

**A4**

**Switches & Pilot Devices**



## TWTD Series: Heavy duty switches built to last

### Key features include:

- Variety of button sizes up to 2 9/16" (65mm)
- Rugged construction includes chrome plated zinc locking ring die cast zinc mounting threads, screw mounted contact blocks
- LED or incandescent illumination
- Transformer or full voltage
- Transparent contact windows
- Slow make, double break self cleaning contacts
- Modular construction for maximum flexibility
- Double nickel plated terminal screws
- Available assembled or as sub-components
- NEMA 4x and IP65 watertight/oiltight panel
- Large M3.5 screw terminals with captive sems plate

The rugged series of TWTD switches offers both variety and durability in an attractive design.

With button sizes up to 2 9/16" (65mm), chrome plated zinc locking rings, die cast zinc mounting threads, steel anti-rotation rings, and self cleaning contacts, the TWTD's are here to stay.

The TWTD series also offers either LED or incandescent illumination in full voltage and transformer models.

Transparent contact windows allow the viewing of IDEC's self cleaning slow-make/slow-break contacts.

Regardless of your switching needs, the TWTD series provides the kind of long lasting, industrial strength quality you've come to expect from IDEC.



UL Listed  
File No. E70646



SA® File No. LR48366



Ref. No. 117617MC



Certificate No.  
2005010305145658

|                                             |                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Specifications</b>                       | Conforming to Standards                                                                                           | EN60947-1, EN60947-5-1, VDE0660-200, UL508, CSA C22-2 No.14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|                                             | Approvals                                                                                                         | <p><b>CSA:</b> pushbuttons and selector switches: A600<br/>pilot lights and illuminated pushbuttons, direct supply<br/>pilot lights and illuminated pushbuttons with integral transformer<br/>(100/110, 115, 120, 200/220, 230, 240, 380, 400/440, 480V)<br/><b>UL:</b> pushbuttons and selector switches: A600<br/>pilot lights and illuminated pushbuttons, direct supply<br/>pilot lights and illuminated pushbuttons with integral transformer<br/>(100/110, 115, 120, 200/220, 230, 240, 380, 400/440, 480V)<br/><b>TÜV:</b> pushbuttons and selector switches: A600=P600 (NO, NC)/Q600 (NO-EM, NC-LB)<br/>pilot lights and illuminated pushbuttons, direct supply<br/>pilot lights and illuminated pushbuttons with integral transformer<br/>(100/110, 115, 120, 200/220, 230, 240, 380, 400/440, 480V)</p> |
|                                             | <br>UL Listed<br>File No. E70646 | <br>File No. LR48366                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|                                             | <br>Ref. No. 117617MC            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                             | <b>Operating Temperature</b>                                                                                      | Operation: -25 to +50°C (without freezing)<br>Storage: -40 to +70°C (without freezing)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                             | <b>Vibration Resistance</b>                                                                                       | 10 to 55Hz, 98m/sec <sup>2</sup> (10g) conforming to IEC6068-2-6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                             | <b>Shock Resistance</b>                                                                                           | 980m/sec <sup>2</sup> (100g) conforming to IEC6068-2-7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                             | <b>Electric Shock Protection</b>                                                                                  | Class 0 conforming to IEC60536                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                             | <b>Degree of Protection</b>                                                                                       | IP65 (from front of the panel) (conforming to IEC60529)<br>IP54 (key switches)<br>NEMA 1, 2, 3, 3R, 3S, 4, 4X, 5, 12, 13 (conforming to NEMA ICS6-110)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                             | <b>Mechanical Life</b>                                                                                            | Momentary pushbuttons: 5,000,000 (900 operations per hour)<br>All other switches: 500,000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Mechanical-Electrical Specifications</b> | <b>Pollution Degree (conforming to IEC60947-1)</b>                                                                | 3 for switches not using a transformer<br>2 for switches using a transformer                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|                                             | <b>Rated Operational Characteristics</b>                                                                          | AC-15: A600 or Ue = 250V, Ie = 3A (NO, NC, NO-EM, NC-LB)<br>DC-13: P600 or Ue = 125V, Ie = 1.1A (NO, NC)<br>DC-13: Q600 or Ue = 125V, Ie = 0.9A (NO-EM, NC-LB)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                             | <b>Rated Insulation Voltage</b>                                                                                   | 600V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                             | <b>Rated Switching Over-Voltage</b>                                                                               | Less than 4kV, conforming to IEC60947-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|                                             | <b>Rated Impulse Withstanding Voltage</b>                                                                         | 4kV for contact circuit<br>2.5kV for lamp circuit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                             | <b>Rated Thermal Current</b>                                                                                      | 10 Amp                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                             | <b>Minimum Switching Capacity</b>                                                                                 | 5 mA at 3V AC/DC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|                                             | <b>Contact Operation</b>                                                                                          | Slow break NC or NO, self-cleaning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|                                             | <b>Operating Force</b>                                                                                            | Flush and extended pushbuttons—with 1NO or 1NC contact: 6.2±2N (momentary), 7.0±2N (maintained)<br>Additional contacts—1NO or 1NC: +3.2N (momentary), + 3.3N (maintained)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|                                             | <b>Terminal Referencing</b>                                                                                       | Conforming to CENELEC EN50005                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                             | <b>Recommended Terminal Torque</b>                                                                                | 0.8 N m (7.1 in lb.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|                                             | <b>External Short-Circuit Protection</b>                                                                          | 10A 250V fuse conforming to IEC60269-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                                             | <b>Applicable Wire Size</b>                                                                                       | Minimum 1 x 22 AWG, max. 2 x 14 AWG or 1 x 12 AWG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                                             | <b>Contact Resistance</b>                                                                                         | Initial contact resistance of 50mΩ or less                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|                                             | <b>Contact Gap</b>                                                                                                | 4mm (NO and NC)<br>2mm (NO-EM and NC-LB)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                             | <b>Lamp Ratings</b>                                                                                               | Incandescent: 1 W<br>LEDs: 6, 12, 24V: 20mA / 120, 240V: 10mA                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                                             | <b>Maximum Inrush Current</b>                                                                                     | 40 A (40 msec)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|                                             | <b>Contact Material</b>                                                                                           | Silver                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

