**



| "A"<br>Lever<br>Dim. | "B"<br>Bushing<br>Dim. | "C"<br>Overall<br>Dim. | "D"<br>Throw<br>Dim. |
|----------------------|------------------------|------------------------|----------------------|
| 0.500<br>(12.70)     | 0.344<br>(8.74)        | 1.406<br>(35.71)       | 29-1/2°              |

### 8381K107 and K108 1PST Maintained (Solder Lug)



| <b>"A"<br/>Lever<br/>Dim.</b> | <b>"B"<br/>Bushings<br/>Dim.</b> | <b>"C"<br/>Overall<br/>Dim.</b> | <b>"D"<br/>Throw<br/>Dim.</b> |
|-------------------------------|----------------------------------|---------------------------------|-------------------------------|
| 0.500<br>(12.70)              | 0.344<br>(8.74)                  | 1.531<br>(38.89)                | 29-1/2°                       |
| 0.500<br>(12.70)              | 0.469<br>(11.91)                 | 1.656<br>(42.06)                | 25-1/2°                       |

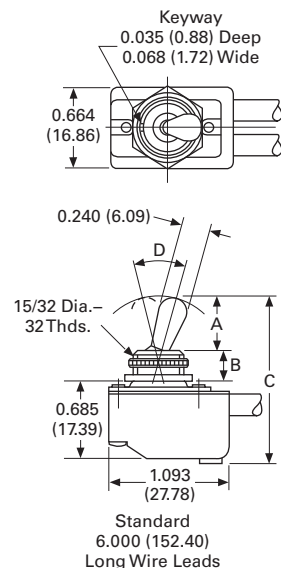
# 4.5

## Toggle Switches

### General Purpose Toggles—AC/DC Rated

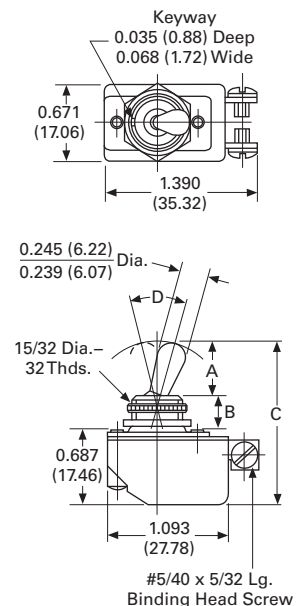
Approximate Dimensions in Inches (mm)

#### 8391K107 and K108 1PST Maintained (Wire Lead)



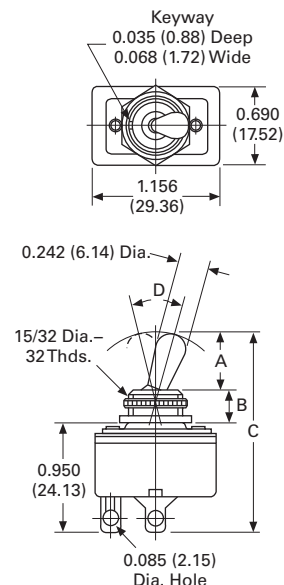
| "A"<br>Lever<br>Dim. | "B"<br>Bushings<br>Dim. | "C"<br>Overall<br>Dim. | "D"<br>Throw<br>Dim. |
|----------------------|-------------------------|------------------------|----------------------|
| 0.500<br>(12.70)     | 0.344<br>(8.74)         | 1.531<br>(38.89)       | 29-1/2°              |
| 0.500<br>(12.70)     | 0.469<br>(11.91)        | 1.656<br>(42.06)       | 25-1/2°              |

#### 8396K107 and K108 1PST Maintained (Screw Terminals)



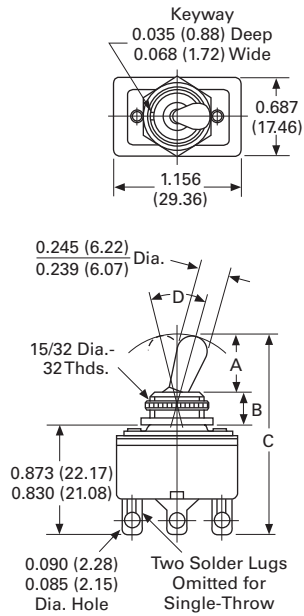
| "A"<br>Lever<br>Dim. | "B"<br>Bushings<br>Dim. | "C"<br>Overall<br>Dim. | "D"<br>Throw<br>Dim. |
|----------------------|-------------------------|------------------------|----------------------|
| 0.500<br>(12.70)     | 0.344<br>(8.74)         | 1.531<br>(38.89)       | 29-1/2°              |
| 0.500<br>(12.70)     | 0.469<br>(11.91)        | 1.656<br>(42.06)       | 25-1/2°              |

#### 8928K478 1PST Momentary (Solder Lug)



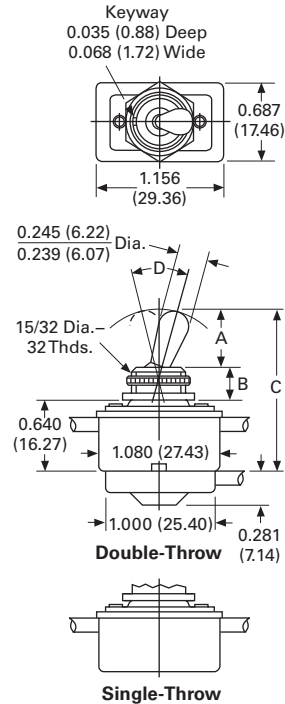
| "A"<br>Lever<br>Dim. | "B"<br>Bushings<br>Dim. | "C"<br>Overall<br>Dim. | "D"<br>Throw<br>Dim. |
|----------------------|-------------------------|------------------------|----------------------|
| 0.500<br>(12.70)     | 0.344<br>(8.74)         | 1.980<br>(50.29)       | 29-1/2°              |
| 0.500<br>(12.70)     | 0.469<br>(11.91)        | 1.656<br>(42.06)       | 25-1/2°              |

**8370 and 8373K107 and K108**  
**2PST/2PDT Maintained**  
**(Solder Lug)**



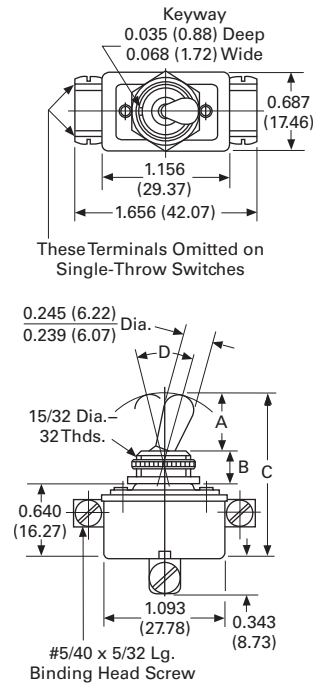
| "A"<br>Lever<br>Dim. | "B"<br>Bushings<br>Dim. | "C"<br>Overall<br>Dim. | "D"<br>Throw<br>Dim. |
|----------------------|-------------------------|------------------------|----------------------|
| 0.500<br>(12.70)     | 0.344<br>(8.74)         | 1.694<br>(43.03)       | 29-1/2°              |
| 0.500<br>(12.70)     | 0.469<br>(11.91)        | 1.820<br>(46.23)       | 25-1/2°              |

**8371 and 8374K107 and K108**  
**1PST Maintained**  
**(Wire Lead)**



| "A"<br>Lever<br>Dim. | "B"<br>Bushings<br>Dim. | "C"<br>Overall<br>Dim. | "D"<br>Throw<br>Dim. |
|----------------------|-------------------------|------------------------|----------------------|
| 0.500<br>(12.70)     | 0.344<br>(8.74)         | 1.484<br>(37.69)       | 29-1/2°              |
| 0.500<br>(12.70)     | 0.469<br>(11.91)        | 1.515<br>(38.48)       | 25-1/2°              |

**8373 and 8375K107 and K108**  
**2PST/2PDT Maintained**  
**(Screw Terminals)**



| "A"<br>Lever<br>Dim. | "B"<br>Bushings<br>Dim. | "C"<br>Overall<br>Dim. | "D"<br>Throw<br>Dim. |
|----------------------|-------------------------|------------------------|----------------------|
| 0.500<br>(12.70)     | 0.344<br>(8.74)         | 1.484<br>(37.69)       | 29-1/2°              |
| 0.500<br>(12.70)     | 0.469<br>(11.91)        | 1.609<br>(40.87)       | 25-1/2°              |

## X Series Toggles

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## Product Description

Eaton's new, competitively priced, AC rated X Series toggles offer a standard high rating for both single- and two-pole applications. The new X Series toggle line offers a wide range of switching circuits, functions and accessories. Ratings for single- and two-pole include 20A at 125 Vac and 10A at 277 Vac to handle more severe inductive, motor and lamp loads.

In addition, X Series toggles have a high standard horsepower rating of 1-1/2 hp, 125–250 Vac for two-pole applications.

The easy-to-install toggles also have an industry-standard 0.48 in diameter mounting hole. For added convenience and delivery support, select industry-standard switch circuit part numbers are available from stock. With so many features, X Series toggles can be used in a variety of applications.

## Contents

**Description****Page**

## X Series Toggles

|                                         |                  |
|-----------------------------------------|------------------|
| Product Selection .....                 | <b>V11-T4-25</b> |
| Accessories .....                       | <b>V11-T4-25</b> |
| Technical Data and Specifications ..... | <b>V11-T4-25</b> |
| Dimensions .....                        | <b>V11-T4-26</b> |

## Application Description

- Commercial and industrial equipment
- Household appliances
- Industrial machinery and automation
- Medical equipment
- Military communications and surveillance
- Rail systems
- Signaling and communications
- Test and lab equipment
- Telecommunications, cable and broadcasting

## Standards and Certifications

- UL Recognized component for Canada File E2702
- RoHS Compliant <sup>①</sup>

**Note**

- <sup>①</sup> Visit [www.eaton.com/vcbu](http://www.eaton.com/vcbu) for the most up-to-date list of verified part numbers.

## Product Selection

Single-Pole <sup>①</sup>

Circuit with Toggle in ...

| Poles and Throw | UP Position     | CENTER Position | DOWN Position <sup>②</sup> | Terminal Type—Catalog Number |          |             |
|-----------------|-----------------|-----------------|----------------------------|------------------------------|----------|-------------|
|                 |                 |                 |                            | 0.250 in Spade               | Screw    | Solder Lugs |
| 1PST            | ON              | NONE            | OFF                        | XTD1A1A2                     | XTD1A2A2 | XTD1A3A2    |
| 1PST            | ON <sup>③</sup> | NONE            | OFF                        | XTD1F1A2                     | XTD1F2A2 | XTD1F3A2    |
| 1PDT            | ON              | OFF             | ON                         | XTD2B1A                      | XTD2B2A  | XTD2B3A     |
| 1PDT            | ON              | NONE            | ON                         | XTD2C1A                      | XTD2C2A  | XTD2C3A     |
| 1PDT            | ON              | NONE            | ON <sup>③</sup>            | XTD2D1A                      | XTD2D2A  | XTD2D3A     |
| 1PDT            | ON <sup>③</sup> | OFF             | ON <sup>③</sup>            | XTD2E1A                      | XTD2E2A  | XTD2E3A     |
| 1PDT            | ON              | OFF             | ON <sup>③</sup>            | XTD2G1A                      | XTD2G2A  | XTD2G3A     |

Two-Pole <sup>④</sup>

Circuit with Toggle in ...

| Poles and Throw | UP Position     | CENTER Position | DOWN Position <sup>②</sup> | Terminal Type—Catalog Number |          |             |
|-----------------|-----------------|-----------------|----------------------------|------------------------------|----------|-------------|
|                 |                 |                 |                            | 0.250 in Spade               | Screw    | Solder Lugs |
| 2PST            | ON              | NONE            | OFF                        | XTD3A1A2                     | XTD3A2A2 | XTD3A3A2    |
| 2PST            | ON <sup>③</sup> | NONE            | OFF                        | XTD3F1A2                     | XTD3F2A2 | XTD3F3A2    |
| 2PDT            | ON              | OFF             | ON                         | XTD4B1A                      | XTD4B2A  | XTD4B3A     |
| 2PDT            | ON              | NONE            | ON                         | XTD4C1A                      | XTD4C2A  | XTD4C3A     |
| 2PDT            | ON              | NONE            | ON <sup>③</sup>            | XTD4D1A                      | XTD4D2A  | XTD4D3A     |
| 2PDT            | ON <sup>③</sup> | OFF             | ON <sup>③</sup>            | XTD4E1A                      | XTD4E2A  | XTD4E3A     |
| 2PDT            | ON              | OFF             | ON <sup>③</sup>            | XTD4G1A                      | XTD4G2A  | XTD4G3A     |

**Notes**<sup>①</sup> Ratings: 20A at 125 Vac, 10A at 277 Vac, 3/4 hp, 125–250 Vac; recommended up to 15A at 28 Vdc.<sup>②</sup> Keyway position.<sup>③</sup> Indicates momentary position.<sup>④</sup> Ratings: 20A at 125 Vac, 10A at 277 Vac, 1-1/2 hp, 125–250 Vac; recommended up to 15A at 28 Vdc.

## Accessories

See Accessories on **Page V11-T4-31**.

## Technical Data and Specifications

## X Series Toggles

| Description           | Specification                                                                    |
|-----------------------|----------------------------------------------------------------------------------|
| Single-pole rating    | 20A, 125 Vac; 10A, 277 Vac; 3/4 hp 125–250 Vac; Recommended up to 15A at 28Vdc   |
| Two-pole rating       | 20A, 125 Vac; 10A, 277 Vac; 1-1/2 hp 125–250 Vac; Recommended up to 15A at 28Vdc |
| Available circuits    | 1PST, 1PDT, 2PST, 2PDT                                                           |
| Terminal types        | Brass screw, brass solder lugs, brass nickel-plated 0.250 in spade               |
| Hardware included     | Zinc nickel-plated knurl nut, zinc nickel-plated hex nut                         |
| Mounting means        | Threaded bushing 12.0 +0.1, –0 mm; 16.5 +1, –1 mm                                |
| Keyway                | 1.8 mm located in DOWN position                                                  |
| Base material         | Thermoset molding material                                                       |
| Finish                | Bright nickel-plated toggle lever and bushing                                    |
| Contact mechanism     | Slow-make/slow-break butt contact                                                |
| Contact resistance    | 50 ohm maximum                                                                   |
| Dielectric strength   | AC 1500V, 1 minute                                                               |
| Operating temperature | 32° to 149°F (0° to 65°C)                                                        |
| Insulation resistance | DC 500V 100M ohm minute                                                          |
| Seal level rating     | IP40                                                                             |
| Packaging             | Sealed in polybag labeled with part number                                       |

# 4.6

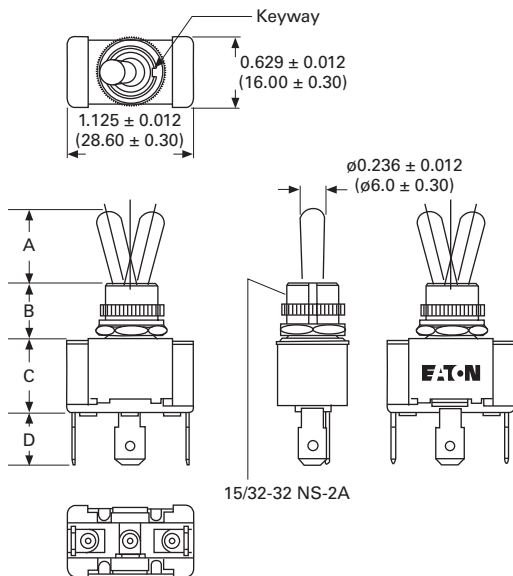
## Toggle Switches

### X Series Toggles

#### Dimensions

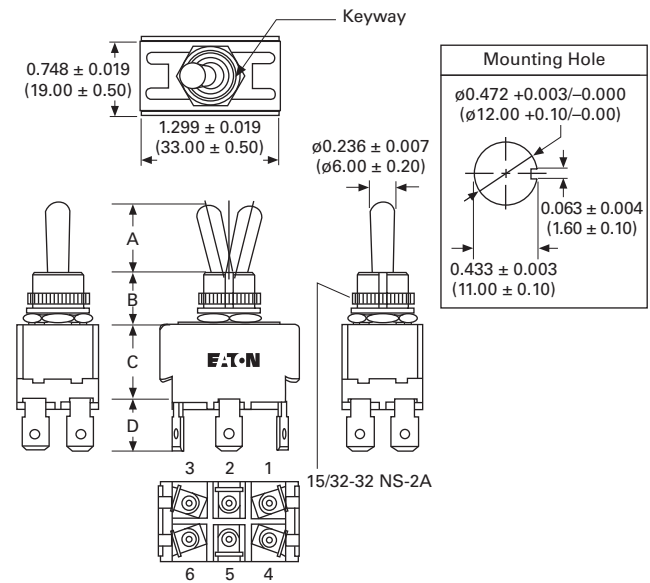
Approximate Dimensions in Inches (mm)

##### Single-Pole



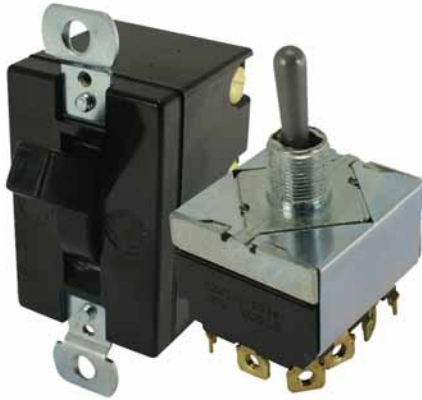
- A  $0.649 \pm 0.039$   
(16.50  $\pm$  1.00)
- B  $0.468 \pm 0.012$   
(11.90  $\pm$  0.30)
- C  $0.677 \pm 0.019$   
(17.20  $\pm$  0.50)
- D  $0.452 \pm 0.019$   
(11.50  $\pm$  0.50)

##### Two-Pole



- A  $0.649 \pm 0.039$   
(16.50  $\pm$  1.00)
- B  $0.468 \pm 0.012$   
(11.90  $\pm$  0.30)
- C  $0.740 \pm 0.019$   
(18.80  $\pm$  0.50)
- D  $0.452 \pm 0.019$   
(11.50  $\pm$  0.50)

## Heavy Duty Hesitation Switches

**Product Description****One-Hole Panel Mount**

These heavy duty toggle switches are available in either two- or three-position. The three-position switches offer a unique positive center stop feature, which assures that the lever cannot be thrown from one side through the center OFF position without stopping. This design feature is a major factor in their widespread acceptance for motor reversing and speed control applications.

The most common application for the switch is to help prevent motor damage resulting from the high current generation by counter EMF of the armature at the time of reversing. This type of device is referred to within the industry as an anti-plugging, hesitation, positive stop or positive off switch. Typical applications include bench tools, coach and truck (electric lift) and X-ray equipment.

**Contents****Description**

Heavy Duty Hesitation Switches

|                                             |           |
|---------------------------------------------|-----------|
| Product Selection . . . . .                 | V11-T4-28 |
| Technical Data and Specifications . . . . . | V11-T4-29 |
| Dimensions . . . . .                        | V11-T4-29 |

**Page****Flush Mount**

These three-position switches also offer the positive center stop feature where the lever cannot be thrown from one side through the center OFF position without stopping. The high ratings of this series allow it to be used with a broad range of heavy duty applications. Copper contacts and brass screw terminals are standard.