| Contact Ratings                 | Contact Ratings by Utilization Category IEC 60947-5-1 |                   |                                                      | AC-15 (A600)<br>DC-13 (P600) |     |      |      |      |      |
|---------------------------------|-------------------------------------------------------|-------------------|------------------------------------------------------|------------------------------|-----|------|------|------|------|
|                                 | Contact Ratings by Utilization Category               |                   |                                                      |                              |     |      |      |      |      |
|                                 | Operational Voltage                                   |                   |                                                      | 24V                          | 48V | 50V  | 110V | 220V | 440V |
|                                 | Operation<br>Current                                  | AC<br>50/60<br>Hz | AC-12 Control of resistive loads & solid state loads | 10A                          | —   | 10A  | 10A  | 6A   | 2A   |
|                                 |                                                       |                   | AC-15 Control of electromagnetic loads (> 72VA)      | 10A                          | —   | 7A   | 5A   | 3A   | 1A   |
|                                 |                                                       | DC                | DC-12 Control of resistive loads & solid state loads | 8A                           | 5A  | —    | 2.2A | 1.1A | —    |
| DC-13 Control of electromagnets |                                                       |                   | 5A                                                   | 2A                           | —   | 1.1A | 0.6A | —    |      |

Non-Illuminated Pushbuttons (Assembled)

A4

Switches & Pilot Devices



Assembled Pushbuttons

A B ( ) D 1 10 N - B

Function

- B: Momentary
- O: Maintained
- V: Pushlock Turn Reset
- Y: Push-Pull

Bezel Shape

- Blank: Octagonal
- F: Full Shroud
- G: Mushroom Shroud
- P: Neoprene Boot

Series Designation

- D: TWTD Series

Button Color

- B: Black G: Green
- R: Red S: Blue
- W: White Y: Yellow

Contact Arrangement

- 10: 1NO 01: 1NC
- 20: 2NO 02: 2NC
- 11: 1NO-1NC 22: 2NO-2NC

Button Shape

- 1: Flush
- 2: Extended
- 3: Mushroom Ø 40mm
- 4: Jumbo Mushroom Ø 65mm



- 1. Use only when interpreting part numbers. Do not use for developing part numbers.
- 2. Custom contact configurations available, contact IDEC for details.

## Non-Illuminated Pushbuttons (Assembled) con't

### Part Numbers: Non-Illuminated Pushbuttons

| Style                                          |                                                                                     | Contacts                            | Part Number                                                        |                                                                    |
|------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------|
|                                                |                                                                                     |                                     | Momentary                                                          | Maintained                                                         |
| Flush                                          |    | 1NO<br>1NC<br>1NO-1NC<br>2NO<br>2NC | ABD110N-①<br>ABD101N-①<br>ABD111N-①<br>ABD120N-①<br>ABD102N-①      | AOD110N-①<br>AOD101N-①<br>AOD111N-①<br>AOD120N-①<br>AOD102N-①      |
| Extended                                       |    | 1NO<br>1NC<br>1NO-1NC<br>2NO<br>2NC | ABD210N-①<br>ABD201N-①<br>ABD211N-①<br>ABD220N-①<br>ABD202N-①      | AOD210N-①<br>AOD201N-①<br>AOD211N-①<br>AOD220N-①<br>AOD202N-①      |
| Extended with Neoprene Boot                    |    | 1NO<br>1NC<br>1NO-1NC<br>2NO<br>2NC | ABPD210N-①<br>ABPD201N-①<br>ABPD211N-①<br>ABPD220N-①<br>ABPD202N-① | AOPD210N-①<br>AOPD201N-①<br>AOPD211N-①<br>AOPD220N-①<br>AOPD202N-① |
| Recessed                                       |    | 1NO<br>1NC<br>1NO-1NC<br>2NO<br>2NC | ABFD110N-①<br>ABFD101N-①<br>ABFD111N-①<br>ABFD120N-①<br>ABFD102N-① | AOFD110N-①<br>AOFD101N-①<br>AOFD111N-①<br>AOFD120N-①<br>AOFD102N-① |
| Extended with Full Shroud                      |    | 1NO<br>1NC<br>1NO-1NC<br>2NO<br>2NC | ABFD210N-①<br>ABFD201N-①<br>ABFD211N-①<br>ABFD220N-①<br>ABFD202N-① | AOFD210N-①<br>AOFD201N-①<br>AOFD211N-①<br>AOFD220N-①<br>AOFD202N-① |
| Ø 40mm Mushroom Head                           |   | 1NO<br>1NC<br>1NO-1NC<br>2NO<br>2NC | ABD310N-①<br>ABD301N-①<br>ABD311N-①<br>ABD320N-①<br>ABD302N-①      | AOD310N-①<br>AOD301N-①<br>AOD311N-①<br>AOD320N-①<br>AOD302N-①      |
| Ø 40mm Mushroom Head with Full Shroud          |  | 1NO<br>1NC<br>1NO-1NC<br>2NO<br>2NC | ABGD310N-①<br>ABGD301N-①<br>ABGD311N-①<br>ABGD320N-①<br>ABGD302N-① | AODG310N-①<br>AODG301N-①<br>AODG311N-①<br>AODG320N-①<br>AODG302N-① |
| Ø 65mm Jumbo Mushroom Head                     |  | 1NO<br>1NC<br>1NO-1NC<br>2NO<br>2NC | ABD410N-①<br>ABD401N-①<br>ABD411N-①<br>ABD420N-①<br>ABD402N-①      | AOD410N-①<br>AOD401N-①<br>AOD411N-①<br>AOD420N-①<br>AOD402N-①      |
| Ø 65mm Jumbo Mushroom Head with Shallow Shroud |  | 1NO<br>1NC<br>1NO-1NC<br>2NO<br>2NC | ABGD410N-①<br>ABGD401N-①<br>ABGD411N-①<br>ABGD420N-①<br>ABGD402N-① | AODG410N-①<br>AODG401N-①<br>AODG411N-①<br>AODG420N-①<br>AODG402N-① |
| Ø 65mm Jumbo Mushroom Head With Deep Shroud    |  | 1NO<br>1NC<br>1NO-1NC<br>2NO<br>2NC | ABFD410N-①<br>ABFD401N-①<br>ABFD411N-①<br>ABFD420N-①<br>ABFD402N-① | AOFD410N-①<br>AOFD401N-①<br>AOFD411N-①<br>AOFD420N-①<br>AOFD402N-① |



1. In place of ①, specify the Button Color Code.
2. For sub-assembly part numbers, see next page.
3. For accessories, see page A4-188.
4. † Neoprene boot available only in Black (B), Green (G), Red (R) and Yellow (Y).