**Standards and Certifications**

- UL Recognized (except where noted)
- CSA Certified (where noted)



## Product Selection

4



## Heavy Duty Hesitation Switches—One-Hole Panel Mount

| Rating                                                       | Poles and Throw <sup>②</sup> | Circuit with Toggle in ... |                 |                        | Base Circuit See Page V11-T4-35 | Bushing Length "A" Inches (mm) | Lever Length "B" Inches (mm) | Lever Type | Catalog Number   |            |                          |
|--------------------------------------------------------------|------------------------------|----------------------------|-----------------|------------------------|---------------------------------|--------------------------------|------------------------------|------------|------------------|------------|--------------------------|
|                                                              |                              | UP Position                | CENTER Position | DOWN Position (Keyway) |                                 |                                |                              |            | Solder Terminals | Screw Lugs | 0.250 in Spade Terminals |
| 15A, 125 Vac <sup>①</sup><br>10A, 250 Vac<br>3/4 hp, 250 Vac | 2PDT                         | ON                         | OFF             | ON                     | D                               | 0.468 (11.89)                  | 0.687 (17.45)                | Bat        | 7992K11          | 7992K10    | 7992K12                  |
| 15A, 125 Vac <sup>①</sup><br>10A, 250 Vac<br>3/4 hp, 250 Vac | 3PDT                         | ON                         | OFF             | ON                     | F                               | 0.468 (11.89)                  | 0.687 (17.45)                | Bat        | 7991K11          | 7991K10    | 7991K12                  |
| 15A, 125 Vac <sup>①</sup><br>10A, 250 Vac<br>3/4 hp, 250 Vac | 4PDT                         | ON                         | OFF             | ON                     | F                               | 0.468 (11.89)                  | 0.687 (17.45)                | Bat        | 7990K11          | 7990K10    | 7990K12                  |



## Heavy Duty Hesitation Switches—Flush Mount

| Rating                               | Poles and Throw | Circuit with Toggle in ... |                 |                        | Lever Type | Termination Type | Catalog Number       |
|--------------------------------------|-----------------|----------------------------|-----------------|------------------------|------------|------------------|----------------------|
|                                      |                 | UP Position                | CENTER Position | DOWN Position (Keyway) |            |                  |                      |
| 20A, 125 Vac/Vdc<br>10A, 250 Vac/Vdc | 2PDT            | ON                         | NONE            | ON                     | Square     | Screw            | 7810K1               |
|                                      |                 | ON                         | OFF             | ON                     | Square     | Screw            | 7810K2 <sup>③④</sup> |
| 30A, 125 Vac/Vdc                     | 2PDT            | ON                         | OFF             | ON                     | Square     | Screw            | 7811K5 <sup>③⑤</sup> |
| 20A, 250 Vac/Vdc                     | 3PDT            | ON                         | OFF             | ON                     | Square     | Screw            | 7812K2               |
|                                      | 4PDT            | ON                         | OFF             | ON                     | Square     | Screw            | 7813K2               |

## Notes

- <sup>①</sup> Listed rating for 125 Vac also applies at 28 Vdc.  
<sup>②</sup> Supplied in a four-pole base.  
<sup>③</sup> CSA Certified.  
<sup>④</sup> Also rated 5A, 600 Vac; 1-1/2 hp, 250 Vdc; 2 hp, 240 Vac.  
<sup>⑤</sup> Also rated 2 hp, 250 Vac/Vdc.

## Technical Data and Specifications

### Heavy Duty Hesitation Switches

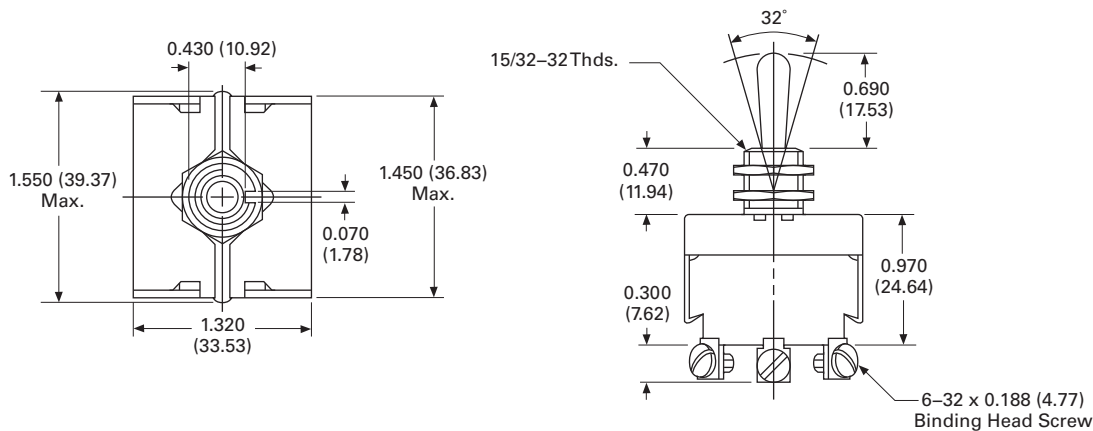
| Description                 | Specification                                                                                                                                                                                                                                                                                         |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ratings                     | See Product Selection tables; Switch ratings at 125 Vac also apply to 28 Vdc                                                                                                                                                                                                                          |
| Circuits                    | 2PDT, 3PDT, 4PDT; maintained action                                                                                                                                                                                                                                                                   |
| Contact mechanism           |                                                                                                                                                                                                                                                                                                       |
| One-hole panel mount        | AC rated devices—slow-make/Slow-break butt contact<br>AC/DC rated devices—Quick-make/quick-break wiping contacts                                                                                                                                                                                      |
| Flush mount                 | Quick-make/quick-break wiping contacts                                                                                                                                                                                                                                                                |
| Contact material            |                                                                                                                                                                                                                                                                                                       |
| One-hole panel mount        | AC rated devices:<br>Movable—silver-plated copper with fine or coin silver contact face button<br>Stationary—copper with fine or coin silver contact face button<br>AC/DC rated devices:<br>Movable—copper<br>Stationary—bronze                                                                       |
| Flush mount                 | Movable—copper<br>Stationary—copper                                                                                                                                                                                                                                                                   |
| Terminal types              | Screw terminals—brass                                                                                                                                                                                                                                                                                 |
| Mounting means              |                                                                                                                                                                                                                                                                                                       |
| One-hole panel mount        | AC rated devices:<br>Threaded bushing—0.468 in (11.89 mm) dia., 32 threads/in<br>Keyway—0.068 x 0.035 in (1.73 x 0.89 mm) deep, provide anti-rotation feature<br>Hardware supplied—<br>1 hexagon locknut (Catalog Number 15-192) and 1 hex facenut (Catalog Number 15-966-6)<br>Furnished unassembled |
| Flush mount                 | Flush mounting panel tabs                                                                                                                                                                                                                                                                             |
| Dielectric withstand        | 1000V rms minimum                                                                                                                                                                                                                                                                                     |
| Operating temperature range | 0° to 150°F (–17.8° to 65.6°C)                                                                                                                                                                                                                                                                        |

## Dimensions

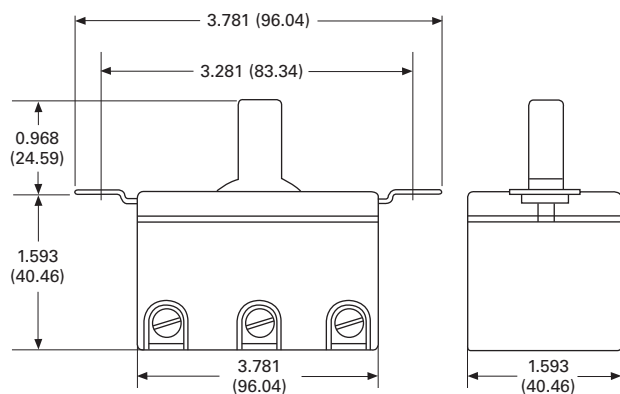
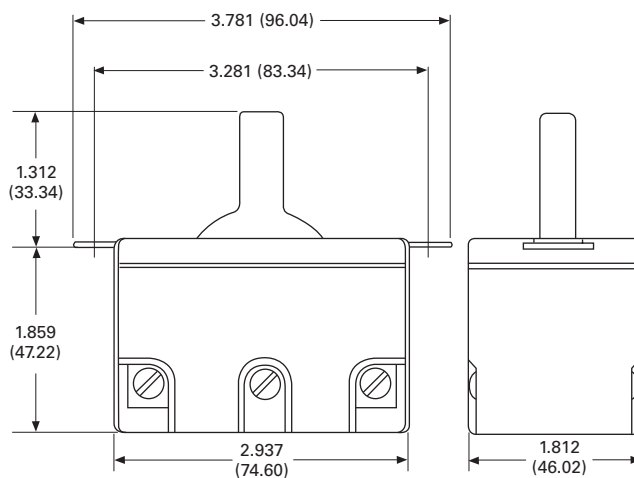
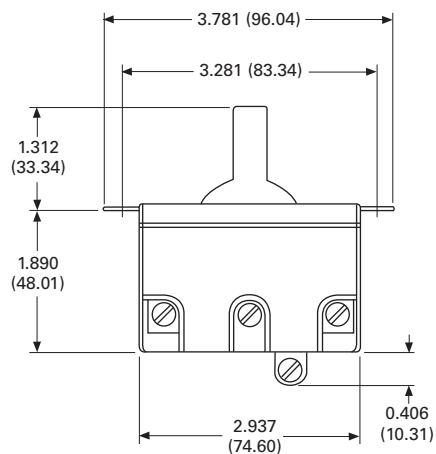
Approximate Dimensions in Inches (mm)

### One-Hole Panel Mount

#### 7990K10—4PDT



Approximate Dimensions in Inches (mm)

**Flush Mount****7810K2—2PDT****7811K2—2PDT****7813K2—4PDT**

## Mounting Hardware

### Product Description

#### One-Hole Mounting Switches

All bushing mounted switches are furnished with two mounting nuts. One nut is mounted behind the panel to prevent the bushing sleeve from being distorted if the front panel is overtightened

Eaton accepts no responsibility for damage to switches mounted without the backup nuts.

### Product Selection

#### Mounting Hardware for One-Hole Mounting Switches—Mounting Nuts <sup>①</sup>

| Size     | Description                      | Material                        | Thickness<br>Dim. "A" in<br>Inches (mm) | Inside<br>Diameter<br>Dim "B" in<br>Inches (mm) | OD or Dimension<br>Across Flats<br>Dim. "C" in<br>Inches (mm) | Dimension<br>Across Corners<br>Dim. "D" in<br>Inches (mm) | Catalog<br>Number |
|----------|----------------------------------|---------------------------------|-----------------------------------------|-------------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------|-------------------|
| 3/8-27   | Hexagon locknut                  | Nickel-plated brass             | 0.125 (3.18)                            | —                                               | 0.562 (14.27)                                                 | 0.625 (15.88)                                             | 15-2526-2         |
| 3/8-24   |                                  | Bright nickel-plated brass      | —                                       | —                                               | —                                                             | —                                                         | 15-1525-6         |
| 11/32-32 |                                  | Nickel-plated brass             | 0.063 (1.60)                            | —                                               | 0.473 (12.01)                                                 | 0.531 (13.49)                                             | 15-1525-2         |
| 15/32-32 | Hexagon locknut                  | Zinc-chromate treated           | 0.075 (1.91)                            | —                                               | 0.625 (15.88)                                                 | —                                                         | 15-192            |
|          |                                  | Bright nickel-plated brass      | 0.078 (1.98)                            | —                                               | 0.546 (13.87)                                                 | 0.625 (15.88)                                             | 15-2525-58        |
|          |                                  | Zinc-chromate treated           | 0.188 (4.76)                            | 0.783 (19.89)                                   | 1.125 (25.80)                                                 | —                                                         | 15-2528-2         |
|          | Hexagon facenut                  | Nickel-plated brass             | 0.078 (1.98)                            | —                                               | 0.562 (14.27)                                                 | 0.656 (16.66)                                             | 15-966-2          |
|          |                                  | Semi-lustre nickel-plated brass | —                                       | —                                               | —                                                             | —                                                         | 19-966-6          |
|          | Knurled facenut                  | Bright nickel-plated brass      | 0.066 (1.68)                            | —                                               | 0.562 (14.27)                                                 | —                                                         | 15-124F1          |
|          |                                  | Black cupric oxide-plated brass | —                                       | —                                               | —                                                             | —                                                         | 15-124F5          |
|          |                                  | Brass nickel-plated brass       | 0.109 (2.77)                            | —                                               | 0.625 (15.88)                                                 | —                                                         | 15-90             |
|          | Chamfered dress nut              | Bright nickel-plated brass      | 0.151 (3.84)                            | 0.312 (7.92)                                    | 0.687 (17.45)                                                 | —                                                         | 15-994-2          |
|          | Standard knurl nut with shoulder | Nickel-plated brass             | 0.109 (2.77)                            | —                                               | 0.593 (15.06)                                                 | —                                                         | 15-2534-14        |
|          | Dress nut                        | Satin chrome-plated brass       | 0.125 (3.18)                            | —                                               | 0.562 (14.27)                                                 | —                                                         | 15-2523-4         |
|          |                                  | Black nylon                     | 0.187 (4.75)                            | 0.390 (9.91)                                    | 0.640 (16.26)                                                 | —                                                         | 15-1048-3         |
|          | Knurled dress nut                | Chrome-plated brass             | 0.187 (4.75)                            | 0.312 (7.92)                                    | 0.640 (16.26)                                                 | —                                                         | 15-189-5          |
| 3/4-32   | Hexagon facenut                  | Nickel-plated steel             | 0.093 (2.36)                            | —                                               | 0.937 (23.80)                                                 | 1.078 (27.38)                                             | 15-1043           |
| #8-40    | Hexagon locknut with facenut     | Nickel-plated steel             | 0.060 (1.52)                            | —                                               | 0.245 (6.22)                                                  | 0.216 (5.49)                                              | 15-1047           |

#### Note

<sup>①</sup> Hardware items are sold for use with Eaton switches only. Minimum ordering quantity on all items is 100.

Mounting Washers and Locking Ring <sup>①</sup>

Approximate Dimensions in Inches (mm)

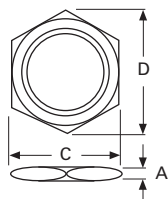
| Size              | Description  | Material          | Thickness<br>Dim. "A" | Inside Diameter<br>Dim "B" | OD or Dimension<br>Across Flats<br>Dim. "C" | Dimension<br>Across Corners<br>Dim. "D" | Catalog<br>Number |
|-------------------|--------------|-------------------|-----------------------|----------------------------|---------------------------------------------|-----------------------------------------|-------------------|
| For 15/32 bushing | Locking ring | Zinc-plated steel | 0.040 (1.02)          | 0.475 (12.07)              | 0.718 (18.24)                               | —                                       | 29-761-5          |

## 4

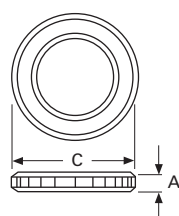
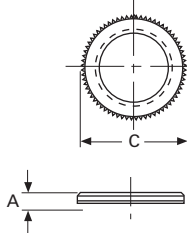
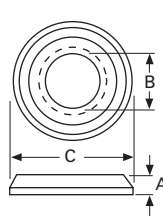
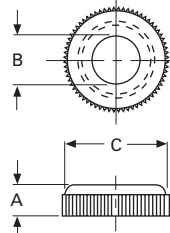
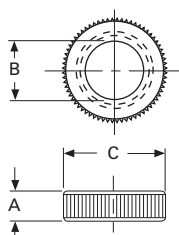
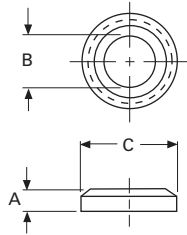
## Dimensions

Approximate Dimensions in Inches (mm)

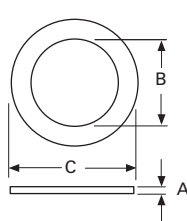
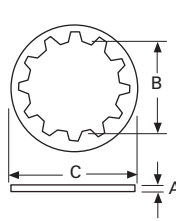
## Mounting Hardware

Hexagon Locknuts  
or Facenuts

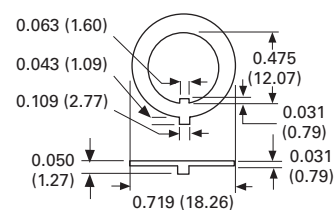
Knurled Facenut

Knurled Nut  
with ShoulderChamfered Dress Nut  
Catalog No. 15-994-2Knurled Dress Nut  
Catalog No. 15-189-5Knurled Dress Nut  
Catalog No. 15-1048-3Dress Nut  
Catalog No. 15-2523-4

Plain Washer

Internal Tooth  
Lockwasher

Locking Ring

**Note**<sup>①</sup> Hardware items are sold for use with Eaton switches only.

## Decorator Facenuts

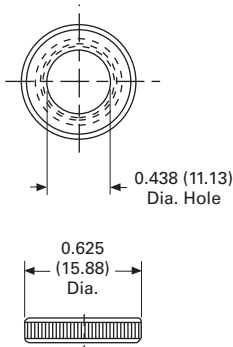
### Product Selection <sup>①</sup>

| Type             | Color        | Catalog Number   |
|------------------|--------------|------------------|
| Knurled facenuts | Bright black | <b>15-1048-3</b> |
|                  | Bright clear | <b>15-1048-7</b> |
| Beveled facenuts | Bright black | <b>15-1049-3</b> |
|                  | Bright clear | <b>15-1049-7</b> |

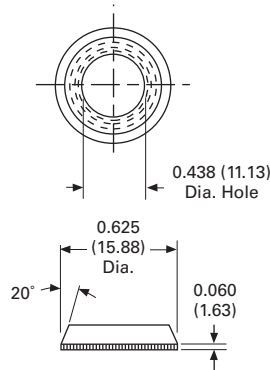
### Dimensions

Approximate Dimensions in Inches (mm)

Catalog Number 15-1048



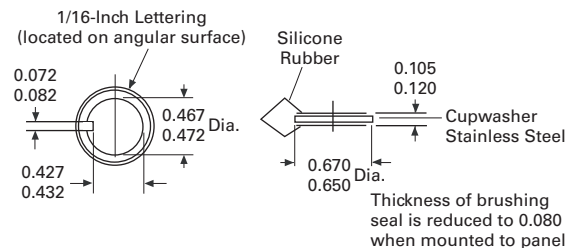
Catalog Number 15-1049



## Panel Seal

- Prevents moisture and contaminants from entering panel enclosure
- Behind panel mounting
- Stainless-steel cup washer ensures proper seating of silicone rubber seal
- Seal withstands 20 psi water pressure
- Cat. No. 32-341

### Dimensions—32-341



## Replacement Terminal Screws

### Product Selection

| Screw Size                     | Catalog Number <sup>②</sup> |
|--------------------------------|-----------------------------|
| #5-40 x 1/8 in                 | <b>11-1117</b>              |
| #5-40 x 5/32 in                | <b>11-26</b>                |
| #5-40 x 3/16 in binding head   | <b>811-7206</b>             |
| #5-40 x 1/4 in binding head    | <b>811-14</b>               |
| #6-32 x 3/16 in binding head   | <b>811-2</b>                |
| #6-32 x 1/4 in binding head    | <b>811-161</b>              |
| #6-32 x 1/4 in binding head    | <b>811-7248</b>             |
| #6-32 x 1/4 in pan head, brass | <b>11-1893</b>              |
| #6-32 x 3/8 in binding head    | <b>811-129</b>              |
| #8-32 x 3/16 in binding head   | <b>11-1618</b>              |
| #8-32 x 1/4 in                 | <b>11-1369</b>              |
| #8-32 x 1/4 in                 | <b>811-408-2</b>            |
| #8-32 x 3/8 in binding head    | <b>11-1766</b>              |
| #8-32 x 3/8 in binding head    | <b>11-6074-4</b>            |
| #6-32 x 7/32 in binding head   | <b>11-6085-2</b>            |

## Toggle Boot

- Prevents moisture and contaminants from entering lever to bushing enclosure
- Front panel mounting
- Threaded mounting nut ensures proper assembly of silicon rubber boot
- Brass nut: 15/32-32 NS-2A
- Black color

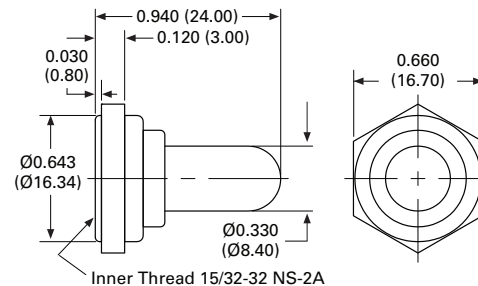
### SW1RY3030



### Product Selection

| Mounting Description                                                                                                 | Color | Catalog Number   |
|----------------------------------------------------------------------------------------------------------------------|-------|------------------|
| Front panel mounting<br>Molded in brass mounting nut (15/32-32 NS-2A) ensures proper assembly of silicon rubber boot | Black | <b>SW1RY3030</b> |

### Dimensions—15/32-32 NS-2A



### Notes

- Decorator facenuts for 15/32 in bushing switches, 15/32-32 thread.
- Hardware items are sold for use with Eaton switches only.

## Indicating Plates

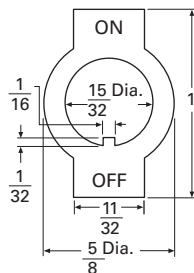
### Product Selection—Indicating Plates for 15/32-Inch Bushing Mounted Switches

|                                                                                     | Keyway Location  | Marking<br>Opposite<br>Keyway | Keyway<br>Side | Material       | Finish                          | Catalog Number    |
|-------------------------------------------------------------------------------------|------------------|-------------------------------|----------------|----------------|---------------------------------|-------------------|
|    | Keyway on bottom | ON                            | OFF            | 0.032 in steel | Plain                           | <b>30-5632</b>    |
|                                                                                     |                  |                               |                |                | Statuary bronze                 | <b>30-5632-3</b>  |
|                                                                                     |                  |                               |                |                | Burnished nickel                | <b>30-5632-4</b>  |
|                                                                                     |                  |                               |                | 0.032 in brass | Black cupric oxide <sup>①</sup> | <b>30-2899-3</b>  |
|                                                                                     |                  |                               |                |                |                                 |                   |
|                                                                                     |                  |                               | RAD            | 0.032 in steel | Statuary bronze                 | <b>30-5632-7</b>  |
|                                                                                     |                  |                               |                |                | Burnished nickel                | <b>30-5632-6</b>  |
|                                                                                     |                  |                               | RUN            | 0.032 in steel | Burnished nickel                | <b>30-5632-11</b> |
|                                                                                     |                  |                               |                |                |                                 | <b>30-5632-15</b> |
|                                                                                     |                  |                               |                |                |                                 | <b>30-5632-16</b> |
|                                                                                     |                  |                               |                |                |                                 | <b>30-5632-17</b> |
|                                                                                     |                  |                               | FOR            | 0.032 in steel | Burnished nickel                | <b>30-2899-2</b>  |
|                                                                                     |                  |                               | AUTO           |                |                                 | <b>30-2899-6</b>  |
|                                                                                     |                  |                               | PUSH           |                |                                 | <b>30-2899-7</b>  |
|                                                                                     |                  |                               | RUN            |                |                                 | <b>30-2899-9</b>  |
|                                                                                     |                  |                               | BLANK          |                |                                 | <b>30-5632-8</b>  |
|    | Keyway on side   | ON                            | OFF            | 0.032 in steel | Burnished nickel                | <b>30-5632-13</b> |
|                                                                                     |                  | OFF                           | ON             |                |                                 | <b>30-2899-8</b>  |
|   | Keyway on top    |                               | T              | 0.032 in steel | Burnished nickel                | <b>30-5632-12</b> |
|                                                                                     |                  |                               | OFF            |                |                                 | <b>30-5632-14</b> |
|                                                                                     |                  |                               | SET            |                |                                 | <b>30-2899-10</b> |
|                                                                                     |                  |                               | BLANK          |                |                                 | <b>30-2899-12</b> |
|  | Keyway on top    |                               | O              | 0.032 in steel | Burnished nickel                | <b>30-5632-23</b> |
|                                                                                     |                  |                               | I              |                |                                 | <b>30-5632-19</b> |

## Dimensions

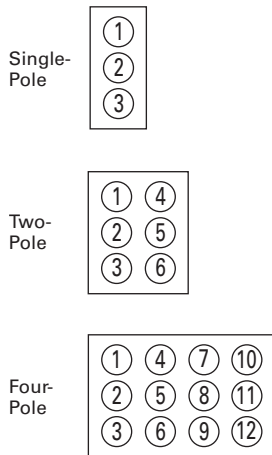
Approximate Dimensions in Inches

### Indicating Plate



#### Note

<sup>①</sup> White lettering.



### Terminal Identification

When specified on order, switches will have the terminals identified as shown in the illustration at right. Terminal markings will be ink-stamped on the side of the switch case and unused terminal positions will not be identified.

All views are rear of switch with keyway or at down as applicable. Terminal numbers 2, 2 and 5 and 5 and 8 are considered inbound terminals for single-, two- and four-pole switches respectively. All others are considered outbound.

### "Three Independent" ON-ON-ON Circuit Diagram

For switch modified with "Three Independent" ON-ON-ON special circuit. External jumpers are required. User to connect wiring per instructions given below.

#### ON-ON-ON Special Circuit

| Connection Points                | Single-Pole |
|----------------------------------|-------------|
| Connect common to terminals      | 2           |
| Connect circuit "A" to terminals | 6           |
| Connect circuit "B" to terminals | 4           |
| Connect circuit "C" to terminals | 1           |

| 3 ON Independent | No. of Poles | Circuit with Lever in ... |                              |                        |
|------------------|--------------|---------------------------|------------------------------|------------------------|
|                  |              | UP Position               | CENTER Position (Maintained) | DOWN Position (Keyway) |
|                  |              | Circuit A                 | Circuit B                    | Circuit C              |
| 1 PDT            | 1            |                           |                              |                        |

### Circuit Diagrams

#### Special General Purpose Toggle Circuits

| Circuit Number | Schematic |
|----------------|-----------|
| 7530           |           |
| 7571           |           |
| 7555           |           |

### Toggle Circuit Diagrams

| Circuit Letter                | Schematic | Circuit Letter                     | Schematic |
|-------------------------------|-----------|------------------------------------|-----------|
| <b>A</b><br>1PST              |           | <b>I</b><br>2 Circuit <sup>⑤</sup> |           |
| <b>B</b><br>1PDT              |           | <b>J</b><br>1PST                   |           |
| <b>C</b><br>2PST              |           | <b>K</b><br>1PDT                   |           |
| <b>D</b><br>2PDT              |           | <b>L</b><br>2PST                   |           |
| <b>E</b><br>4PST <sup>①</sup> |           | <b>M</b><br>2PST                   |           |
| <b>F</b><br>4PDT <sup>②</sup> |           | <b>N</b> <sup>⑥</sup><br>2PDT      |           |
| <b>G</b> <sup>③</sup><br>1PST |           | <b>P</b><br>1PDT                   |           |
| <b>H</b> <sup>④</sup><br>1PDT |           | <b>Q</b> <sup>⑦</sup><br>2 Circuit |           |

### Legends

#### Toggle Switch Legend

| Legend | Toggle Switch Type                                   |
|--------|------------------------------------------------------|
| ●      | Contact terminal—will make contact with switch lever |
| ○      | Isolated terminal—does not make contact with lever   |
| ⌵      | Center terminal and switch lever                     |
| ⊗      | Bulb                                                 |
| ⚡      | Momentary contact                                    |
| •      | Denotes mechanical contact portion                   |

#### Notes

- ① Poles 11 and 12 may be eliminated for three-pole devices.
- ② Poles 10, 11 and 12 may be eliminated for three-pole devices.
- ③ Dependent lamp.
- ④ Independent lamp.
- ⑤ Two circuit—indicates a special type of double-throw switch in which the two circuits being controlled may be independent of each other.
- ⑥ For 206 Series, an additional lamp is available.
- ⑦ Available in 1PDT or 2PDT.

Slide Control



Paddle Control



Rotary Wiper



|            |                                             |          |
|------------|---------------------------------------------|----------|
| <b>5.1</b> | <b>Paddle and Slide Controls</b>            |          |
|            | Product Description . . . . .               | V11-T5-2 |
|            | Catalog Number Selection . . . . .          | V11-T5-2 |
|            | Technical Data and Specifications . . . . . | V11-T5-3 |
|            | Dimensions . . . . .                        | V11-T5-3 |
| <b>5.2</b> | <b>Rotary Wipers</b>                        |          |
|            | Product Description . . . . .               | V11-T5-4 |
|            | Features . . . . .                          | V11-T5-4 |
|            | Options . . . . .                           | V11-T5-4 |
|            | Standards and Certifications . . . . .      | V11-T5-4 |
|            | Product Selection . . . . .                 | V11-T5-4 |
|            | Technical Data and Specifications . . . . . | V11-T5-5 |
|            | Dimensions . . . . .                        | V11-T5-6 |

## Paddle and Slide Controls



## Contents

## Description

Paddle and Slide Controls

|                                             |                 |
|---------------------------------------------|-----------------|
| Technical Data and Specifications . . . . . | <b>V11-T5-3</b> |
| Dimensions . . . . .                        | <b>V11-T5-3</b> |

## Product Description

Eaton's unique family of dimmer and wiper controls are field proven to be the market's most dependable controls. Although originally designed for the heavy truck market, applications in various other types of

vehicles exist. Paddle and slide versions are available and both have the look, feel and durability associated with our controls. Bezels and actuators are molded in a soft matte finish. Illuminated and non-illuminated versions are

available. Board-mounted LEDs located behind a laser-etched panel provide illumination. Customized light panel lettering and custom pad printed bezels are also available. Both dimmer and wiper controls are

designed to complement the NGR family of switches.

**Note:** Specific frame options are available that allow product to mount in NGR gang mount system. Contact your local Eaton Sales Representative.

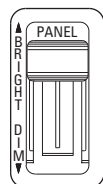
## Catalog Number Selection

## How To Order—Paddle and Slide Controls

To determine complete catalog number, start with the appropriate control type and add the appropriate code letters and/or numbers.

**Example:** **D P 24 5 C A D G**

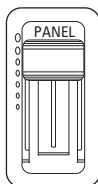
| Control Type                                                                                               | Application Voltage                | Amperage Rating and Voltage <sup>①</sup>                                                                                                               | Bezel Print Style                                                                    | Connector Type Packard No.                                                                                        | Connector and Leads Only Detail                                                                      | Circuit Board <sup>②</sup>                                                              | LED Color                                                                             |
|------------------------------------------------------------------------------------------------------------|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>D</b> = Dimmer<br><b>W</b> = Wiper<br><br><b>Actuator Type</b><br><b>P</b> = Paddle<br><b>S</b> = Slide | <b>12</b> = 12V<br><b>24</b> = 24V | <b>3</b> = 3A, 24V<br><b>4</b> = 4A, 12V<br><b>5</b> = 5A, 24V<br><b>6</b> = 6A, 12V<br><b>8</b> = 8A, 12V<br><b>10</b> = 10A, 12V<br><b>W</b> = Wiper | <b>A</b> = Style A<br><b>B</b> = Style B<br><b>C</b> = Style C<br><b>D</b> = Style D | <b>A</b> = 12020398<br><b>B</b> = 12015345<br><b>C</b> = 174930-1<br><b>D</b> = 12034295<br><b>E</b> = Leads only | Dimmer connector<br>Dimmer and wiper connector<br>Dimmer connector<br>Wiper connector<br>Dimmer only | <b>D</b> = Dimmer<br><b>L</b> = 18 sec. <sup>③</sup><br><b>S</b> = 10 sec. <sup>③</sup> | <b>G</b> = Green<br><b>Y</b> = Yellow<br><b>R</b> = Red<br><b>X</b> = Non-illuminated |

Bezel Print Style <sup>④</sup>

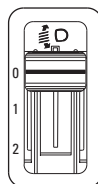
Code A



Code B



Code C



Code D

## Notes

- <sup>①</sup> Amperage ratings for dimmers only.
- <sup>②</sup> Maximum dwell time describes the average time constant for delayed wiper activation.
- <sup>③</sup> Maximum nominal dwell.
- <sup>④</sup> Custom pad print available for bezel or button.

## Technical Data and Specifications

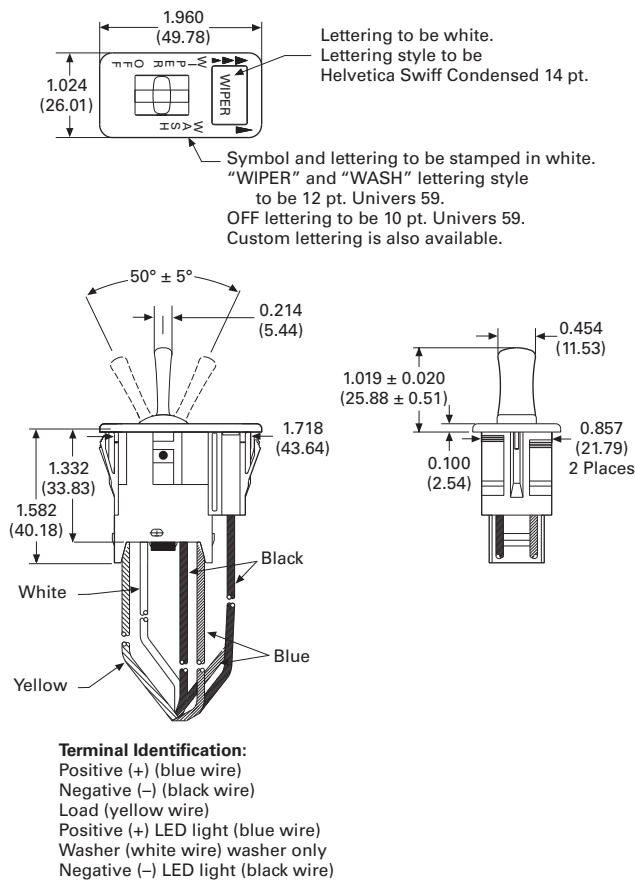
### Paddle and Slide Controls

| Description                 | Specification                                                 |
|-----------------------------|---------------------------------------------------------------|
| Ratings (dimmer only)       | 4, 6, 8, 10A at 14 Vdc<br>3, 5A at 28 Vdc                     |
| Mechanical life             | 100,000 operations, maximum                                   |
| Operating temperature range | −40° to 185°F (−40° to 85°C)                                  |
| Base material               | High-grade thermoplastic molding material                     |
| Mounting means              | Snap-in mounting with plastic bezel                           |
| Mounting hole               | Rectangular panel cutout: 1.734 x 0.867 in (44.00 x 22.00 mm) |
| Panel thickness             |                                                               |
| Paddle                      | 0.030 to 0.190 in (0.762 x 4.80 mm)                           |
| Slide                       | 0.030 to 0.080 in (0.762 x 2.03 mm)                           |
| Approximate weight          | 1.5 oz                                                        |

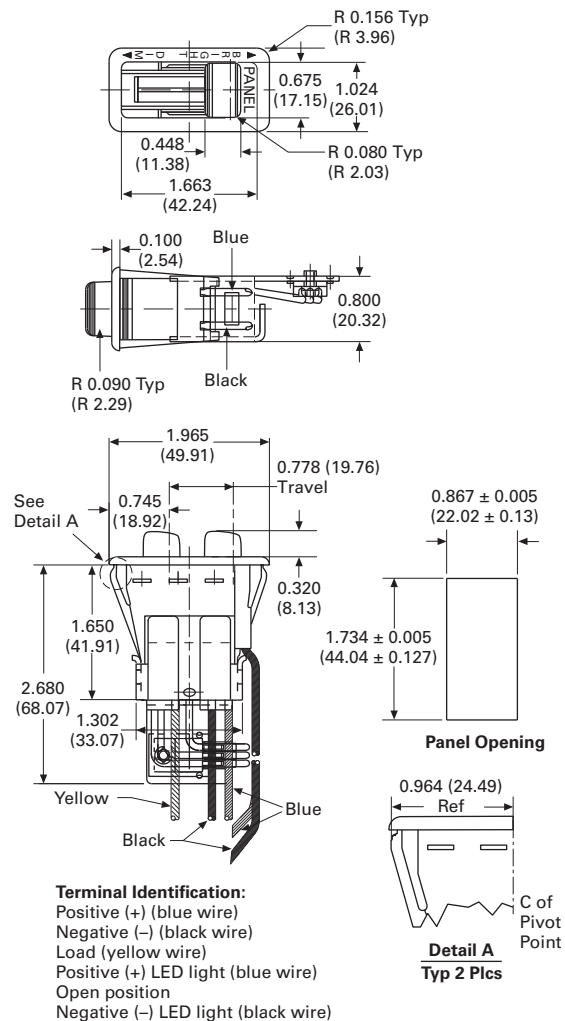
## Dimensions

Approximate Dimensions in Inches (mm)

### Paddle Control



### Slide Control



Rotary Wiper



5

Contents

| Description                       | Page     |
|-----------------------------------|----------|
| Rotary Wipers                     |          |
| Technical Data and Specifications | V11-T5-5 |
| Dimensions                        | V11-T5-6 |

Product Description

The rotary wiper has been designed to be a highly durable rotary wiper control for the transportation industry. The RW200 series wiper has four wiper control

positions via a rotating knob: Off, Intermittent, Continuous Low Speed and Continuous High Speed. The device has a washer function that operates the washer pump and wiper while the knob is depressed.

Features

- Load Dump Protection
  - The switch will withstand a 120V load dump per SAE J1455
- Reverse Voltage Protection
  - The device will not be damaged when exposed to 12 Vdc for 5 minutes

Options

- Variable bushing length
- Variable spindle length
- Choice of connectors
- Pad printing on knob

Standards and Certifications

Meets SAE standards J1455, J1944 and J1988.

Product Selection

To determine complete catalog number, start with the appropriate control type and add the appropriate code letters and/or numbers.