#### ① Button Color Code

| Color  | Code |
|--------|------|
| Black  | B    |
| Green  | G    |
| Red    | R    |
| Blue   | S    |
| White  | W    |
| Yellow | Y    |



1. 65mm Jumbo mushroom not available in white.
2. Neoprene boot is not available in blue or white.

## Non-Illuminated Pushbuttons (Sub-Assembled)

Contact Block

+

Operator

+

Button

+

=

Complete Part



A4

Switches & Pilot Devices

### Part Numbers: Operators

| Style                                           | Part Number |            |
|-------------------------------------------------|-------------|------------|
|                                                 | Momentary   | Maintained |
| Flush/Extended                                  | ABD-100     | AOD-100    |
| Extended with Full Shroud                       | ABFD-200    | AOFD-200   |
| Ø 40mm Mushroom/<br>Ø 65mm Jumbo<br>Mushroom    | ABD-300     | AOD-300    |
| Ø 40mm Mushroom with<br>Full Shroud             | ABGD-300    | AOGD-300   |
| Ø 65mm Jumbo<br>Mushroom with<br>Shallow Shroud | ABGD-400    | AOGD-400   |
| Ø 65mm Jumbo<br>Mushroom with<br>Deep Shroud    | ABFD-400    | AOFD-400   |

### Part Numbers: Buttons and Lenses

| Style                 | Part Number |
|-----------------------|-------------|
| Flush                 | ABD1BN-①    |
| Extended              | ABD2BN-①    |
| Ø 40mm Mushroom       | ABD3BN-①    |
| Ø 65mm Jumbo Mushroom | ABD4BN-①    |



In place of ①, specify the Button Color Code. (See table previous page)

### Part Numbers: Contact Blocks

| Description | Part Number              |                          |
|-------------|--------------------------|--------------------------|
|             | 1NO                      | 1NC                      |
|             | BST-010                  | BST-001                  |
|             | BST-010S<br>(early make) | BST-001S<br>(late break) |
| Dummy Block | BST-D                    |                          |



1. Dummy blocks (no contacts) are used with an odd number of contact blocks.
2. Combining BST-010S and BST-001S result in overlapping contacts.

**E-Stops (Assembled)****A4****Switches & Pilot Devices****Assembled E-Stops****A V (L) D 3 (99) 11 (D) N - R - (24V)****Function**

V: Pushlock Turn Reset  
Y: Push-Pull

**Illumination**

Blank: None  
L: Illuminated

**Series Designation**

D: TWTD Series

**Button/Lens Size**

3: 40mm Mushroom

**Illuminated Circuit (illuminated unit only)**

99: Full Voltage (lamp determines voltage)  
126: 120V AC Step Down Transformer  
246: 240V AC Step Down Transformer  
486: 480V AC Step Down Transformer

**Lamp Voltage**

(full voltage illuminated units only)

6V: 6V AC/DC  
12V: 12V AC/DC  
24V: 24V AC/DC  
120V: 120V AC/DC  
240V: 240V AC/DC

**Button/Lens Color**

A: Amber R: Red W: White  
G: Green S: Blue Y: Yellow

**Lamp Type**

(illuminated units only)

Blank: Incandescent  
D: LED

**Contact Arrangement**

10: 1NO 01: 1NC  
20: 2NO 02: 2NC  
11: 1NO/1NC 22: 2NO/2NC



1. Use only when interpreting part numbers. Do not use for developing part numbers.
2. Custom contact configurations available, contact IDEC for details.

## E-Stops (Assembled)

## Part Numbers: E-Stop Switches

| Style                                                                                   |                 | Contacts                            | Part Number                                                        |
|-----------------------------------------------------------------------------------------|-----------------|-------------------------------------|--------------------------------------------------------------------|
| <div>A4</div> <div>Switches &amp; Pilot Devices</div><br>Ø 40mm Pushlock Turn Reset<br> | Non-Illuminated | 1NO<br>1NC<br>1NO-1NC<br>2NO<br>2NC | AVD310N-R*<br>AVD301N-R*<br>AVD311N-R*<br>AVD320N-R*<br>AVD302N-R* |
| Ø 40mm Illuminated Pushlock Turn Reset<br>                                              | Full Voltage    | 1NO-1NC<br>2NO<br>2NC               | AVLD39911⑤N-R-③*<br>AVLD39920⑤N-R-③*<br>AVLD39902⑤N-R-③*           |
|                                                                                         | Transformer     | 1NO-1NC<br>2NO<br>2NC               | AVLD3 ④ 11⑤N-R*<br>AVLD3 ④ 20⑤N-R*<br>AVLD3 ④ 02⑤N-R*              |
| Ø 40mm Push-Pull<br>                                                                    | Non-Illuminated | 1NO<br>1NC<br>1NO-1NC<br>2NO<br>2NC | AYD310N-①<br>AYD301N-①<br>AYD311N-①<br>AYD320N-①<br>AYD302N-①      |
| Ø 40mm Push-Pull<br>                                                                    | Full Voltage    | 1NO-1NC<br>2NO<br>2NC               | AYLD39911⑤N-②-③**<br>AYLD39920⑤N-②-③**<br>AYLD39902⑤N-②-③**        |
|                                                                                         | Transformer     | 1NO-1NC<br>2NO<br>2NC               | AYLD3 ④ 11⑤N-②**<br>AYLD3 ④ 20⑤N-②**<br>AYLD3 ④ 02⑤N-②**           |
| Ø 40mm Momentary Push-Pull (3-position)<br>                                             | Full Voltage    | 1NO-1NC<br>1NC-1LB†                 | AYLD229911⑤N-②-③-TK962<br>AYLD229902S⑤N-②-③-TK962                  |
|                                                                                         | Transformer     | 1NO-1NC<br>1NC-1LB†                 | AYLD22 ④ 11⑤N-②-TK962<br>AYLD22 ④ 02S⑤N-②-TK962                    |

## 3 Position Push-Pull

| Contact          | Push | Center | Pull |
|------------------|------|--------|------|
| NC (BST-001)     | 0    | 0      | X    |
| NC-LB (BST-001S) | 0    | X      | X    |
| NO (BST-010)     | X    | 0      | 0    |
| NO-EM (BST-010S) | X    | X      | 0    |



1. In place of ①, specify the button color code.
2. In place of ②, specify the lens color code.
3. In place of ③, specify the Full Voltage (lamp voltage) Code.
4. In place of ④, specify the transformer voltage code.
5. In place of ⑤, specify the Lamp Type code.
6. \*Available in red only.
7. 3 position push-pull available in spring return to center only.
8. † The most common configuration for motor starting applications.
9. For accessories, see page A4-188.
10. For dimensions, see page A4-192.