Rotary Wiper Code Numbers and Letters

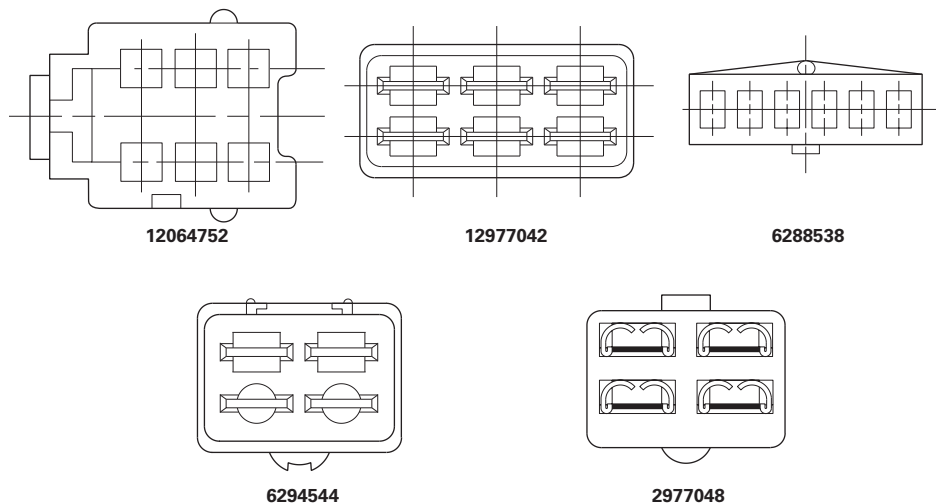
| Series | Code | Voltage | Code | Packard Connectors  | Code | Bushing Length in Inches (mm) | Code | Catalog Number |
|--------|------|---------|------|---------------------|------|-------------------------------|------|----------------|
| RW     | RW   | 12 Vdc  | 200  | 12064752            | 12A  | 0.261 (6.63)                  | A    | RW20012AA      |
|        |      |         |      |                     |      | 0.424 (10.77)                 | B    | RW20012AB      |
|        |      |         |      | 12977042            | 12B  | 0.261 (6.63)                  | A    | RW20012BA      |
|        |      |         |      |                     |      | 0.424 (10.77)                 | B    | RW20012BB      |
|        |      |         |      | 6288538             | 12C  | 0.261 (6.63)                  | A    | RW20012CA      |
|        |      |         |      |                     |      | 0.424 (10.77)                 | B    | RW20012CB      |
|        |      |         |      | 6294544 and 2977048 | 12D  | 0.261 (6.63)                  | A    | RW20012DA      |
|        |      |         |      |                     |      | 0.424 (10.77)                 | B    | RW20012DB      |

## Technical Data and Specifications

### Rotary Wipers

| Description                  | Specification                                                                                                                                                      |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operating voltage range      | 9 Vdc to 16 Vdc                                                                                                                                                    |
| Continuous load rating       | 17A from -40° to 73°F (-40° to 23°C)<br>Derated to 5A at 185°F (85°C)                                                                                              |
| Wiper electromechanical life | 50,000 cycles                                                                                                                                                      |
| Electrical cycle life        | 250,000 cycles in the Intermittent position<br>300,000 cycles combined in the Low and High positions                                                               |
| Operating temperature        | -40° to 185°F (-40° to 85°C)                                                                                                                                       |
| Humidity rating              | Device will operate properly at 98% humidity between -40° and 100°F (-40° and 38°C)                                                                                |
| Mechanical shock             | The switch will withstand a 3 ft drop on concrete                                                                                                                  |
| Vibration                    | The device will operate properly while being exposed to 133 hours of 1G rms vibration along all three axes, sweeping from 5 Hz to 1500 Hz at one octave per minute |

### Connector Drawings



### Circuit Continuity

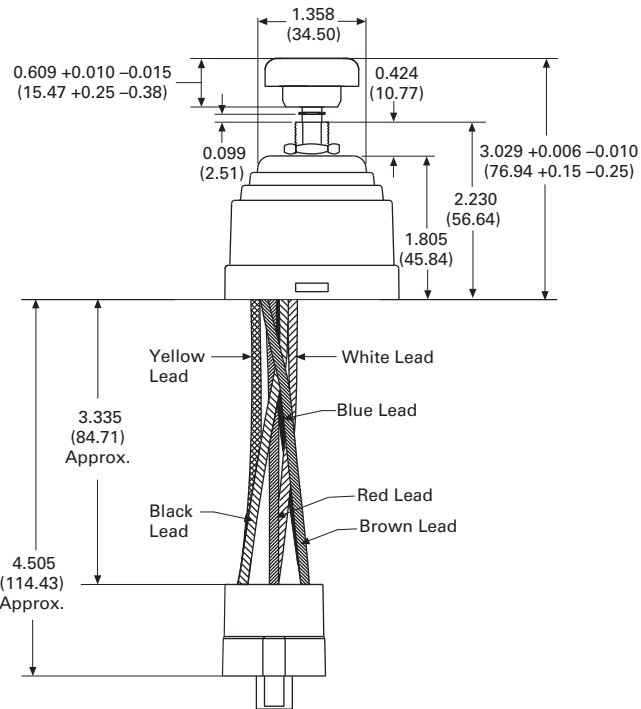
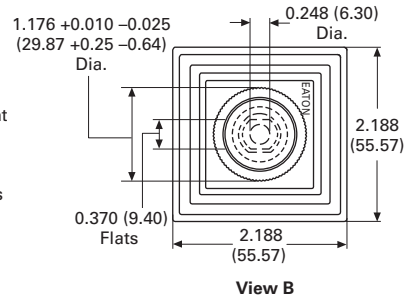
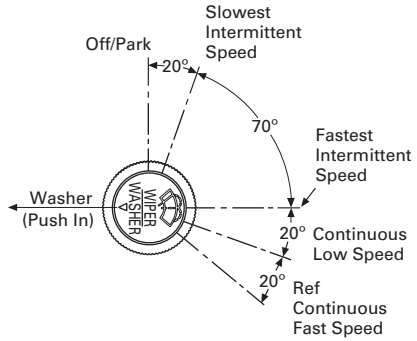
| Switch Position | Circuit Continuity   |
|-----------------|----------------------|
| Off             | Open                 |
| Intermittent    | Yellow—Red and brown |
| Low speed       | Yellow               |
| High speed      | White                |
|                 | Brown                |
| Washer          | Red—Positive         |
|                 | Black—Negative       |

### Wire Terminations

| Wire Color | Switch Connections        |
|------------|---------------------------|
| Yellow     | Motor low speed terminal  |
| White      | Motor high speed terminal |
| Blue       | Motor park terminal       |
| Black      | Ground                    |
| Brown      | Washer pump               |
| Red        | +12 Vdc (positive)        |

**Dimensions**

Approximate Dimensions in Inches (mm)

**RW200 Series**

AC Rated Pushbuttons



Illuminated AC/DC Rated Pushbuttons



|            |                                                       |           |
|------------|-------------------------------------------------------|-----------|
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|            | Standards and Certifications .....                    | V11-T6-2  |
|            | Product Selection .....                               | V11-T6-3  |
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| <b>6.2</b> | <b>Illuminated AC/DC Rated</b>                        |           |
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AC Rated



6

### Product Description

These general-purpose, AC rated, pushbutton switches offer a wide variety of configurations, button styles and termination types. The 7835 and 7836 light-duty series pushbutton switches are AC only. They feature slow-make/slow-break butt-type contacts with a light operating pressure that is particularly suited to instrumentation applications.

### Features

- Circuits
  - 1PST, 1PDT, 2PDT
  - Momentary action
- Terminal Types
  - Screw terminals, brass (furnished unassembled)
  - 8448 Series
    - #6-32 x 3/16 in binding head screws  
(**Cat. No. 811-2**)
  - 8410/8411 Series
    - #5-40 x 3/16 in  
(**Cat. No. 811-7206**)
  - 8406/8440 Series
    - #5-40 x 5/32 in screws  
(**Cat. No. 11-26**)
  - Solder lug, brass silver-plated
- Hardware supplied
  - One hexagon locknut (**Cat. No. 15-192**) and one bright nickel-plated knurled facenut (**Cat. No. 15-124F1**)
  - 8411/8418 Series has a bright nickel-plated hexagon facenut (**Cat. No. 15-966-2**)
  - All hardware is furnished unassembled
  - Other mounting types are flush, nest and snap-in

### Standards and Certifications <sup>①</sup>

- UL<sup>®</sup> Recognized
- CSA<sup>®</sup> Certified
- RoHS <sup>②</sup>



#### Notes

<sup>①</sup> Except where noted.

<sup>②</sup> Visit [www.eaton.com/vcbu](http://www.eaton.com/vcbu) for the most up-to-date list of verified part numbers.

### Contents

#### Description

AC Rated

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Product Selection ..... **V11-T6-3**Technical Data and Specifications ..... **V11-T6-4**Dimensions ..... **V11-T6-5**

## Product Selection

## Non-Illuminated

## Light-Duty, Momentary Contact

## Flush



## Flush Mounted

| Rating                 | Poles and Throw | Contacts | Circuit Number <sup>①</sup> | Button Construction | Color | Button Extension Dimensions "B" in Inches (mm) | Typical Max. Operating Force | Mounting or Bushing Length Dimensions "A" in Inches (mm) | Catalog Number |
|------------------------|-----------------|----------|-----------------------------|---------------------|-------|------------------------------------------------|------------------------------|----------------------------------------------------------|----------------|
| <b>Screw Terminals</b> |                 |          |                             |                     |       |                                                |                              |                                                          |                |
| 1/4A, 250 Vac/Vdc      | 1PST            | NC       | A                           | Nylon               | Black | 0.468 (11.89)                                  | 0.7 lbs <sup>③</sup>         | Flush                                                    | <b>8406K1</b>  |
| 3/4A, 125 Vac/Vdc      |                 |          |                             |                     |       | 0.453 (11.50)                                  | 0.7 lbs <sup>③</sup>         | Flush                                                    | <b>8410K1</b>  |

## Snap-in



## Snap-in Mounted

| Rating                            | Poles and Throw | Contacts | Circuit Number <sup>①</sup> | Button Construction | Color | Button Extension Dimensions "B" in Inches (mm) | Typical Max. Operating Force | Mounting or Bushing Length Dimensions "A" in Inches (mm) | Catalog Number             |
|-----------------------------------|-----------------|----------|-----------------------------|---------------------|-------|------------------------------------------------|------------------------------|----------------------------------------------------------|----------------------------|
| <b>Spade Terminals (0.250 in)</b> |                 |          |                             |                     |       |                                                |                              |                                                          |                            |
| 3/4A, 125 Vac/Vdc                 | 1PST            | NC       | A                           | Nylon               | White | 0.375 (9.53)                                   | —                            | Snap-in                                                  | <b>8423K1</b> <sup>⑤</sup> |
| 1/4A, 250 Vac/Vdc                 |                 | NO       | A                           | Nylon               | White | 0.375 (9.53)                                   | —                            | Snap-in                                                  | <b>8424K1</b> <sup>⑤</sup> |

## Bushing



## Bushing Mounted

| Rating                                           | Poles and Throw | Contacts | Circuit Number <sup>①</sup> | Button Construction | Color | Button Extension Dimensions "B" in Inches (mm) | Typical Max. Operating Force | Mounting or Bushing Length Dimensions "A" in Inches (mm) | Catalog Number        |
|--------------------------------------------------|-----------------|----------|-----------------------------|---------------------|-------|------------------------------------------------|------------------------------|----------------------------------------------------------|-----------------------|
| Solder Lugs                                      |                 |          |                             |                     |       |                                                |                              |                                                          |                       |
| 3/4A, 125 Vac/Vdc<br>1/4A, 250 Vac/Vdc           | 1PST            | NC       | A                           | Nylon               | Black | 0.250 (6.35)                                   | 1.5 lbs <sup>③</sup>         | 0.250 (6.35)                                             | 8411K5                |
| 3/4A, 125 Vac/Vdc<br>1/4A, 250 Vac/Vdc           | 1PST            | NC       | A                           | Nylon               | Black | 0.406 (10.31)                                  | 1.5 lbs <sup>③</sup>         | 0.468 (11.89)                                            | 8411K8                |
| 5A, 12 Vdc,<br>3A, 125 Vac <sup>②</sup>          | 1PST            | NO       | A                           | Metal               | —     | 0.296 (7.52)                                   | 2.5 lbs                      | 0.468 (11.89)                                            | 8440K2 <sup>⑤</sup>   |
| 3A, 125 Vac<br>1A, 250 Vac<br>1/10 hp, 125 Vac   | 1PST            | NC       | A                           | Metal               | —     | 0.312 (7.92)                                   | —                            | 0.562 (14.27)                                            | 7835K11A <sup>⑥</sup> |
|                                                  |                 |          | A                           | Nylon (snap-on)     | Black | —                                              | —                            | 0.562 (14.27)                                            | 7835K11C              |
|                                                  |                 |          | A                           | Nylon (snap-on)     | Red   | —                                              | —                            | 0.562 (14.27)                                            | 7835K11D              |
| 3A, 125 Vac<br>1A, 250 Vac<br>1/10 hp, 125 Vac   | 1PST            | NO       | A                           | Metal               | —     | 0.312 (7.92)                                   | —                            | 0.562 (14.27)                                            | 7836K11A <sup>⑥</sup> |
|                                                  |                 |          | A                           | Nylon (snap-on)     | Black | —                                              | —                            | 0.562 (14.27)                                            | 7836K11C <sup>⑥</sup> |
|                                                  |                 |          | A                           | Nylon (snap-on)     | Red   | —                                              | —                            | 0.562 (14.27)                                            | 7836K11D <sup>⑥</sup> |
| Screw Terminals                                  |                 |          |                             |                     |       |                                                |                              |                                                          |                       |
| 3/4A, 125 Vac/Vdc<br>1/4A, 250 Vac/Vdc           | 1PST            | NC       | A                           | Nylon               | Black | 0.406 (10.31)                                  | 1.5 lbs <sup>③</sup>         | 0.468 (11.89)                                            | 8411K7                |
|                                                  |                 | NO       |                             |                     |       | 0.375 (9.53)                                   | 1.5 lbs <sup>④</sup>         | 0.468 (11.89)                                            | 8411K12               |
| 5A, 12 Vdc,<br>3A, 125 Vac <sup>②</sup>          | 1PST            | NO       | A                           | Metal               | —     | 0.296 (7.52)                                   | 2.5 lbs                      | 0.468 (11.89)                                            | 8440K3 <sup>⑤</sup>   |
| 3A, 125 Vac<br>1A, 250 Vac<br>1/10 hp, 125 Vac   | 1PST            | NO       | A                           | Metal               | —     | 0.312 (7.92)                                   | —                            | 0.562 (14.27)                                            | 7836K13A              |
| Wire Leads <sup>⑦</sup>                          |                 |          |                             |                     |       |                                                |                              |                                                          |                       |
| 3/4A, 125 Vac<br>1A, 250 Vac<br>1/10 hp, 125 Vac | 1PST            | NC       | A                           | Metal               | —     | 0.312 (7.92)                                   | —                            | 0.562 (14.27)                                            | 7835K12A              |
|                                                  |                 | NO       |                             |                     |       | 0.312 (7.92)                                   | —                            | 0.562 (14.27)                                            | 7836K12A              |
| Spade Terminals (0.250 in)                       |                 |          |                             |                     |       |                                                |                              |                                                          |                       |
| 1/4A, 250 Vac/Vdc                                | 1PST            | NO       | A                           | Nylon               | Red   | 0.250 (6.35)                                   | 1.5 lbs <sup>④</sup>         | 0.250 (6.35)                                             | 8411K13 <sup>⑤</sup>  |
| 3/4A, 125 Vac/Vdc                                | 1PST            | NC       | A                           | Nylon               | Black | 0.406 (10.31)                                  | 1.5 lbs <sup>③</sup>         | 0.468 (11.89)                                            | 8411K10               |
|                                                  |                 | NO       |                             |                     |       | 0.375 (9.53)                                   | 1.5 lbs <sup>④</sup>         | 0.468 (11.89)                                            | 8411K11 <sup>⑤</sup>  |
| 3A, 125 Vac                                      | 1PST            | NC       | A                           | Nylon               | Black | 0.250 (6.35)                                   | 1.5 lbs                      | 0.250 (6.35)                                             | 8418K1 <sup>⑤</sup>   |
|                                                  |                 | NO       |                             |                     |       | 0.406 (10.31)                                  | 1.5 lbs                      | 0.468 (11.89)                                            | 8418K12 <sup>⑤</sup>  |

## Notes

- ① For circuit number detail, see table on **Page V11-T6-18**.  
 ② UL and CSA Listing not applicable.  
 ③ To change operating pressure, refer to your local Eaton Sales Representative.  
 ④ Operating pressure cannot be changed.  
 ⑤ Combination spade and solder lug terminal.  
 ⑥ Items are normally in distributor stock.  
 ⑦ Standard length is 6 in (152.40 mm), stripped 0.625 in (15.88 mm).

# 6.1

## Pushbuttons

AC Rated

### Non-Illuminated

#### Medium-Duty, Momentary Contact

##### One-Hole

##### One-Hole Mounted



| Rating                                                                                                            | Poles and Throw | Contacts | Circuit Number <sup>①</sup> | Button Construction | Color | Button Extension Dimensions "B" in Inches (mm) | Typical Max. Operating Force | Mounting or Bushing Length Dimensions "A" in Inches (mm) | Catalog Number                 |
|-------------------------------------------------------------------------------------------------------------------|-----------------|----------|-----------------------------|---------------------|-------|------------------------------------------------|------------------------------|----------------------------------------------------------|--------------------------------|
| <b>Screw Terminals</b>                                                                                            |                 |          |                             |                     |       |                                                |                              |                                                          |                                |
| 15A, 125 Vac<br>10A, 250 Vac<br>1/3 hp, 125–250 Vac                                                               | 1PST            | NO       | A                           | Metal               | —     | 0.531 (13.49)<br>0.250 (6.35)                  | 0.9 lbs<br>0.9 lbs           | 0.687 (17.45)<br>0.343 (8.71)                            | <b>8444K3</b><br><b>8444K4</b> |
| 15A, 125 Vac, NO<br>10A, 125 Vac, NC<br>10A, 250 Vac, NO<br>5A, 250 Vac, NC<br>1/2 hp, 250 Vac<br>1/4 hp, 125 Vac | 1PDT            | NO, NC   | B                           | Metal               | —     | 0.531 (13.49)                                  | 2.0 lbs                      | 0.687 (17.45)                                            | <b>8434K2</b>                  |
|                                                                                                                   |                 |          | B                           | Bakelite            | Black | 0.531 (13.49)                                  | 2.0 lbs                      | 0.687 (17.45)                                            | <b>8435K2</b>                  |
| 15A, 125 Vac<br>10A, 250 Vac                                                                                      | 2PST            | NO       | C                           | Metal               | —     | 0.250 (6.35)                                   | —                            | 0.343 (8.71)                                             | <b>8448K2</b> <sup>②</sup>     |
| <b>Spade Terminals (0.250 in)</b>                                                                                 |                 |          |                             |                     |       |                                                |                              |                                                          |                                |
| 15A, 125 Vac<br>10A, 250 Vac<br>1/3 hp, 125–250 Vac                                                               | 1PST            | NO       | A                           | Metal               | —     | 0.531 (13.49)                                  | 0.9 lbs                      | 0.687 (17.45)                                            | <b>8444K2</b>                  |
| 15A, 125 Vac, NO<br>10A, 125 Vac, NC<br>10A, 250 Vac, NO<br>5A, 250 Vac, NC<br>1/2 hp, 250 Vac<br>1/4 hp, 125 Vac | 1PDT            | NO, NC   | B                           | Metal               | —     | 0.531 (13.49)                                  | 2.0 lbs                      | 0.687 (17.45)                                            | <b>8434K1</b>                  |
|                                                                                                                   |                 |          | B                           | Bakelite            | Black | 0.531 (13.49)                                  | 2.0 lbs                      | 0.687 (17.45)                                            | <b>8435K1</b>                  |
| 15A, 125 Vac<br>10A, 250 Vac                                                                                      | 2PST            | NO       | C                           | Metal               | —     | 0.250 (6.35)                                   | —                            | 0.343 (8.71)                                             | <b>8448K1</b> <sup>②</sup>     |

## Technical Data and Specifications

### AC Rated

| Description                   | Specification                                                                                                                                                                                                            |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ratings                       | See Product Selection tables on <b>Page V11-T6-3</b> and the table above.                                                                                                                                                |
| Contact material              |                                                                                                                                                                                                                          |
| 3–6A rated                    | Movable, silver-plated copper<br>Stationary, silver-plated copper                                                                                                                                                        |
| 10–15A rated                  | Movable, silver-plated copper with fine or coin silver contact face button<br>Stationary, copper with fine or coin silver contact face button                                                                            |
| Wire leads                    | 18 gauge, 6 in (152 mm) long, skinned 0.75 in (19 mm)<br>Lengths beyond 6 in (152 mm) are additional charge                                                                                                              |
| Mounting means—One-hole mount | Threaded bushing—0.468 in dia. 32 threads/inch (11.90 mm)<br>Keyway—0.068 W x 0.035 D in (1.73 W x 0.89 D mm); provides anti-rotation feature<br>Keyway on 7835/7836 Series is 0.080 W x 0.040 D in (2.03 W x 1.01 D mm) |
| Operating temperature range   | 0° to 150°F (–17.8° to 65.6°C)                                                                                                                                                                                           |

#### Notes

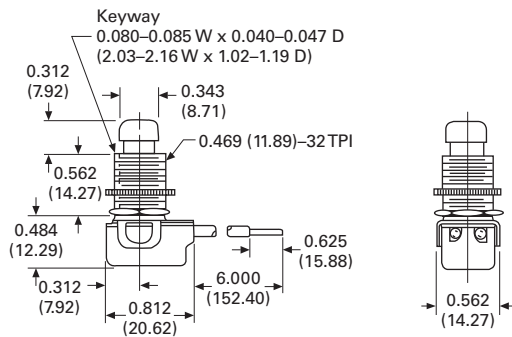
<sup>①</sup> For circuit number detail, see table on **Page V11-T6-18**.