## ① Button Color Code

| Color  | Code |
|--------|------|
| Black  | B    |
| Green  | G    |
| Red    | R    |
| Blue   | S    |
| Yellow | Y    |

## ② LED Color Codes

| Color | Code |
|-------|------|
| Amber | A    |
| Green | G    |
| Red   | R    |
| Blue  | S    |
| White | W    |

## ③ Full Voltage Code

| Voltage   | Code            |
|-----------|-----------------|
| 6V AC/DC  | 6V              |
| 12V AC/DC | 12V             |
| 24V AC/DC | 24V             |
| 120V AC   | 120V            |
| 240V AC   | 240V (LED only) |

## ④ Transformer Voltage Codes

| Voltage | Code |
|---------|------|
| 120VAC  | 126  |
| 240VAC  | 246  |
| 480VAC  | 486  |



Transformers step down to 6V.

## ⑤ Lamp Type Code

| Lamp         | Code  |
|--------------|-------|
| Incandescent | Blank |
| LED          | D     |



1. \* Available in Red only.
2. \*\*Not available in blue.
3. In place of ③, specify Full Voltage Code.
4. With single unit construction, the positive action contacts are integrated in the body of the switch. This provides an extra degree of safety and reliability for critical emergency stop functions.
5. For nameplates and accessories, see page A3-96.
6. For dimensions, see page A3-100.
7. For sub-assembly part numbers, see next page.
8. HN1E series E-stops comply with EN418, the IEC "E-Stop Addendum to the Low Voltage Directive," this includes "tamper proof" operation whereby a change of contact state is not possible by "teasing" or "floating" the operator.

## E-Stops (Sub-Assembled)

**Transformer\*** + **Operator** + **Lamp** + **Button/Lens** = **Complete Part**



\*Not required for full voltage units (full voltage clips used instead).

### Part Numbers: Operators

|                                        | Style                                                                              | Part Number            |
|----------------------------------------|------------------------------------------------------------------------------------|------------------------|
| Ø 40mm Pushlock Turn Reset             |   | AVD-300                |
| Illuminated Ø 40mm Pushlock Turn Reset |   | AVLD3-0600N            |
| Ø 40mm Push-Pull                       |   | AYD-3100               |
| Illuminated Ø 40mm Push-Pull           |  | 2 pos AYLD-0600        |
|                                        |                                                                                    | 3 pos AYLD22TK962-0B01 |

### Part Numbers: Buttons and Lenses

|                                                                    | Style                                                                               | Part No.        |
|--------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------|
| Button for Pushlock Turn Reset E-Stop (Ø 40mm, red only)           |  | AVN3B-R         |
| Lens for Illuminated Pushlock Turn Reset E-Stop (Ø 40mm, red only) |  | AVLN3LU-R       |
| Button for Push-Pull E-Stop (Ø 40mm)                               |  | AYD3BN-①        |
| Lens for Illuminated Push-Pull E-Stop (Ø 40mm)                     |  | 2 pos* AYLD3L-② |
|                                                                    |                                                                                     | 3 pos AYLD2L-②  |

-  1. In place of ①, specify the Button Color Code. (See table below)  
 2. In place of ②, specify the LED Color Code.  
 3. \*Not available in blue.

### Part Numbers: Lamps

| Type         | Voltage   | Part Number |
|--------------|-----------|-------------|
| LED          | 6V AC/DC  | LSTD-6②     |
|              | 12V AC/DC | LSTD-1②     |
|              | 24V AC/DC | LSTD-2②     |
|              | 120V AC   | LSTD-H2②    |
|              | 240V AC   | LSTD-M4②    |
| Incandescent | 6V AC/DC  | IS-6        |
|              | 12V AC/DC | IS-12       |
|              | 24V AC/DC | IS-24       |
|              | 120VAC    | L-120L      |



1. In place of ②, specify the LED color code.  
 2. The LED contains a current-limiting resistor and a protection diode.

### ① Button Color Code

| Color  | Code |
|--------|------|
| Black  | B    |
| Green  | G    |
| Red    | R    |
| Blue   | S    |
| Yellow | Y    |

### ② LED Color Codes

| Color | Code |
|-------|------|
| Amber | A    |
| Green | G    |
| Red   | R    |
| Blue  | S    |
| White | W    |

### Part Numbers: Contact Blocks

| Description       | Part Number           |                       |
|-------------------|-----------------------|-----------------------|
| All Control Units | <b>1N0</b>            | <b>1NC</b>            |
|                   | BST-010               | BST-001               |
|                   | BST-010S (early make) | BST-001S (late break) |
|                   | Dummy Blocks          | BST-D                 |



1. Dummy blocks (no contacts) are used with an odd number of contact blocks.  
 2. Combining BST-010S and BST-001S result in overlapping contacts (remain on, or closed, when switch is moved between two positions).

### Part Numbers: Full Voltage Clips

| Primary Voltage (50/60Hz)                  | Part Number |
|--------------------------------------------|-------------|
| Full Voltage Clips (2 req'd for each unit) | APD-F       |

### Part Numbers: Transformers

| Description                                                                         | Primary Voltage (50/60Hz) | Part Number |
|-------------------------------------------------------------------------------------|---------------------------|-------------|
|  | 120V AC                   | TWD-0126    |
|                                                                                     | 240V AC                   | TWD-0246    |
|                                                                                     | 480V AC                   | TWD-0486    |



6V secondary voltage (uses 6V lamp).

A4

Switches & Pilot Devices

## Pilot Lights (Assembled)

A4

Switches &amp; Pilot Devices



## Assembled Pilot Lights

A P D 1 126 D N - R - ( )

## Function

P: Pilot Light

## Series Designation

D: TWTD Series

## Lens Shape

1: Dome

## Rated Operational Voltage (Primary)

Transformer Type

126:120V AC

246:240V AC

486:480V AC

Full Voltage Type

99:Full Voltage

## Lamp Voltage

## (Full Voltage Only)

6V: 6V AC/DC

12V:12V AC/DC

24V:24V AC/DC

120V:120V AC

240V: 240V AC (LED only)

## Lens Color Code

A: Amber

G: Green

R: Red

S: Blue

W: White

Y: Yellow

## Lamp Type

Blank: Incandescent Lamp

D: LED Lamp



Use only when interpreting part numbers. Do not use for developing part numbers.

## Part Numbers: LED and Incandescent Pilot Lights

| Style                                                                                                    | Operating Voltage             | Part Number                               |                                        |
|----------------------------------------------------------------------------------------------------------|-------------------------------|-------------------------------------------|----------------------------------------|
|                                                                                                          |                               | LED                                       | Incandescent                           |
| Transformer Dome<br>  | 120V AC<br>240V AC<br>480V AC | APD1126DN-②<br>APD1246DN-②<br>APD1486DN-② | APD1126N-②<br>APD1246N-②<br>APD1486N-② |
| Full Voltage Dome<br> | —                             | APD199DN-②-③                              | APD199N-②-③                            |



1. In place of ②, specify the Lens/LED Color Code.

2. In place of ③, specify the Full Voltage Code (lamp voltage).

## ② Lens Color Code

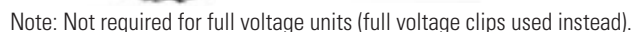
| Color  | Code |
|--------|------|
| Amber  | A    |
| Green  | G    |
| Red    | R    |
| Blue   | S    |
| White  | W    |
| Yellow | Y    |

## ③ Full Voltage Code

| Voltage            | Code |
|--------------------|------|
| 6V AC/DC           | 6V   |
| 12V AC/DC          | 12V  |
| 24V AC/DC          | 24V  |
| 120V AC            | 120V |
| 240V AC (LED only) | 240V |

## A4

## Switches & Pilot Devices



 The lens, lamp, and transformer/adaptor or the full voltage clips must be ordered separately.

 1. In place of ②, specify the Lens Color Code.  
2. LED and incandescent lenses differ in shade only. Some colors have only one shade.



1. In place of ②, specify the LED color code.
2. The LED contains a current-limiting resistor and a protection diode.

 Required for all full voltage models. Two pieces each.

 6V secondary voltage (use 6V lamp).

| Color  | Code |
|--------|------|
| Amber  | A    |
| Green  | G    |
| Red    | R    |
| Blue   | S    |
| White  | W    |
| Yellow | Y    |

Illuminated Pushbuttons (Assembled)

A4  
Switches & Pilot Devices



Assembled Illuminated Pushbuttons

A L ( ) D 2 126 11 (D) N - R - ( )

Function

L: Momentary Action  
OL: Alternate Action

Bezel Shape

Blank: Octagonal  
F: Full Shroud

Series Designation

D: TWTD Series

Lens Shape

2: Extended  
3: Mushroom Ø 40mm

Rated Operational Voltage (Primary)

Transformer Full Voltage Type  
126:120V AC 99:Full Voltage  
246:240V AC  
486:480V AC

Lamp Voltage  
(Full Voltage Only)

6V: 6V AC/DC  
12V: 12V AC/DC  
24V: 24V AC/DC  
120V:120V AC  
240V: 240V AC (LED only)

Lens Color Code

A: Amber  
G: Green  
R: Red  
S: Blue  
W: White  
Y: Yellow

Lamp Type

Blank: Incandescent Lamp  
D: LED

Contact Arrangement

20: 2NO 02: 2NC  
11: 1NO-1NC



1. Use only when interpreting part numbers. Do not use for developing part numbers.
2. All transformers and AC Adaptors step down to 6V.

## **Illuminated Pushbuttons (Assembled) con't**

### **Part numbers: Illuminated Pushbuttons**

| Style                                                                                                               |              | Contacts              | Part Number                                           |                                                          |
|---------------------------------------------------------------------------------------------------------------------|--------------|-----------------------|-------------------------------------------------------|----------------------------------------------------------|
|                                                                                                                     |              |                       | Momentary                                             | Maintained                                               |
| Extended Lens<br>                  | Full Voltage | 1NO-1NC<br>2NO<br>2NC | ALD29911⑤N-②-③<br>ALD29920⑤N-②-③<br>ALD29902⑤N-②-③    | AOLD29911⑤N-②-③<br>AOLD29920⑤N-②-③<br>AOLD29902⑤N-②-③    |
|                                                                                                                     | Transformer  | 1NO-1NC<br>2NO<br>2NC | ALD2 ④ 11⑤N-②<br>ALD2 ④ 20⑤N-②<br>ALD2 ④ 02⑤N-②       | AOLD2 ④ 11⑤N-②<br>AOLD2 ④ 20⑤N-②<br>AOLD2 ④ 02⑤N-②       |
| Extended Lens with Full Shroud<br> | Full Voltage | 1NO-1NC<br>2NO<br>2NC | ALFD29911⑤N-②-③<br>ALFD29920⑤N-②-③<br>ALFD29902⑤N-②-③ | AOLFD29911⑤N-②-③<br>AOLFD29920⑤N-②-③<br>AOLFD29902⑤N-②-③ |
|                                                                                                                     | Transformer  | 1NO-1NC<br>2NO<br>2NC | ALFD2 ④ 11⑤N-②<br>ALFD2 ④ 20⑤N-②<br>ALFD2 ④ 02⑤N-②    | AOLFD2 ④ 11⑤N-②<br>AOLFD2 ④ 20⑤N-②<br>AOLFD2 ④ 02⑤N-②    |
| Ø 40mm Mushroom Lens<br>           | Full Voltage | 1NO-1NC<br>2NO<br>2NC | ALD39911⑤N-②-③<br>ALD39920⑤N-②-③<br>ALD39902⑤N-②-③    | AOLD39911⑤N-②-③<br>AOLD39920⑤N-②-③<br>AOLD39902⑤N-②-③    |
|                                                                                                                     | Transformer  | 1NO-1NC<br>2NO<br>2NC | ALD3 ④ 11⑤N-②<br>ALD3 ④ 20⑤N-②<br>ALD3 ④ 02⑤N-②       | AOLD3 ④ 11⑤N-②<br>AOLD3 ④ 20⑤N-②<br>AOLD3 ④ 02⑤N-②       |



1. In place of ②, specify the Lens Color Code.
2. In place of ③, specify the Full Voltage Code (lamp voltage).
3. In place of ④, specify the Transformer Voltage Code.
4. In place of ⑤, specify the Lamp Type Code.