<sup>②</sup> UL and CSA Listing not applicable.

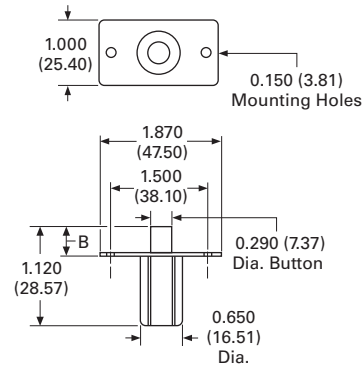
## Dimensions

Approximate Dimensions in Inches (mm)

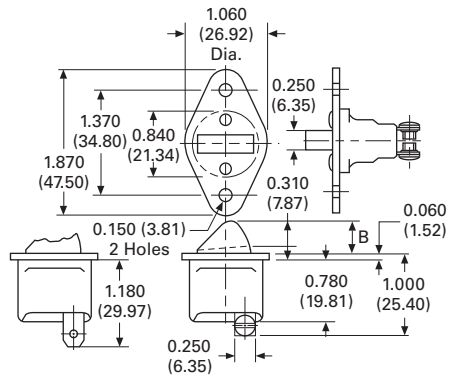
### 7835K12A



### 8410



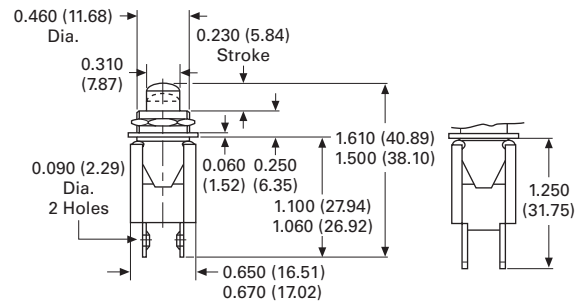
### 8406



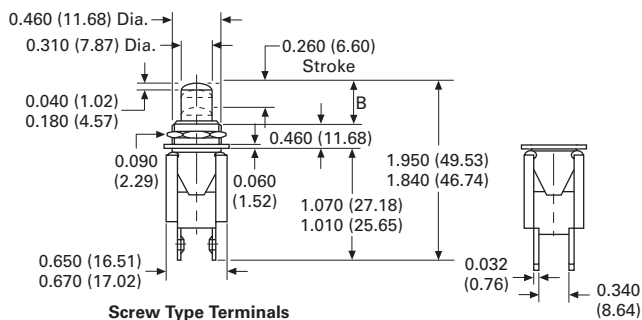
Spade Terminal

Screw Type Terminal

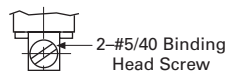
### 8411K5 and 8411K13



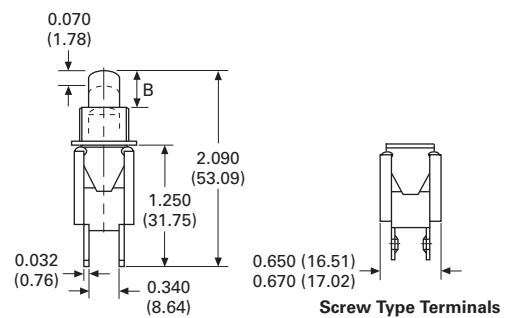
### 8411K7 and 8411K8



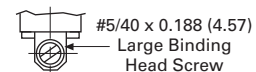
Screw Type Terminals



### 8411K11 and 8411K12



Screw Type Terminals



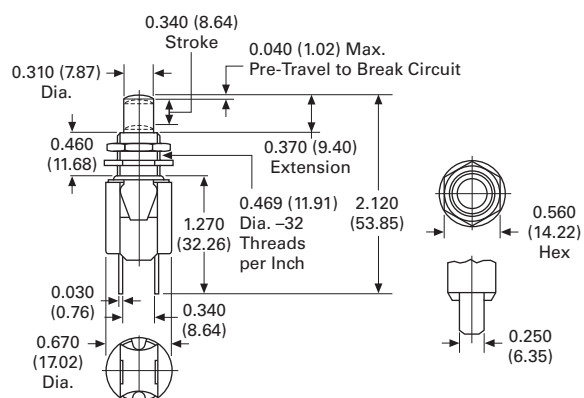
# 6.1

## Pushbuttons

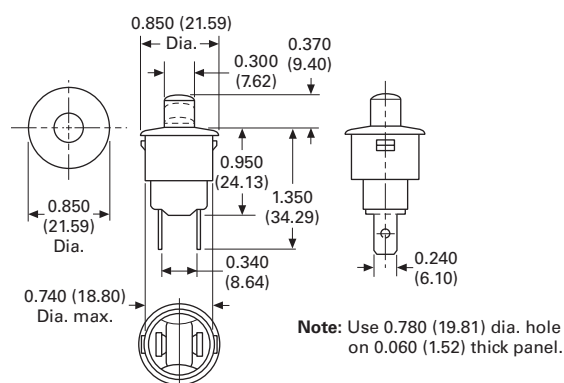
AC Rated

Approximate Dimensions in Inches (mm)

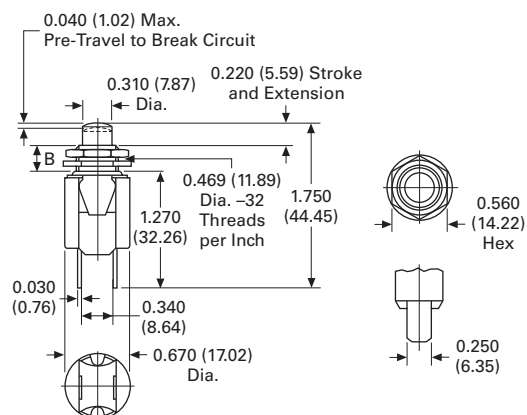
### 8411K10 and 8418K12



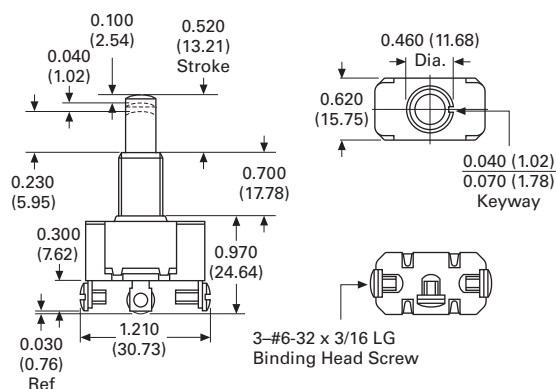
### 8423 and 8424



### 8418K1

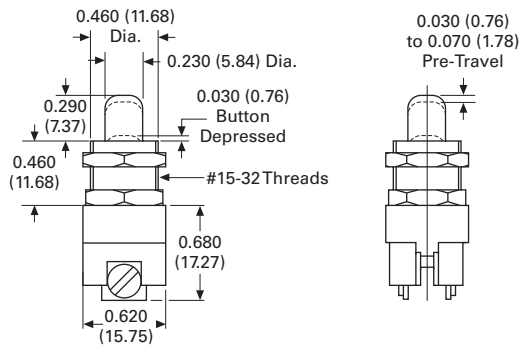


### 8434K2 and 8435K2

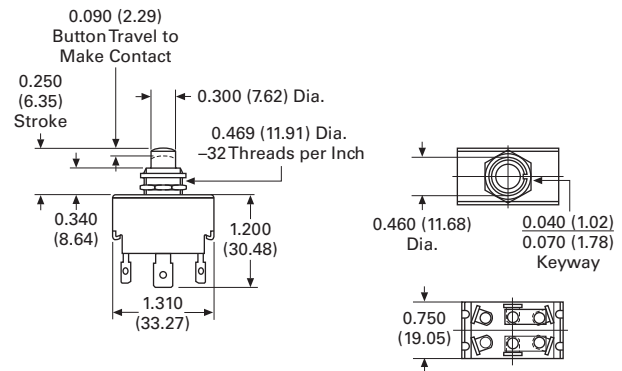


Approximate Dimensions in Inches (mm)

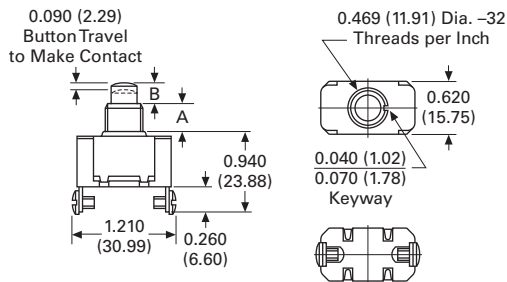
### 8440



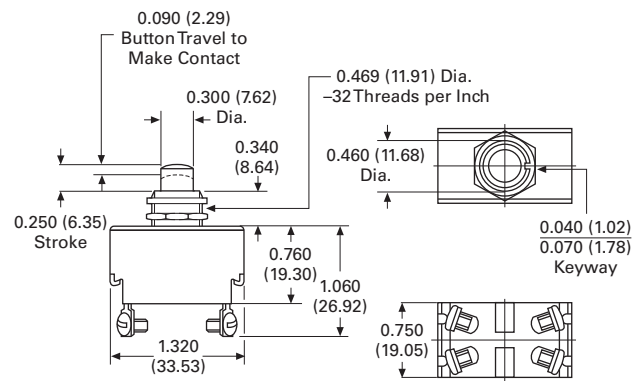
### 8448K1



### 8442 and 8444 (Screw Terminals)



### 8448K2



## Illuminated AC/DC Rated



6

## Contents

## Description

Illuminated AC/DC Rated

| Description                                 | Page      |
|---------------------------------------------|-----------|
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| Lamp Selection . . . . .                    | V11-T6-14 |
| Accessories . . . . .                       | V11-T6-16 |
| Technical Data and Specifications . . . . . | V11-T6-17 |
| Terminal Identification . . . . .           | V11-T6-18 |
| Circuit Diagrams . . . . .                  | V11-T6-18 |
| Legends . . . . .                           | V11-T6-18 |
| Dimensions . . . . .                        | V11-T6-19 |

## Product Description

Eaton offers a wide range of pushbutton switches for standard industry applications such as appliances, electronics, medical and test instrumentation, office equipment and many other commercial applications.

A variety of options are available such as illuminated and non-illuminated versions, colored lens caps, lamp styles and mounting styles.

Each pushbutton series offers a matching indicator for a consistent look. See the Product Overview tables to quickly identify the required product. Then, refer to the Catalog Number Selection and Product Selection tables to determine the catalog number.

Standards and Certifications<sup>①</sup>

- UL Recognized
- CSA Certified
- RoHS<sup>②</sup>



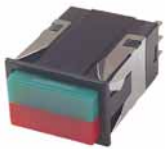
## Notes

① Except where noted.

② Visit [www.eaton.com/vcbu](http://www.eaton.com/vcbu) for the most up-to-date list of verified part numbers.

## Product Selection Guide

## General Purpose Pushbuttons and Indicators—Illuminated and Non-Illuminated

| Series                                      | 206/208                                                                             | Page      | 220/221/224                                                                         | Page      | 231/234                                                                              | Page      | 580/581/586                                                                           | Page      |
|---------------------------------------------|-------------------------------------------------------------------------------------|-----------|-------------------------------------------------------------------------------------|-----------|--------------------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------------|-----------|
| Pushbutton Selection—Switch                 |                                                                                     | V11-T6-9  |                                                                                     | V11-T6-9  |                                                                                      | V11-T6-9  |                                                                                       | V11-T6-10 |
| Pushbutton Selection—Indicator              |  | V11-T6-9  |  | V11-T6-9  |  | V11-T6-9  |  | V11-T6-10 |
| Pushbutton Cap Selection                    |                                                                                     | V11-T6-13 |                                                                                     | V11-T6-13 |                                                                                      | V11-T6-13 |                                                                                       | V11-T6-13 |
| Circuit Diagram Letter (See Page V11-T6-18) |                                                                                     | K, N      |                                                                                     | K, N      |                                                                                      | K, N      |                                                                                       | J, L, M   |
| Series                                      | 770/775                                                                             | Page      | 810/815                                                                             | Page      | 820/825                                                                              | Page      | 860/861/845                                                                           | Page      |
| Pushbutton Selection—Switch                 |                                                                                     | V11-T6-11 |                                                                                     | V11-T6-12 |                                                                                      | V11-T6-12 |                                                                                       | V11-T6-12 |
| Pushbutton Cap Selection                    |  | V11-T6-11 |  | V11-T6-12 |  | V11-T6-12 |  | V11-T6-12 |
| Pushbutton Selection—Indicator              |                                                                                     | V11-T6-13 |                                                                                     | V11-T6-13 |                                                                                      | V11-T6-13 |                                                                                       | V11-T6-13 |
| Circuit Diagram Letter (See Page V11-T6-18) |                                                                                     | Q         |                                                                                     | K, N      |                                                                                      | K, N      |                                                                                       | J, L      |



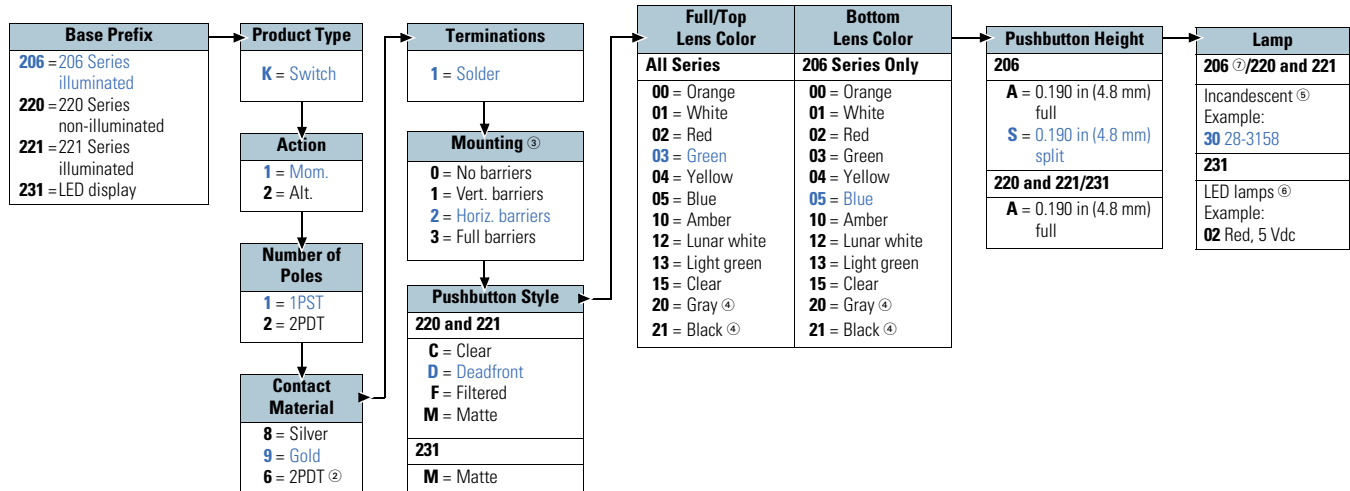
### Series 206/208, 220 and 221/224, 231/234

## Catalog Number Selection

### How To Order—Series 206/220 ① and 221 ②/231 ①, Switch

To determine complete catalog number, start with the appropriate control type and add the appropriate code letters and/or numbers.

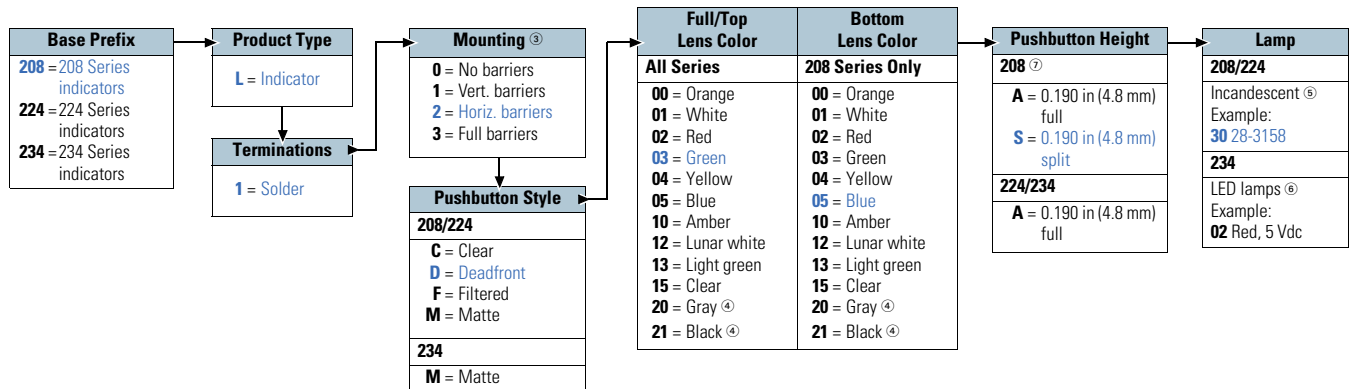
**Example:** 206 K 1 1 9 1 2 D 03 05 S 30



### How To Order—Series 208/224 ①/234 ①, Indicator

To determine complete catalog number, start with the appropriate control type and add the appropriate code letters and/or numbers.

**Example:** 208 L 1 2 D 03 05 S 30



#### Notes

- ① Full cap style does not require a bottom lens code.
- ② Pole one is silver, pole two is gold.
- ③ Refer to **Page V11-T6-16** for barrier information.
- ④ Not available with lighted display.
- ⑤ Use two-digit item number, 30–37, from Incandescent Lamps table on **Page V11-T6-14**.
- ⑥ Use two-digit item number, 01–19, from LED Lamps table on **Page V11-T6-15**.
- ⑦ Accepts two bulbs



Series 580/581/586

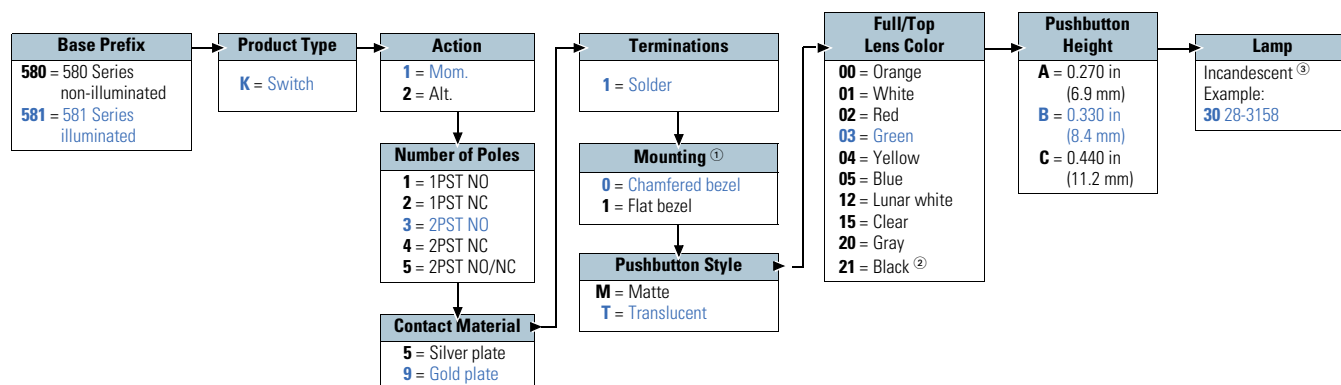
## Catalog Number Selection

6

## How To Order—Series 580/581, Switch

To determine complete catalog number, start with the appropriate control type and add the appropriate code letters and/or numbers.