#### **② Lens Color Codes**

| Color  | Code |
|--------|------|
| Amber  | A    |
| Green  | G    |
| Red    | R    |
| Blue   | S    |
| White  | W    |
| Yellow | Y    |

#### **③ Full Voltage Codes**

| Voltage            | Code  |
|--------------------|-------|
| 6V AC/DC           | 6V    |
| 12V AC/DC          | 12V   |
| 24V AC/DC          | 24V   |
| 120V AC            | 120V  |
| 240V AC (LED only) | 240 V |

#### **④ Transformer Voltage Codes**

| Voltage | Code |
|---------|------|
| 120VAC  | 126  |
| 240VAC  | 246  |
| 480VAC  | 486  |



6V secondary voltage  
(uses 6V lamp).

#### **⑤ Lamp Type Code**

| Lamp         | Code  |
|--------------|-------|
| Incandescent | Blank |
| LED          | D     |

## Illuminated Pushbuttons (Sub-Assembled)

Transformer\* + Contact Block + Operator + Lamp + Lens = Complete Part

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Switches & Pilot Devices



\* Not required for full voltage types (full voltage types use APD-F full voltage clips).

### Part Numbers: Operators

| Style                                                                               | Part Number |            |
|-------------------------------------------------------------------------------------|-------------|------------|
|                                                                                     | Momentary   | Maintained |
| Extended                                                                            |             |            |
|    | ALD-0600    | AOLD-0600  |
| Extended with Full Shroud                                                           |             |            |
|    | ALFD-0600   | AOLFD-0600 |
| 40mm Mushroom                                                                       |             |            |
|  | ALD-0600    | AOLD-0600  |

### Part Numbers: Lenses

| Style           | Part No.  |
|-----------------|-----------|
| Extended        | ALN06LU-② |
| Ø 40mm Mushroom | ALN3LU-②  |



1. In place of ②, specify the Lens Color Code.
2. LED and incandescent lenses differ in shade only. Some colors have only one shade.

### Part Numbers: Full Voltage Clips

| Primary Voltage (50/60Hz)                  | Part Number |
|--------------------------------------------|-------------|
| Full Voltage Clips (2 req'd for each unit) | APD-F       |



Required for all full voltage models.

### Part Numbers: Lamps

| Type         | Voltage   | Part Number |
|--------------|-----------|-------------|
| LED          | 6V AC/DC  | LSTD-6②     |
|              | 12V AC/DC | LSTD-1②     |
|              | 24V AC/DC | LSTD-2②     |
|              | 120V AC   | LSTD-H2②    |
|              | 240V AC   | LSTD-M4②    |
| Incandescent | 6V AC/DC  | IS-6        |
|              | 12V AC/DC | IS-12       |
|              | 24V AC/DC | IS-24       |
|              | 120VAC    | L-120L      |



1. In place of ②, specify the LED Color code.
2. The LED contains a current-limiting resistor and a protection diode.

### ② Lens/LED Color Codes

| Color  | Code |
|--------|------|
| Amber  | A    |
| Green  | G    |
| Red    | R    |
| Blue   | S    |
| White  | W    |
| Yellow | Y    |



Mushroom lens not available in yellow.

### Part Numbers: Contact Blocks

| Description                                                                         | Part Number           |                       |
|-------------------------------------------------------------------------------------|-----------------------|-----------------------|
| All Control Units                                                                   | 1NO                   | 1NC                   |
|  | BST-010               | BST-001               |
|                                                                                     | BST-010S (early make) | BST-001S (late break) |
|                                                                                     |                       |                       |
| Dummy Blocks                                                                        | BST-D                 |                       |



1. Dummy blocks (no contacts) are used with an odd number of contact blocks.
2. Combining BST-010S and BST-001S result in overlapping contacts (remain on, or closed, when switch is moved between two positions).

### Part Numbers: Transformers

| Description  | Primary Voltage (50/60Hz) | Part Number |
|--------------|---------------------------|-------------|
| Transformers | 120V AC                   | TWD-0126    |
|              | 240V AC                   | TWD-0246    |
|              | 480V AC                   | TWD-0486    |



6V secondary voltage (uses 6V lamp).

Non-Illuminated Selector Switches (Assembled)



A4

Switches & Pilot Devices

**Assembled Selector Switches**

A S D 2 ( ) ( ) 11 N - ( )

**Function**

S: Selector Switch

**Series Designation**

D: TWTD Series

**Number of Positions**

2: 2-Position  
3: 3-Position

**Spring Return Action**

Blank: Maintained  
1: Spring return from Right  
2: Spring return from Left  
3: 2-Way spring return from Left and Right

**Circuit Number**

(See Circuit # column of Selector Switch Contact Arrangement Chart on beginning on A4-185.)

**Contact Arrangement Code**

10: 1NO      01: 1NC  
20: 2NO      02: 2NC  
40: 4NO      04: 4NC  
11: 1NO-1NC    22: 2NO-2NC

**Operator Style Code**

Blank: Knob Operator  
L: Lever Operator  
K: Key Operator

 Use only when interpreting part numbers. Do not use for developing part numbers.