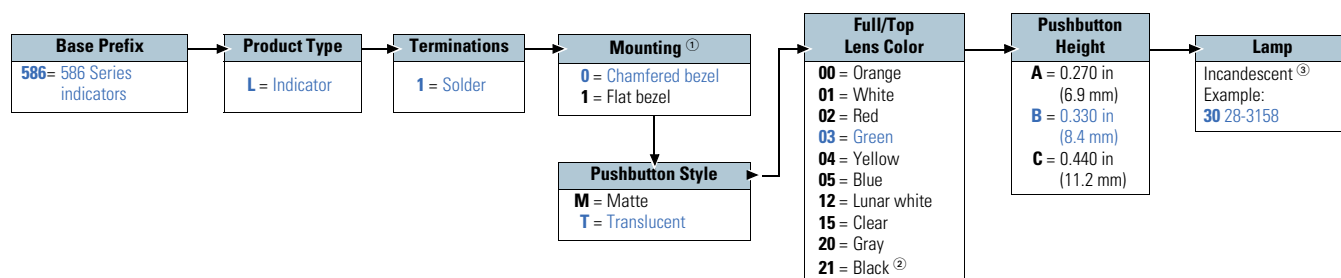
Example: **581 K 1 3 9 1 0 T 03 B 30**



## How To Order—Series 586, Indicator

To determine complete catalog number, start with the appropriate control type and add the appropriate code letters and/or numbers.

Example: **586 L 1 0 T 03 B 30**



## Notes

- ① Flush with bezel.
- ② Not available with lighted display.
- ③ Use two-digit item number, 30–37, from Incandescent Lamps table on Page V11-T6-14.



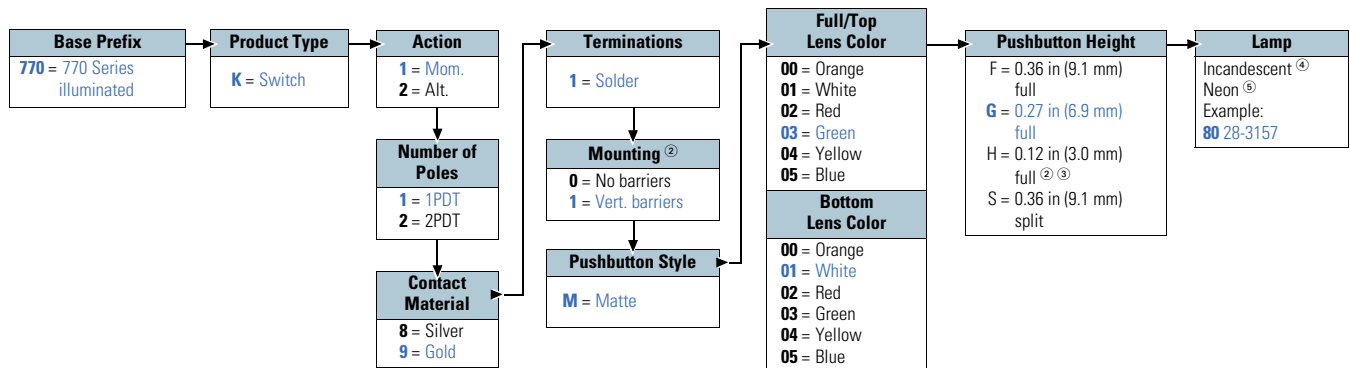
**Series 770/775**

### Catalog Number Selection

#### How To Order—Series 770<sup>①</sup>, Switch

To determine complete catalog number, start with the appropriate control type and add the appropriate code letters and/or numbers.

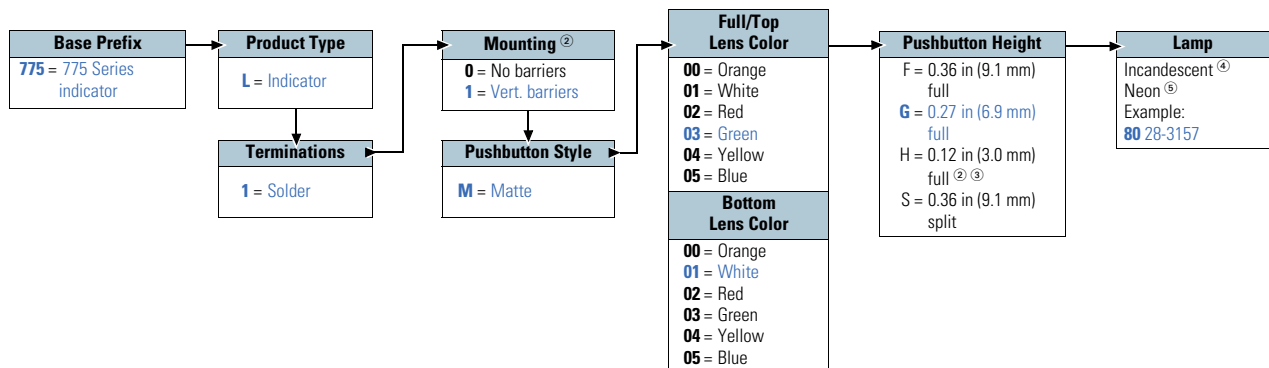
**Example:** 770 K 1 1 9 1 1 M 03 01 G 80



#### How To Order—Series 775<sup>①</sup>, Indicator

To determine complete catalog number, start with the appropriate control type and add the appropriate code letters and/or numbers.

**Example:** 775 L 1 1 M 03 01 G 80



#### Notes

- ① Full or split cap style available.
- ② Flush with bezel.
- ③ Not available with lighted display.
- ④ Use two-digit item number, 51–59, from Incandescent Lamps table on **Page V11-T6-14**.
- ⑤ Use two-digit item number, 80 or 81, from Neon Lamps table on **Page V11-T6-15**.



Series 860 and 861/845, 810/815, 820/825

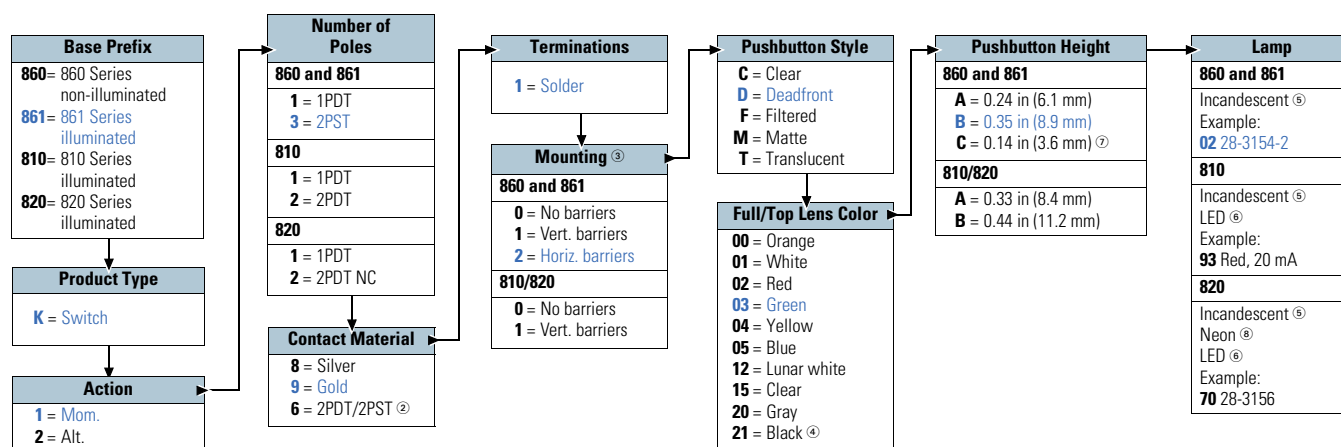
## Catalog Number Selection

6

How To Order—Series 860 and 861/810/820, Switch<sup>①</sup>

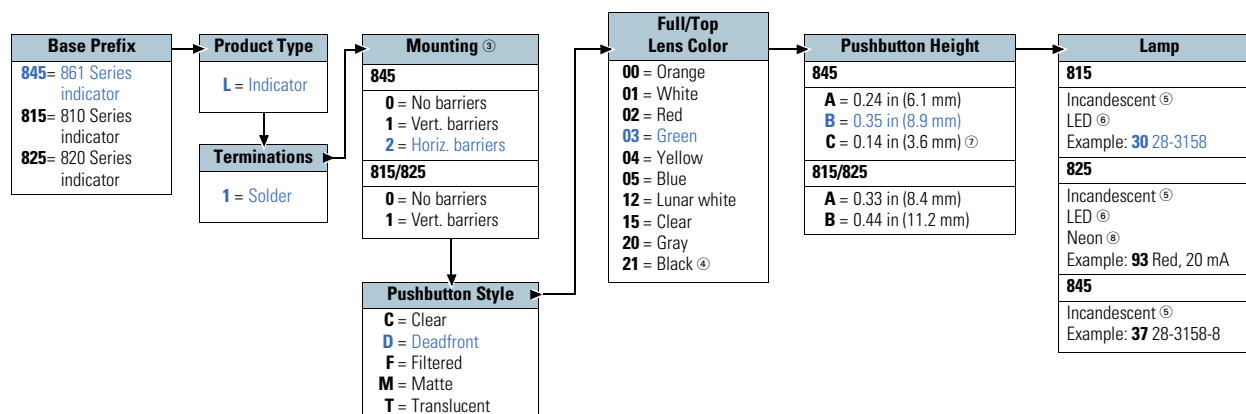
To determine complete catalog number, start with the appropriate control type and add the appropriate code letters and/or numbers.

Example: **861 K 1 3 9 1 2 D 03 B 02**

How To Order—Series 845/815/825, Indicator<sup>①</sup>

To determine complete catalog number, start with the appropriate control type and add the appropriate code letters and/or numbers.

Example: **845 L 1 2 D 03 B 30**



## Notes

- ① Full cap style does not require a bottom lens code.
- ② Pole one is silver, pole two is gold.
- ③ Flush with bezel.
- ④ Not available with lighted display.
- ⑤ Use two-digit item number, 02–14, from Incandescent Lamps table on Page V11-T6-14.
- ⑥ Use two-digit item number, 93–97, from LED Lamps table on Page V11-T6-15.
- ⑦ Not available with lighted display. Available only on "M."
- ⑧ Use two-digit item number, 70, from Neon Lamps table on Page V11-T6-15.

## Illuminated and Non-Illuminated Pushbutton Caps



## Series 206/220/231 and Series 580/770/810/820/849

## Catalog Number Selection

## How To Order—Series 206/220/231, Pushbutton Caps

To determine complete catalog number, start with the appropriate control type and add the appropriate code letters and/or numbers.

Example: **206 P C 03 04 S**

| Base Prefix                                                                                                                                                                                    | Product Type          | Display Legend/Style                                                                                                                                                                                                                                   | Full/Top Lens Color                                                                                                                                                                                                                                                                          | Bottom Lens Color                                                                                                                                                                                                                                                                            | Cap Height <sup>⑤</sup>                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|
| <b>206</b> = 2 lamp display (Series 206/208) <sup>①</sup><br><b>220</b> = Non-illuminated Series 220 and illuminated Series 221, 224 and 234<br><b>231</b> = LED display on Series 231 and 234 | <b>P</b> = Pushbutton | <b>C</b> = Clear cap and color insert, transmitted color <sup>②</sup><br><b>D</b> = Deadfront, smoky gray cap and color insert<br><b>F</b> = Filtered color, white cap and color insert <sup>②</sup><br><b>M</b> = Matte, no insert, transmitted color | <b>00</b> = Orange<br><b>01</b> = White<br><b>02</b> = Red<br><b>03</b> = Green<br><b>04</b> = Yellow<br><b>05</b> = Blue<br><b>10</b> = Amber<br><b>12</b> = Lunar white<br><b>13</b> = Light green<br><b>15</b> = Clear<br><b>20</b> = Gray <sup>④</sup><br><b>21</b> = Black <sup>④</sup> | <b>00</b> = Orange<br><b>01</b> = White<br><b>02</b> = Red<br><b>03</b> = Green<br><b>04</b> = Yellow<br><b>05</b> = Blue<br><b>10</b> = Amber<br><b>12</b> = Lunar white<br><b>13</b> = Light green<br><b>15</b> = Clear<br><b>20</b> = Gray <sup>④</sup><br><b>21</b> = Black <sup>④</sup> | <b>A</b> = 0.19 in (4.8 mm), full<br><b>S</b> = 0.19 in (4.8 mm), split |

## How To Order—Series 580/770/810/820/849, Pushbutton Caps

To determine complete catalog number, start with the appropriate control type and add the appropriate code letters and/or numbers.

Example: **580 P C 03 04 B**

| Base Prefix                                                                                                                                                                                      | Product Type          | Display Legend/Style                                                                                                                                                                                                                                                                                                | Full/Top Lens Color                                                                                                                                                                                                              | Bottom Lens Color                                                                                                                                                                                                                | Cap Height <sup>⑤</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>580</b> = Series 580, 581, 586 <sup>⑥</sup><br><b>770</b> = Series 770, 775 <sup>③</sup><br><b>810</b> = Series 810, 815<br><b>820</b> = Series 820, 825<br><b>849</b> = Series 845, 860, 861 | <b>P</b> = Pushbutton | <b>C</b> = Clear cap and color insert, transmitted color <sup>②</sup><br><b>D</b> = Deadfront, smoky gray cap and color insert<br><b>F</b> = Filtered color, white cap and color insert <sup>②</sup><br><b>M</b> = Matte, no insert, transmitted color<br><b>T</b> = Transmitted color, smooth surface, solid color | <b>00</b> = Orange<br><b>01</b> = White<br><b>02</b> = Red<br><b>03</b> = Green<br><b>04</b> = Yellow<br><b>05</b> = Blue<br><b>10</b> = Amber<br><b>12</b> = Lunar white<br><b>15</b> = Clear<br><b>21</b> = Black <sup>④</sup> | <b>00</b> = Orange<br><b>01</b> = White<br><b>02</b> = Red<br><b>03</b> = Green<br><b>04</b> = Yellow<br><b>05</b> = Blue<br><b>10</b> = Amber<br><b>12</b> = Lunar white<br><b>15</b> = Clear<br><b>21</b> = Black <sup>④</sup> | <b>580</b><br><b>A</b> = 0.27 in (6.9 mm)<br><b>B</b> = 0.33 in (8.4 mm)<br><b>C</b> = 0.44 in (11.2 mm)<br><b>770</b><br><b>F</b> = Full, 0.36 in (9.1 mm)<br><b>G</b> = 0.27 in (6.9 mm)<br><b>H</b> = 0.12 in (3.0 mm)<br><b>S</b> = Split, 0.36 in (9.1 mm)<br><b>810/820</b><br><b>A</b> = 0.33 in (8.4 mm)<br><b>B</b> = 0.44 in (11.2 mm)<br><b>849</b><br><b>A</b> = 0.24 in (6.1 mm)<br><b>B</b> = 0.35 in (8.9 mm)<br><b>C</b> = 0.14 in (3.6 mm) |

## Notes

- ① For a high degree of illumination, a full cap may be used with two lamp devices.
- ② Available only with colors red, green, yellow and blue.
- ③ Available in matte only.
- ④ Not available for lighted display.
- ⑤ Measured from panel of top of pushbutton cap.
- ⑥ Available in translucent and matte only.
- ⑦ For two lamps, two colored inserts with divider.

## Lamp Selection

## Incandescent Lamps

## Bi-Pin Base for 800 Series

| Item Number <sup>①</sup> | To Order Lamp Separately | ASA Lamp Number | Designed Volts | Design Amps | Brightness (MSCP) <sup>②</sup> | Brightness (Lumens) | Lab Average Life (Hours) <sup>③</sup> |
|--------------------------|--------------------------|-----------------|----------------|-------------|--------------------------------|---------------------|---------------------------------------|
| 02                       | 28-3154-2                | 7361            | 5              | 0.06        | 0.05                           | 0.63                | 100,000                               |
| 03                       | 28-3154-3                | 7945            | 6              | 0.04        | 0.03                           | 0.38                | 10,000                                |
| 07                       | 28-3154-7                | 7381            | 6.3            | 0.20        | 0.40                           | 5.03                | 50,000                                |
| 08                       | 28-3154-8                | 7371            | 12             | 0.04        | 0.12                           | 1.51                | 10,000                                |
| 09                       | 28-3154-9                | 7330            | 14             | 0.08        | 0.50                           | 6.29                | 750                                   |
| 10                       | 28-3154-10               | 7382            | 14             | 0.08        | 0.30                           | 3.77                | 50,000                                |
| 11                       | 28-3154-11               | 7370            | 18             | 0.04        | 0.15                           | 1.89                | 10,000                                |
| 12                       | 28-3154-12               | 7327            | 28             | 0.04        | 0.34                           | 4.27                | 7,000                                 |
| 13                       | 28-3154-13               | 7387            | 28             | 0.04        | 0.30                           | 3.77                | 25,000                                |
| 14                       | 28-3154-14               | 7876            | 28             | 0.06        | 0.34                           | 4.27                | 25,000                                |

## Midget Flange Base for 770 Series

| Item Number <sup>①</sup> | To Order Lamp Separately | ASA Lamp Number | Designed Volts | Design Amps | Brightness (MSCP) <sup>②</sup> | Brightness (Lumens) | Lab Average Life (Hours) <sup>③</sup> |
|--------------------------|--------------------------|-----------------|----------------|-------------|--------------------------------|---------------------|---------------------------------------|
| 51                       | 28-3155-2                | 345             | 6              | 0.04        | 0.03                           | 0.38                | 10,000                                |
| 54                       | 28-3155-5                | 394             | 12             | 0.04        | 0.12                           | 1.51                | 10,000                                |
| 55                       | 28-3155-6                | 330             | 14             | 0.08        | 0.50                           | 6.29                | 750                                   |
| 56                       | 28-3155-7                | 382             | 14             | 0.08        | 0.30                           | 3.77                | 50,000                                |
| 57                       | 28-3155-8                | 370             | 18             | 0.04        | 0.15                           | 1.89                | 10,000                                |
| 58                       | 28-3155-9                | 327             | 28             | 0.04        | 0.34                           | 4.27                | 7,000                                 |
| 59                       | 28-3155-10               | 387             | 28             | 0.04        | 0.30                           | 3.77                | 25,000                                |

## Subminiature Wedge Base for 200 and 500 Series

| Item Number <sup>①</sup> | To Order Lamp Separately | ASA Lamp Number | Designed Volts | Design Amps | Brightness (MSCP) <sup>②</sup> | Brightness (Lumens) | Lab Average Life (Hours) <sup>③</sup> |
|--------------------------|--------------------------|-----------------|----------------|-------------|--------------------------------|---------------------|---------------------------------------|
| 30                       | 28-3158                  | 56              | 5              | 0.115       | 0.15                           | 1.89                | 20,000                                |
| 31                       | 28-3158-2                | 79              | 6              | 0.20        | 0.60                           | 7.92                | 1,000                                 |
| 32                       | 28-3158-3                | 84              | 6.3            | 0.04        | 0.03                           | 0.38                | 20,000                                |
| 33                       | 28-3158-4                | 86              | 6.3            | 0.20        | 0.40                           | 5.03                | 20,000                                |
| 34                       | 28-3158-5                | 18              | 14             | 0.04        | 0.13                           | 1.63                | 5,000                                 |
| 35                       | 28-3158-6                | 73              | 14             | 0.08        | 0.30                           | 3.77                | 15,000                                |
| 36                       | 28-3158-7                | 85              | 28             | 0.04        | 0.30                           | 3.77                | 7,000                                 |
| 37                       | 28-3158-8                | 17              | 28             | 0.06        | 0.65                           | 8.17                | 5,000                                 |

## Notes

① Use this two-digit number for installation in switches and indicators.

② Standard tolerance for MSCP is  $\pm 25\%$ .

③ Average life is for AC operation. DC life will be approximately 50% less. Operating incandescent lamps at 5–10% below rated voltage will generally increase lamp life 200–400%.

**Neon Lamps** <sup>①</sup>**T 1-3/4 Bi-Pin Base Neon Lamp for All 800 Series “Shorty” Switches and Indicators** <sup>②</sup>

| Item Number <sup>③</sup> | To Order Lamp Separately | CLC Lamp Number | Circuit Volts |     | Nominal Current MA | Average Useful Life (Hours) | External Resistance Required | Ignition Voltage |     | Bulb Size | Lamp Length | Lead Length |
|--------------------------|--------------------------|-----------------|---------------|-----|--------------------|-----------------------------|------------------------------|------------------|-----|-----------|-------------|-------------|
|                          |                          |                 | AC            | DC  |                    |                             |                              | AC               | DC  |           |             |             |
| 70                       | 28-3156                  | 7A1H            | 105–125       | 150 | 1.5                | 25,000                      | 47K (1/4 W)                  | 95               | 135 | T-2       | 0.60        | 0.25        |

**T 1-3/4 Midget Flange Base Neon Lamps for All 700 Series Switches and Indicators** <sup>②</sup>

| Item Number <sup>③</sup> | To Order Lamp Separately | CLC Lamp Number | Circuit Volts |     | Nominal Current MA | Average Useful Life (Hours) | External Resistance Required | Built-In Resistance | Ignition Voltage |     | Bulb Size | Maximum Overall Length |
|--------------------------|--------------------------|-----------------|---------------|-----|--------------------|-----------------------------|------------------------------|---------------------|------------------|-----|-----------|------------------------|
|                          |                          |                 | AC            | DC  |                    |                             |                              |                     | AC               | DC  |           |                        |
| 80                       | 28-3157                  | A1H             | 105–125       | 150 | 1.5                | 25,000                      | 35K (1/4 W)                  | None                | 95               | 135 | T-2       | 0.67                   |
| 81                       | 28-3157-2                | C-24            | 105–125       | 150 | 4.2                | 8,000                       | None                         | 35K                 | 95               | 135 | T-2       | 0.67                   |

**LED Lamps** <sup>④</sup>

LEDs are sold installed only.

**LEDs for Series 231 through 235 Switches and Indicators**

| Color  | Voltage <sup>⑤</sup> | Without Diode Protection Item Number | With Diode Protection Item Number |
|--------|----------------------|--------------------------------------|-----------------------------------|
|        |                      |                                      |                                   |
| Red    | Vdc <sup>⑥</sup>     | 01                                   | 11                                |
|        | 5 Vdc                | 02                                   | 12                                |
|        | 15 Vdc               | 03                                   | 13                                |
| Yellow | Vdc <sup>⑥</sup>     | 04                                   | 14                                |
|        | 5 Vdc                | 05                                   | 15                                |
|        | 15 Vdc               | 06                                   | 16                                |
| Green  | Vdc <sup>⑥</sup>     | 07                                   | 17                                |
|        | 5 Vdc                | 08                                   | 18                                |
|        | 15 Vdc               | 09                                   | 19                                |

**T 1-3/4 Wire LEDs for All 800 Series Switches and Indicators**

| Item Number <sup>③</sup> | Color  | Forward Current (MA) <sup>⑤</sup> | Luminous Intensity (MCD) |         | Forward Voltage (V) Typical | Diffused or Undiffused |
|--------------------------|--------|-----------------------------------|--------------------------|---------|-----------------------------|------------------------|
|                          |        |                                   | Minimum                  | Typical |                             |                        |
| 93                       | Red    | 20                                | 80                       | 160     | 1.7                         | Undiffused             |
| 95                       | Green  | 20                                | 80                       | 160     | 1.7                         | Undiffused             |
| 96                       | Yellow | 20                                | 80                       | 160     | 1.7                         | Undiffused             |
| 97                       | Amber  | 20                                | 80                       | 160     | 1.7                         | Undiffused             |

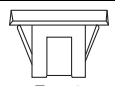
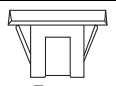
**Notes**

- <sup>①</sup> Neon lamps are not recommended for use with colored caps or inserts, especially those colored green or blue.
- <sup>②</sup> Recommended external series resistor values shown for indicated average useful life are for lamp and resistor combinations used across 110–125 Vac, 1/4 W, ±10% tolerance.
- <sup>③</sup> Use this two-digit number for installation in switches and indicators.
- <sup>④</sup> For use with clear or white cap only.
- <sup>⑤</sup> 5 Vdc and 15 Vdc include internal current limiting resistor. Other voltages available—contact your local Eaton Sales Representative.
- <sup>⑥</sup> External current limiting required. User must include in circuit—to give current of 20 mA to LED.

**Mounting Barriers Ordering Guide**Catalog Number Example: **200B1**

When switches are individually mounted, add 0.10 in (2.54 mm) per switch to the appropriate bezel dimension. When switches are gang mounted, add 0.05 in (1.27 mm) to the appropriate bezel dimension for each switch mounted plus an additional 0.05 in (1.27 mm) to compensate for gang mounting.

**Series 200 and 300 Mounting Barriers** <sup>①②</sup>

| Product Series | Product Type | Code | Barrier Type and Description | Code |                                                                                   |                                                                                    |
|----------------|--------------|------|------------------------------|------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| 200            | Barrier      | B    | End—Short <sup>③</sup>       | 1    |  |  |
|                |              |      | Center—Short <sup>③</sup>    | 2    |                                                                                   |                                                                                    |
|                |              |      | End—Long <sup>④</sup>        | 3    |  |  |
|                |              |      | Center—Long <sup>④</sup>     | 4    |                                                                                   |                                                                                    |
|                |              |      |                              |      | Type 1                                                                            | Type 2                                                                             |
|                |              |      |                              |      | Type 3                                                                            | Type 4                                                                             |

**Legending**

All legend markings are pad printed in accordance with the limitations below. Standard markings are of condensed gothic type, 1/8 in high characters, with white letters on blue, red and green translucent pushbuttons and black letters on white, yellow, orange and all filtered pushbuttons.

**Legending**

| Pushbutton Size                                   | Standard Pad Print Limitations |
|---------------------------------------------------|--------------------------------|
| 1/2 in square pushbuttons                         | 2 lines, 4 characters per line |
| 5/8 in square pushbuttons—full legend             | 3 lines, 6 characters per line |
| 5/8 in square pushbuttons—split legend            | 2 lines, 6 characters per line |
| 3/4 in square pushbuttons                         | 3 lines, 7 characters per line |
| 3/4 in x 1 in rectangular pushbutton—full legend  | 3 lines, 9 characters per line |
| 3/4 in x 1 in rectangular pushbutton—split legend | 2 lines, 9 characters per line |

**Accessories**

These snap-on pushbutton caps are made of molded plastic for use with grooved style switches. They are ordered separately for user assembly.

**Snap-On Pushbutton Caps—Standard**

| Description  | Button Diameter in Inches (mm) | Catalog Number   |
|--------------|--------------------------------|------------------|
| Black molded | 0.625 (15.88)                  | <b>53-3338</b>   |
| Red molded   | 0.625 (15.88)                  | <b>53-3338-2</b> |

**Notes**

- ① The full guard barrier is molded as an integral part of the switch body and is specified as a part of the complete switch catalog number.
- ② An end barrier is attached to each side of housing. The center barrier is used between devices when gang mounting in a slot array.
- ③ For use with square devices and short side of rectangular devices.
- ④ For use with long side of rectangular devices. Use a center—long between switches if gang mounting.

## Technical Data and Specifications

### General Purpose Pushbuttons and Indicators—Illuminated and Non-Illuminated

| Series                   | 206/208                                                                                                                                                    | 220/221/224                                                                                                                                                | 231/234                                                                                                                                                    | 580/581/586                                                                                                                                                            |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Ratings—</b>          |                                                                                                                                                            |                                                                                                                                                            |                                                                                                                                                            |                                                                                                                                                                        |
| <b>Silver Contacts</b>   | 5A at 125 Vac or 250 Vac                                                                                                                                   | 5A at 125 Vac or 250 Vdc                                                                                                                                   | 5A at 125 Vac or 250 Vdc                                                                                                                                   | Silver or Gold: 1A at 125 Vac                                                                                                                                          |
| <b>Gold Contacts</b>     | 0.1A at 125 Vac/Vdc                                                                                                                                        | 0.1A at 125 Vac/Vdc                                                                                                                                        | 0.1A at 125 Vac/Vdc                                                                                                                                        | Gold-plated contacts for low level                                                                                                                                     |
| <b>Action</b>            | Momentary<br>Alternate with positive latch down                                                                                                            | Momentary<br>Alternate with positive latch down                                                                                                            | Momentary<br>Alternate with positive latch down                                                                                                            | Momentary<br>Alternate with positive latch down                                                                                                                        |
| <b>Switch Circuitry</b>  | Break before make<br>1PDT or 2PDT<br>2-independent lamp circuits                                                                                           | Break before make<br>1PDT or 2PDT                                                                                                                          | Break before make<br>1PDT or 2PDT                                                                                                                          | Double break<br>1PST or 2PST                                                                                                                                           |
| <b>Termination Types</b> | 0.02 x 0.11 in (0.51 x 2.79 mm)                                                                                                                            | 0.02 x 0.11 in (0.51 x 2.79 mm) <sup>①</sup>                                                                                                               | 0.02 x 0.110 in (0.51 x 2.79 mm) <sup>①</sup>                                                                                                              | 0.01 x 0.11 in (0.31 x 2.79 mm) <sup>①</sup>                                                                                                                           |
| <b>Pushbuttons</b>       | 0.62 x 1.00 in (15.87 x 25.40 mm)<br>Rectangular<br>Full or horizontal split lens<br>Plain, engraved or hot stamped <sup>②</sup>                           | 0.63 in (15.87 mm)<br>Square<br>Plain, engraved or hot stamped <sup>②</sup>                                                                                | 0.63 in (15.87 mm)<br>Square<br>Plain, engraved or hot stamped <sup>②</sup>                                                                                | 0.50 in (12.70 mm)<br>Square<br>3 heights above panel E <sup>③</sup><br>Plain, engraved or hot stamped <sup>②</sup>                                                    |
| <b>Mounting</b>          | Snap-in panel mounting<br>Stainless steel retaining clips<br>Panel thickness: 0.03 to 0.19 in<br>(0.76 to 4.76 mm)<br>Barrier mount available <sup>④</sup> | Snap-in panel mounting<br>Stainless steel retaining clips<br>Panel thickness: 0.03 to 0.19 in<br>(0.76 to 4.76 mm)<br>Barrier mount available <sup>④</sup> | Snap-in panel mounting<br>Stainless steel retaining clips<br>Panel thickness: 0.03 to 0.19 in<br>(0.76 to 4.76 mm)<br>Barrier mount available <sup>④</sup> | Snap-in panel mounting<br>Choice of two bezel styles:<br>Chamfered or Flat<br>Stainless steel retaining clips<br>Panel thickness: 0.06 to 0.19 in<br>(1.59 to 4.76 mm) |
| <b>Lamps</b>             | Two T 1-3/4 wedge base lamps<br>Incandescent<br>Front relampable<br>Lamp stationary to reduce<br>mechanical shock to filament                              | Two T 1-3/4 wedge base lamps<br>Incandescent<br>Front relampable<br>Lamp stationary to reduce<br>mechanical shock to filament                              | One rectangular LED flush with cap<br>Various voltages available<br>Diode protection available                                                             | Two T 1-3/4 wedge base lamps<br>Incandescent<br>Front relampable<br>Lamp stationary to reduce<br>mechanical shock to filament                                          |
| <b>Pushbutton Travel</b> | 0.19 in (2.29 mm)                                                                                                                                          | 0.19 in (2.29 mm)                                                                                                                                          | 0.19 in (2.29 mm)                                                                                                                                          | 0.17 in (4.32)                                                                                                                                                         |

| Series                   | 770/775                                                                                                                                                                                                                                                              | 810/815                                                                                                                                                    | 820/825                                                                                                                                                    | 860/861/845                                                                                                                                                                  |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Ratings—</b>          |                                                                                                                                                                                                                                                                      |                                                                                                                                                            |                                                                                                                                                            |                                                                                                                                                                              |
| <b>Silver Contacts</b>   | 10.5A at 125 Vac or 250 Vac                                                                                                                                                                                                                                          | 3A at 125 Vac or 250 Vac                                                                                                                                   | 3A at 125 Vac or 250 Vac                                                                                                                                   | 6A at 125 Vac or 3A at 250 Vac                                                                                                                                               |
| <b>Gold Contacts</b>     | 0.25A at 125 Vac or 30 Vdc                                                                                                                                                                                                                                           | 0.25A at 125 Vac or 30 Vdc                                                                                                                                 | 0.25A at 125 Vac or 30 Vdc                                                                                                                                 | 0.25A at 125 Vac or 30 Vdc                                                                                                                                                   |
| <b>Action</b>            | Momentary<br>Alternate with positive latch down                                                                                                                                                                                                                      | Momentary<br>Alternate with positive latch down                                                                                                            | Momentary<br>Alternate with positive latch down                                                                                                            | Momentary<br>Alternate with positive latch down                                                                                                                              |
| <b>Switch Circuitry</b>  | 1PDT or 2PDT (2 circuit)<br>2-independent lamp circuits                                                                                                                                                                                                              | Break before make<br>1PDT or 2PDT                                                                                                                          | Break before make<br>1PDT or 2PDT                                                                                                                          | Double break<br>1PST or 2PST, NO                                                                                                                                             |
| <b>Termination Types</b> | 0.02 x 0.125 in (0.25 x 3.18 mm) <sup>①</sup><br>Epoxy sealed                                                                                                                                                                                                        | 0.02 x 0.11 in (0.64 x 2.79 mm) <sup>①</sup><br>Epoxy sealed                                                                                               | 0.02 x 0.11 in (0.64 x 2.79 mm) <sup>①</sup><br>Epoxy sealed                                                                                               | 0.02 x 0.11 in (0.64 x 2.79 mm) <sup>①</sup>                                                                                                                                 |
| <b>Pushbuttons</b>       | 0.73 x 0.97 in (18.54 x 24.64 mm)<br>Rectangular<br>Plain, engraved or hot stamped <sup>②</sup>                                                                                                                                                                      | 0.75 x 1 in (19.05 x 25.40 mm)<br>Rectangular<br>2 heights above panel <sup>③</sup><br>5 styles<br>Plain, engraved or hot stamped <sup>②</sup>             | 0.75 in (19.05 mm)<br>Square<br>2 heights above panel <sup>③</sup><br>5 styles<br>Plain, engraved or hot stamped <sup>②</sup>                              | 0.62 in (15.87 mm)<br>Square<br>Horizontal split legend<br>(indicator only)<br>3 heights above bezel <sup>③</sup><br>5 styles<br>Plain, engraved or hot stamped <sup>②</sup> |
| <b>Mounting</b>          | Panel mounting retained by molded<br>sleeve and nut<br>May be individually mounted<br>or gang mounted in horizontal<br>or vertical rows<br>Panel thickness from 0.03 to 0.25 in<br>(0.76 to 6.35 mm)<br>Barrier mount available <sup>④</sup><br>Snap mount available | Snap-in panel mounting<br>Stainless steel retaining clips<br>Panel thickness: 0.06 to 0.19 in<br>(1.59 to 4.76 mm)<br>Barrier mount available <sup>④</sup> | Snap-in panel mounting<br>Stainless steel retaining clips<br>Panel thickness: 0.06 to 0.19 in<br>(1.59 to 4.76 mm)<br>Barrier mount available <sup>④</sup> | Snap-in panel mounting<br>Stainless steel retaining clips<br>Panel thickness: 0.06 to 0.19 in<br>(1.59 to 4.76 mm)<br>Barrier mount available <sup>④</sup>                   |
| <b>Lamps</b>             | Accepts two T 1-3/4 midjet flange<br>base lamps<br>Incandescent or neon<br>Front relampable                                                                                                                                                                          | One T 1-3/4 bi-pin base<br>Incandescent, neon or LED<br>Front relampable<br>Lamp stationary to reduce<br>mechanical shock to filament                      | One T 1-3/4 bi-pin base<br>Incandescent, neon or LED<br>Front relampable<br>Lamp stationary to reduce<br>mechanical shock to filament                      | One T 1-3/4 bi-pin base<br>Incandescent, neon or LED<br>Front relampable<br>Lamp stationary to reduce<br>mechanical shock to filament                                        |
| <b>Pushbutton Travel</b> | 0.22 in (5.59 mm)                                                                                                                                                                                                                                                    | 0.22 in (5.59 mm)                                                                                                                                          | 0.22 in (5.59 mm)                                                                                                                                          | 0.22 in (5.59 mm)                                                                                                                                                            |

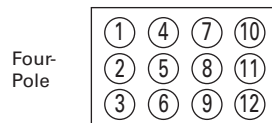
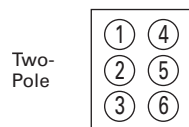
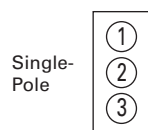
#### Notes

<sup>①</sup> Terminations are suitable for solder or female 110 connectors. Series 770: Solder only.

<sup>②</sup> See Engraving and Hot Stamping table on **Page V11-T6-16** for more information.

<sup>③</sup> See Product Selection tables on **Pages V11-T6-9–V11-T6-12** for more information.

<sup>④</sup> See Series 200 and 300 Mounting Barriers table on **Page V11-T6-16** for more information.



### Terminal Identification

When specified on order, switches will have the terminals identified as shown in the illustration at right. Terminal markings will be ink-stamped on the side of the switch case and unused terminal positions will not be identified.

All views are rear of switch with keyway or at down as applicable. Terminal numbers 2, 2 and 5 and 5 and 8 are considered inboard terminals for single-, two- and four-pole switches respectively. All others are considered outboard.

### Circuit Diagrams

#### Pushbutton Circuit Diagrams

| Circuit Letter     | Schematic | Circuit Letter          | Schematic |
|--------------------|-----------|-------------------------|-----------|
| <b>A</b><br>1PST   |           | <b>I</b><br>2 circuit ⑤ |           |
| <b>B</b><br>1PDT   |           | <b>J</b><br>1PST        |           |
| <b>C</b><br>2PST   |           | <b>K</b><br>1PDT        |           |
| <b>D</b><br>2PDT   |           | <b>L</b><br>2PST        |           |
| <b>E</b><br>4PST ① |           | <b>M</b><br>2PST        |           |
| <b>F</b><br>4PDT ② |           | <b>N</b> ⑥<br>2PDT      |           |
| <b>G</b> ③<br>1PST |           | <b>P</b><br>1PDT        |           |
| <b>H</b> ④<br>1PDT |           | <b>Q</b> ⑦<br>2 circuit |           |

### Legends

#### Pushbutton Legend

| Legend | Rocker Switch Type                                   |
|--------|------------------------------------------------------|
| ●      | Contact terminal—will make contact with switch lever |
| ○      | Isolated terminal—does not make contact with lever   |
| ⌵      | Center terminal and switch lever                     |
| ⊗      | Bulb                                                 |
| ↔      | Momentary contact                                    |
| ●      | Denotes mechanical contact portion                   |

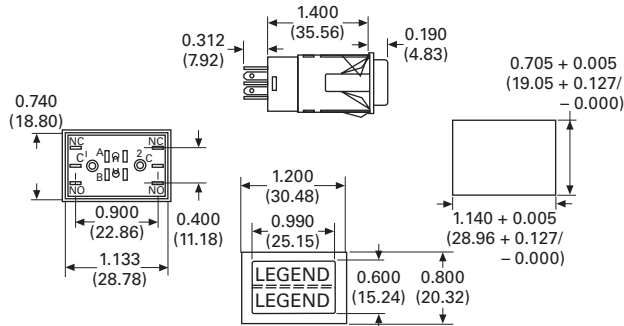
#### Notes

- ① Poles 11 and 12 may be eliminated for three-pole devices.
- ② Poles 10, 11 and 12 may be eliminated for three-pole devices.
- ③ Dependent lamp.
- ④ Independent lamp.
- ⑤ Two circuit—indicates a special type of double-throw switch in which the two circuits being controlled may be independent of each other.
- ⑥ For 206 Series, an additional lamp is available.
- ⑦ Available in 1PDT or 2PDT.