## Non-Illuminated Selector Switches (Assembled) con't

### Part numbers: Non-Illuminated 2-Position Selector Switches

| Style      | Contact          | Mounting | Operator Position |                  |                      | Part Number                                 | Part Number                                    | Part Number                                  |
|------------|------------------|----------|-------------------|------------------|----------------------|---------------------------------------------|------------------------------------------------|----------------------------------------------|
|            |                  |          | L                 | R                |                      | Maintained                                  | Spring Return from Right                       | Spring Return from Left                      |
|            |                  |          |                   |                  |                      |                                             |                                                |                                              |
| 1NO        | 1                | 2        | O                 | X                | Knob<br>Lever<br>Key | ASD210N<br>ASD2L10N<br>ASD2K10N             | ASD2110N<br>ASD2L110N<br>ASD2K110N             | ASD2210N<br>ASD2L110N<br>ASD2K110N           |
| 1NC        | 1                | 2        | X                 | O                | Knob<br>Lever<br>Key | ASD201N-116<br>ASD2L01N-116<br>ASD2K01N-116 | ASD2101N-116<br>ASD2L01N-116<br>ASD2K01N-116   | ASD2201N-116<br>ASD2L01N-116<br>ASD2K01N-116 |
| 1NO<br>1NC | 1                | 2        | O<br>X            | X<br>O           | Knob<br>Lever<br>Key | ASD211N<br>ASD2L11N<br>ASD2K11N             | ASD2111N<br>ASD2L11N<br>ASD2K11N               | ASD2211N<br>ASD2L11N<br>ASD2K11N             |
| 2NO        | 1                | 2        | O                 | X                | Knob<br>Lever<br>Key | ASD220N<br>ASD2L20N<br>ASD2K20N             | ASD2120N<br>ASD2L120N<br>ASD2K120N             | ASD2220N<br>ASD2L20N<br>ASD2K20N             |
| 2NC        | 1                | 2        | X                 | O                | Knob<br>Lever<br>Key | ASD202N-104<br>ASD2L02N-104<br>ASD2K02N-104 | ASD2102N-104<br>ASD2L02N-104<br>ASD2K02N-104   | ASD2202N-104<br>ASD2L02N-104<br>ASD2K02N-104 |
| 2NO<br>2NC | 1<br>2<br>3<br>4 |          | O<br>X<br>O<br>X  | X<br>O<br>X<br>O | Knob<br>Lever<br>Key | ASD222N<br>ASD2L22N<br>ASD2K22N             | ASD2122N<br>ASD2L122N<br>ASD2K122N             | ASD2222N<br>ASD2L22N<br>ASD2K22N             |
| 2NO<br>2NC | 1<br>2<br>3<br>4 |          | O<br>O<br>X<br>X  | X<br>X<br>O<br>O | Knob<br>Lever<br>Key | ASD222N-111<br>ASD2L22N-111<br>ASD2K22N-111 | ASD2122N-111<br>ASD2L122N-111<br>ASD2K122N-111 | ASD2222N-111<br>ASD2L22N-111<br>ASD2K22N-111 |

### Part Numbers: Non-Illuminated 3-Position Selector Switches

| Style      | Contact          | Mounting | Operator Position |                  |                  |                      | Part Number                                 | Part Number                                    | Part Number                                  | Part Number                                  |
|------------|------------------|----------|-------------------|------------------|------------------|----------------------|---------------------------------------------|------------------------------------------------|----------------------------------------------|----------------------------------------------|
|            |                  |          | L                 | C                | R                |                      | Maintained                                  | Spring Return from Right                       | Spring Return From Left                      | Spring Return Two-Way                        |
|            |                  |          |                   |                  |                  |                      |                                             |                                                |                                              |                                              |
| 2NO        | 1                | 2        | X                 | O                | O                | Knob<br>Lever<br>Key | ASD320N<br>ASD3L20N<br>ASD3K20N             | ASD3120N<br>ASD3L120N<br>ASD3K120N             | ASD3220N<br>ASD3L20N<br>ASD3K20N             | ASD3320N<br>ASD3L20N<br>ASD3K20N             |
| 2NC        | 1                | 2        | O                 | X                | X                | Knob<br>Lever<br>Key | ASD302N<br>ASD3L02N<br>ASD3K02N             | ASD3102N<br>ASD3L02N<br>ASD3K02N               | ASD3202N<br>ASD3L02N<br>ASD3K02N             | ASD3302N<br>ASD3L02N<br>ASD3K02N             |
| 2NO<br>2NC | 1<br>2<br>3<br>4 |          | X<br>O<br>O<br>X  | O<br>X<br>X<br>O | X<br>O<br>X<br>O | Knob<br>Lever<br>Key | ASD322N<br>ASD3L22N<br>ASD3K22N             | ASD3122N<br>ASD3L122N<br>ASD3K122N             | ASD3222N<br>ASD3L22N<br>ASD3K22N             | ASD3322N<br>ASD3L22N<br>ASD3K22N             |
| 2NO<br>2NC | 1<br>2<br>3<br>4 |          | X<br>O<br>O<br>O  | O<br>X<br>X<br>O | X<br>O<br>O<br>X | Knob<br>Lever<br>Key | ASD322N-309<br>ASD3L22N-309<br>ASD3K22N-309 | ASD3122N-309<br>ASD3L122N-309<br>ASD3K122N-309 | ASD3222N-309<br>ASD3L22N-309<br>ASD3K22N-309 | ASD3322N-309<br>ASD3L22N-309<br>ASD3K22N-309 |
| 2NO<br>2NC | 1<br>2<br>3<br>4 |          | O<br>O<br>O<br>O  | X<br>O<br>X<br>O | O<br>X<br>O<br>X | Knob<br>Lever<br>Key | ASD322N-310<br>ASD3L22N-310<br>ASD3K22N-310 | ASD3122N-310<br>ASD3L122N-310<br>ASD3K122N-310 | ASD3222N-310<br>ASD3L22N-310<br>ASD3K22N-310 | ASD3322N-310<br>ASD3L22N-310<br>ASD3K22N-310 |
| 4NO        | 1<br>2<br>3<br>4 |          | X<br>O<br>X<br>O  | O<br>O<br>O<br>O | O<br>X<br>O<br>X | Knob<br>Lever<br>Key | ASD340N<br>ASD3L40N<br>ASD3K40N             | ASD3140N<br>ASD3L140N<br>ASD3K140N             | ASD3240N<br>ASD3L40N<br>ASD3K40N             | ASD3340N<br>ASD3L40N<br>ASD3K40N             |
| 4NC        | 1<br>2<br>3<br>4 |          | O<br>X<br>O<br>X  | X<br>X<br>X<br>X | X<br>O<br>X<br>O | Knob<br>Lever<br>Key | ASD304N<br>ASD3L04N<br>ASD3K04N             | ASD3104N<br>ASD3L104N<br>ASD3K104N             | ASD3204N<br>ASD3L04N<br>ASD3K04N             | ASD3304N<br>ASD3L04N<br>ASD3K04N             |



1. The truth table indicates the operating position of contact block when the operator is switched to that position.

X = On (closed contacts) O = Off (open contacts)

X—X = Overlapping Contacts: Remain on (closed contacts) when switch is moved between these two positions.

2. All knob and lever selector switches come in black. Other colors are available by ordering the knob or lever separately.

3. Custom contact arrangements available, see page A4-185 or call IDEC for details.

### Non-Illuminated Selector Switches (Sub-Assembled)



1. \* Not needed with key type switches.
2. † Knob type shown.