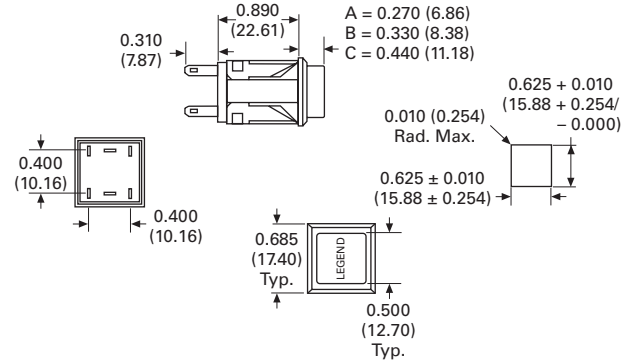
### Dimensions

Approximate Dimensions in Inches (mm)

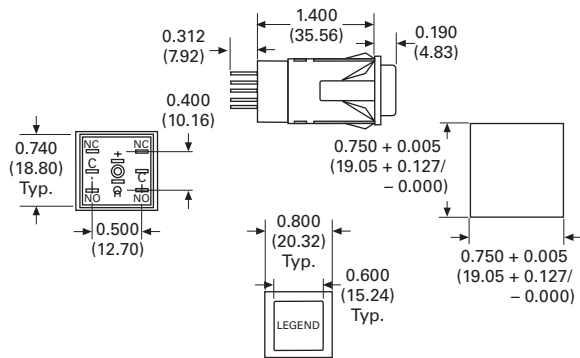
#### 206 Series



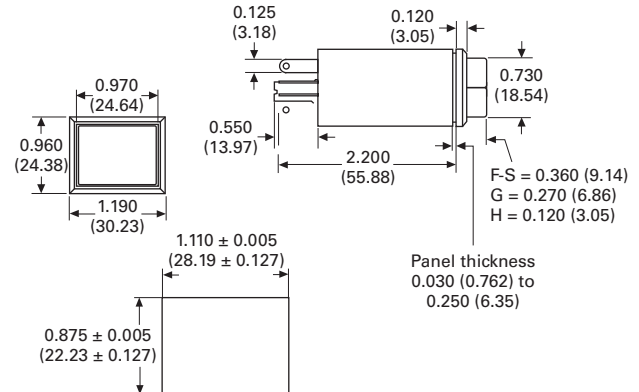
#### 580 Series



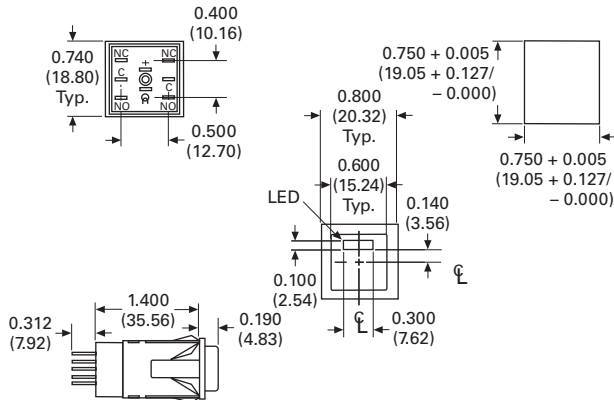
#### 220 Series



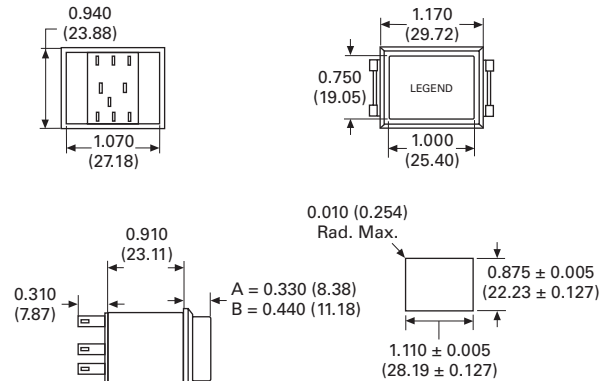
#### 770 Series



#### 231 Series



#### 810 Series



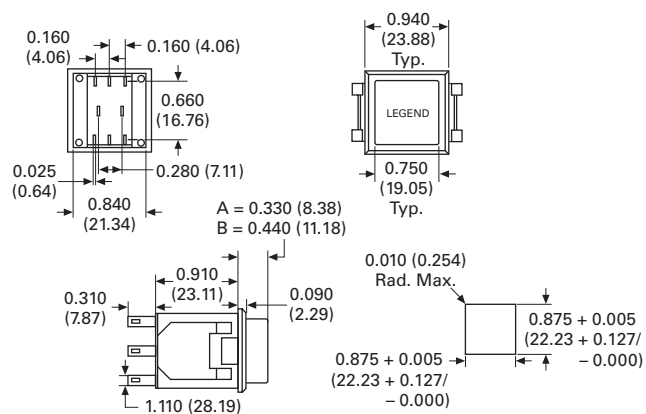
# 6.2

## Pushbuttons

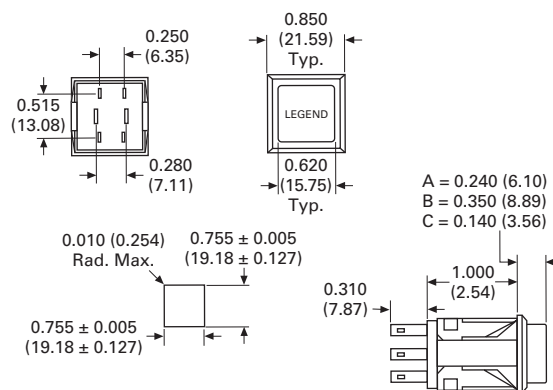
Illuminated AC/DC Rated

Approximate Dimensions in Inches (mm)

### 820 Series



### 860 Series



## Switch Terminology

### Glossary of Terms

| Term                                  | Definition                                                                                                                                                                                                   |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| One Pole (1P)—Single Pole (SP)        | A switch device that opens, closes or changes connections in a single conductor of an electrical circuit.                                                                                                    |
| Two Pole (2P)—Double Pole (DP)        | A switch device that opens, closes or changes connections in both conductors of the same circuit.                                                                                                            |
| Two Circuit (2 CIR.)                  | A switch device that opens, closes or changes connections in a single conductor of two independent circuits.                                                                                                 |
| Single Throw (ST)                     | A switch that opens, closes or completes a circuit at only one of the extreme positions of its actuator.                                                                                                     |
| Double Throw (DT)                     | A switch that opens, closes or completes a circuit at both extreme positions of its actuator.                                                                                                                |
| Normally Open (NO)                    | A momentary type switch in which one or more circuits are open when the switch actuator is at its normal or rest position.                                                                                   |
| Normally Closed (NC)                  | A momentary type switch in which one or more circuits are closed when the switch actuator is at its normal or rest position.                                                                                 |
| Actuator                              | A lever, pushbutton, slide, trigger or other means to which an external force is applied to operate a switch mechanism.                                                                                      |
| Alternate Action (Double Action Push) | Push to make, then push to break a circuit.                                                                                                                                                                  |
| Break-Before-Make                     | A non-shorting switch mechanism that opens or breaks a connection in a conductor before closing or making a connection in another conductor.                                                                 |
| Make-Before-Break                     | A shorting switch mechanism that closes or makes a connection in a conductor before opening or breaking a previous connection in another conductor.                                                          |
| Life Expectancy                       | The useful life cycle performance of a switch mechanism to open or close, make or break, an electrical circuit, based on statistical probability.                                                            |
| Operating Force                       | The force that must be applied to the actuator to move it from the free position to the operating position.                                                                                                  |
| Operate Position                      | The position of the actuator at which the circuit transfers.                                                                                                                                                 |
| Release Force                         | In a momentary type switch, the value to which the force on the actuator must be reduced to allow the contacts to return to the normal or rest position.                                                     |
| Momentary Action Switches             | Momentary action switches turn a process ON and OFF when force is applied and then removed. The applied force can make the circuit change state and the removed force returns circuit to its original state. |
| Maintained Action Switches            | A type of device in which the switch or button physically keeps the circuit in the actuated position.                                                                                                        |
| Half-Throw Circuit                    | A circuit where the actuator has only two positions (center and one extreme position) with a positive stop that prevents actuator movement to the opposite extreme position.                                 |

## Approval Marks <sup>①</sup>

| Mark                                                                                | Country/Region    | Definition                                                                                                    |
|-------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------|
|  | U.S.A.            | UL® Recognized<br>Listing Number: Switches—E24354 or File E1148, WOYR2 1609; Indicator—E70176, E2702          |
|  | Canada            | UL Recognized<br>Underwriters Laboratories Incorporated; Listing Numbers: E2702, E180275, E43960 and E147754p |
|  | U.S.A. and Canada | UL Recognized<br>Underwriters Laboratories Incorporated; Listing Number: E2702 (but not all sections)         |
|  | Canada            | CSA®—Canadian Standards Associations (Certified)<br>Listing Number: LR10538 or 45995, 9002 Class 6241         |
|  | U.S.A.            | UL Listed<br>Underwriters Laboratories Incorporated; Listing Number: pE180275                                 |
|  | Europe            | ENEC: European Norms Electrical Certification; Listing Number: E2702 (but not all sections)                   |
|  | —                 | Restriction of Hazardous Substances (RoHS) Directive 2001/65/EU                                               |

### Note

<sup>①</sup> See specific product for specifications for applicable approvals.

|                   |                      |               |                      |
|-------------------|----------------------|---------------|----------------------|
| 11_               | V11-T4-33            | 2600_–2607_   | V11-T2-48            |
| 13-5496           | V11-T3-7             | 2600H_        | V11-T2-51            |
| 13-8171           | V11-T3-7             | 28-3154_      | V11-T6-14            |
| 13-8173           | V11-T3-6, V11-T3-7   | 28-3155_      | V11-T6-14            |
| 1500_–1507_       | V11-T2-44            | 28-3156       | V11-T6-15            |
| 1500H_            | V11-T2-45            | 28-3157_      | V11-T6-15            |
| 15-1043_–15-1047_ | V11-T4-31            | 28-3158_      | V11-T6-14            |
| 15-1048_          | V11-T4-31, V11-T4-33 | 28-3425_      | V11-T2-65            |
| 15-1049_          | V11-T4-33            | 28-3426       | V11-T2-76            |
| 15-124F_          | V11-T4-31            | 28-5148_      | V11-T2-65            |
| 15-1525_          | V11-T4-31            | 28-5415_      | V11-T2-62            |
| 15-189-5          | V11-T4-31            | 28-5555_      | V11-T2-72            |
| 15-192_           | V11-T4-31            | 28-5558       | V11-T2-76            |
| 15-2523_–15-2528_ | V11-T4-31            | 28-5637-2     | V11-T2-76            |
| 15-2534-14_       | V11-T4-31            | 28-5863_      | V11-T2-13            |
| 15-90             | V11-T4-31            | 28-5901_      | V11-T2-9             |
| 15-966-2          | V11-T4-31            | 28-5909_      | V11-T2-9             |
| 15-994-2          | V11-T4-31            | 28-5940       | V11-T2-76            |
| 1600_–1607_       | V11-T2-48            | 29-761-5_     | V11-T4-32            |
| 1600H_–1620H_     | V11-T2-51            | 2CAP_         | V11-T2-15            |
| 1609_             | V11-T2-49, V11-T2-53 | 2N_           | V11-T2-14            |
| 1620HX_           | V11-T2-51            | 30-2899_      | V11-T4-34            |
| 16-4183_          | V11-T4-32            | 30-5632_      | V11-T4-34            |
| 16-4778_          | V11-T4-32            | 32-2245       | V11-T2-38            |
| 17-19263          | V11-T2-77            | 32-341        | V11-T4-33            |
| 17-19264          | V11-T2-77            | 3CAP_         | V11-T2-15            |
| 17-19544-2_       | V11-T2-77            | 3N_           | V11-T2-14            |
| 17-21159          | V11-T2-77            | 53-3318_      | V11-T2-77            |
| 17-21160          | V11-T2-77            | 53-3338_      | V11-T6-16            |
| 17-21543          | V11-T2-77            | 53-73         | V11-T1-9             |
| 17-22145          | V11-T2-40            | 580K_–581K_   | V11-T6-10            |
| 17-22145_         | V11-T2-40            | 580P_         | V11-T6-13            |
| 17-22146          | V11-T2-40            | 586L          | V11-T6-10            |
| 17-22152          | V11-T2-40            | 61-40_        | V11-T1-9             |
| 17-24             | V11-T1-9             | 6CAP_         | V11-T2-15            |
| 200B_             | V11-T6-16            | 6N_           | V11-T2-14            |
| 206K_             | V11-T6-9             | 7071K_–7073K_ | V11-T4-9             |
| 206P_             | V11-T6-13            | 7300K_–7317K_ | V11-T4-6             |
| 208L_             | V11-T6-9             | 7500K_–7510K_ | V11-T4-12, V11-T4-15 |
| 220K_–221K_       | V11-T6-9             | 7530K_        | V11-T4-13            |
| 220P_             | V11-T6-13            | 7546K_        | V11-T4-12            |
| 224L_             | V11-T6-9             | 7555K_        | V11-T4-12            |
| 231K_             | V11-T6-9             | 7560K_–7569K_ | V11-T4-13, V11-T4-15 |
| 231P_             | V11-T6-13            | 7570K_–7571K_ | V11-T4-13, V11-T4-15 |
| 234L_             | V11-T6-9             | 7576K_        | V11-T4-12            |
| 2500_–2507_       | V11-T2-44            | 7580K_–7587K_ | V11-T4-12            |
| 2500H_            | V11-T2-45            | 7590K_–7597K_ | V11-T4-13            |
| 25-13936_         | V11-T2-40            | 7630K_–7632K_ | V11-T4-13            |

|                         |           |                              |                                         |
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| 7660K_–7668K_ . . . . . | V11-T4-4  | 8423K_–8424K_ . . . . .      | V11-T6-3                                |
| 7670K_–7674K_ . . . . . | V11-T4-4  | 8434K_–8435K_ . . . . .      | V11-T6-4                                |
| 7690K_–7695K_ . . . . . | V11-T4-14 | 8440K_ . . . . .             | V11-T6-3                                |
| 7700K_–7705K_ . . . . . | V11-T4-14 | 8444K_ . . . . .             | V11-T6-4                                |
| 770K_ . . . . .         | V11-T6-11 | 8448K_ . . . . .             | V11-T6-4                                |
| 770P_ . . . . .         | V11-T6-13 | 845L_ . . . . .              | V11-T6-12                               |
| 775L_ . . . . .         | V11-T6-11 | 849P_ . . . . .              | V11-T6-13                               |
| 7803K_ . . . . .        | V11-T4-13 | 860K_–861K_ . . . . .        | V11-T6-12                               |
| 7804K_–7805K_ . . . . . | V11-T4-14 | 8800K_–8860K_ . . . . .      | V11-T4-4                                |
| 7810K_–7813K_ . . . . . | V11-T4-28 | 8857K_–8859K_ . . . . .      | V11-T4-5                                |
| 7818K_ . . . . .        | V11-T3-2  | 8928K_ . . . . .             | V11-T3-6, V11-T4-20                     |
| 7835K_–7836K_ . . . . . | V11-T6-3  | 8980K_ . . . . .             | V11-T3-4                                |
| 7842K_–7846K_ . . . . . | V11-T3-6  | B1600_–B1607_ . . . . .      | V11-T2-50                               |
| 7933K_–7935K_ . . . . . | V11-T4-14 | B2600_–B2607_ . . . . .      | V11-T2-50                               |
| 7990K_–7992K_ . . . . . | V11-T4-28 | DP_ . . . . .                | V11-T5-2                                |
| 8004K_–8005K_ . . . . . | V11-T2-66 | DS_ . . . . .                | V11-T5-2                                |
| 8006K_–8007K_ . . . . . | V11-T2-63 | E30 . . . . .                | V11-T1-5                                |
| 8055K_–8057K_ . . . . . | V11-T2-56 | E32 . . . . .                | V11-T1-8                                |
| 8064K_–8065K_ . . . . . | V11-T2-73 | E321 . . . . .               | V11-T1-9                                |
| 810K_ . . . . .         | V11-T6-12 | E324 . . . . .               | V11-T1-9                                |
| 810P_ . . . . .         | V11-T6-13 | E33 . . . . .                | V11-T1-12                               |
| 8130K_–8138K_ . . . . . | V11-T2-55 | eSM_ . . . . .               | V11-T1-5, V11-T1-8, V11-T1-9, V11-T1-11 |
| 8140K_–8148K_ . . . . . | V11-T2-55 | eVu_ . . . . .               | V11-T1-15                               |
| 8150K_–8155K_ . . . . . | V11-T2-55 | MS25068_ . . . . .           | V11-T4-4                                |
| 815L_ . . . . .         | V11-T6-12 | MS25098_–MS25100_ . . . . .  | V11-T4-3                                |
| 8166K_ . . . . .        | V11-T3-9  | MS25125_–MS25127_ . . . . .  | V11-T4-5                                |
| 8179K_ . . . . .        | V11-T2-42 | MS25201_ . . . . .           | V11-T4-4                                |
| 820K_ . . . . .         | V11-T6-12 | MS35058_–MS35059_ . . . . .  | V11-T4-4                                |
| 820P_ . . . . .         | V11-T6-13 | NGR . . . . .                | V11-T2-8–V11-T2-33                      |
| 825L_ . . . . .         | V11-T6-12 | NGR Indicators . . . . .     | V11-T2-14, V11-T2-15                    |
| 8261K_–8262K_ . . . . . | V11-T4-3  | NGR Rocker Buttons . . . . . | V11-T2-11                               |
| 8280K_ . . . . .        | V11-T4-20 | NGR Switch Base . . . . .    | V11-T2-10                               |
| 8283K_ . . . . .        | V11-T3-6  | P1600_–P1607_ . . . . .      | V11-T2-48                               |
| 8290K_–8295K_ . . . . . | V11-T4-20 | P2600_–P2607_ . . . . .      | V11-T2-48                               |
| 8370K_–8373K_ . . . . . | V11-T3-6  | RW_ . . . . .                | V11-T5-4                                |
| 8370K_–8375K_ . . . . . | V11-T4-20 | SVR . . . . .                | V11-T2-32–V11-T2-40                     |
| 8381K_ . . . . .        | V11-T4-20 | SW1RY_ . . . . .             | V11-T4-33                               |
| 8391K_–8396K_ . . . . . | V11-T4-20 | WP_ . . . . .                | V11-T5-2                                |
| 8406K_–8411K_ . . . . . | V11-T6-3  | WS_ . . . . .                | V11-T5-2                                |
| 8418K_ . . . . .        | V11-T6-3  | XTD_ . . . . .               | V11-T4-25                               |