## Part Numbers: Operators

# Part Numbers: Operators

| Appearance/<br>Position                                                                           |   | Description                                                   | Part<br>Number                   |
|---------------------------------------------------------------------------------------------------|---|---------------------------------------------------------------|----------------------------------|
| <br>Knob & Lever | 2 | Maintained                                                    | ASD200                           |
|                                                                                                   | 2 | Spring-Ret. from Right                                        | ASD2100                          |
|                                                                                                   |   | Spring-Ret. from Left                                         | ASD2200                          |
|                                                                                                   | 3 | Maintained, Cam 1<br>Maintained, Cam 2                        | ASD300-1<br>ASD300-2             |
|                                                                                                   | 3 | Spring-Ret. from Right, Cam1<br>Spring-Ret. from Right, Cam 2 | ASD3100-1<br>ASD3100-2           |
|                                                                                                   |   | Spring-Ret. from Left, Cam 1<br>Spring-Ret. from Left, Cam 2  | ASD3200-1<br>ASD3200-2           |
| Spring-Ret. from L/R, Cam 1<br>Spring-Ret. from L/R, Cam 2                                        |   | ASD3300-1<br>ASD3300-2                                        |                                  |
| <br>Key        | 2 | Maintained                                                    | ASD2K00-RA                       |
|                                                                                                   | 2 | Spring-Ret. from Right                                        | ASD21K00-RL                      |
|                                                                                                   |   | Spring-Ret. from Left                                         | ASD22K00                         |
|                                                                                                   | 3 | Maintained, Cam 1<br>Maintained, Cam 2                        | ASD3K00-1-RA<br>ASD3K00-2-RA     |
|                                                                                                   | 3 | Spring-Ret. from Right, Cam1<br>Spring-Ret. from Right, Cam 2 | ASD31K00-1-RLC<br>ASD31K00-2-RLC |
|                                                                                                   |   | Spring-Ret. from Left, Cam 1<br>Spring-Ret. from Left, Cam 2  | ASD32K00-1-RRR<br>ASD32K00-2-RRR |
| Spring-Ret. from L/R, Cam 1<br>Spring-Ret. from L/R, Cam 2                                        |   | ASD33K00-1-RC<br>ASD33K00-2-RC                                |                                  |



1. Order knobs, levers, color inserts separately (see below).
2. For key switches, keys are removable in all maintained positions. Other options available, contact IDEC for details.
3. See page A4-187 "Operator Truth Tables" for details of differences between cams.

### ① Color Codes

| Knob/Lever Color | Code |
|------------------|------|
| Black            | B    |
| Blue             | S    |
| Green            | G    |
| Red              | R    |
| Yellow           | Y    |
| White            | W    |



1. Knob/Lever not available in white.
2. Color inserts not available in Black.

### Part Numbers: Handles and Inserts

| Style                                                                                                | Part Number |
|------------------------------------------------------------------------------------------------------|-------------|
| Knob<br>           | ASDHHY - ①  |
| Lever<br>         | ASDHHL - ①  |
| Color Insert<br> | TW-HC1 - ①  |



*In place of ①, specify the Color Code.*

### Part Numbers: Contact Blocks

| Style                                                                                | Part Number                      |                                  |
|--------------------------------------------------------------------------------------|----------------------------------|----------------------------------|
|                                                                                      | 1NO                              | 1NC                              |
|  | BST-010<br>BST-010S (early make) | BST-001<br>BST-001S (late break) |
| Dummy Blocks                                                                         | BST-D                            |                                  |



1. Dummy blocks (no contacts) are used with an odd number of contact blocks.
2. Combining BST-010S and BST-001S result in overlapping contacts (remain on, or closed, when switch is moved between two positions).

Illuminated Selector Switches (Assembled)

A4

Switches & Pilot Devices



Assembled Illuminated Selector Switches

A SL D 2 (2) 126 11 D N - 111 - R - 24

Function

SL: Illuminated Selector Switch

Series Designation

D: TWTD Series

Number of Positions

2: 2-Position

3: 3-Position

Spring Return Action

Blank: Maintained

1: Spring return from Right

2: Spring return from Left

3: 2-Way spring return from Left and Right

Rated Operational Voltage (Primary)

Transformer

126:120V AC

246:240V AC

486:480V AC

Full Voltage Type

99: Full Voltage

Contact Arrangement

20: 2NO

02: 2NC

40: 4NO

04: 4NC

11: 1NO-1NC

22: 2NO-2NC

Lamp Voltage

(Full Voltage Only)

6V: 6V AC/DC

12V:12V AC/DC

24V:24V AC/DC

120V:120V AC

240V: 240V AC (LED only)

Lens Color Code

A: Amber

G: Green

R: Red

S: Blue

W: White

Y: Yellow

Circuit Code Number

See Circuit # column of Selector Switch Contact Arrangement Charts on page A4-185.

Lamp Type

Blank: Incandescent

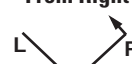
D: LED



Use only when interpreting part numbers. Do not use for developing part numbers.

## **Illuminated Selector Switches (Assembled) con't**

### **Part Numbers: Illuminated 2-Position Selector Switches**

| Style              |          | Operator Position |   |                          | Maintained<br> | Spring Return From Right<br> | Spring Return From Left<br> |
|--------------------|----------|-------------------|---|--------------------------|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| Contact            | Mounting | L                 | R |                          |                                                                                                 |                                                                                                               |                                                                                                               |
| <b>1NO<br/>1NC</b> | 1        | O                 | X | transformer full voltage | ASLD2 ④11⑤N-②<br>ASLD29911⑤N-②-③                                                                | ASLD21 ④11⑤N-②<br>ASLD219911⑤N-②-③                                                                            | ASLD22 ④11⑤N-②<br>ASLD229911⑤N-②-③                                                                            |
|                    | 2        | X                 | O |                          |                                                                                                 |                                                                                                               |                                                                                                               |
| <b>2NO<br/>2NC</b> | 1        | O                 | X | transformer full voltage | ASLD2 ④20⑤N-②<br>ASLD29920⑤N-②-③                                                                | ASLD21 ④20⑤N-②<br>ASLD219920⑤N-②-③                                                                            | ASLD22 ④20⑤N-②<br>ASLD229920⑤N-②-③                                                                            |
|                    | 2        | O                 | X |                          |                                                                                                 |                                                                                                               |                                                                                                               |
| <b>2NC</b>         | 1        | X                 | O | transformer full voltage | ASLD2 ④02⑤N-104-②<br>ASLD29902⑤N-104-②-③                                                        | ASLD21 ④02⑤N-104-②<br>ASLD219902⑤N-104-②-③                                                                    | ASLD22 ④02⑤N-104-②<br>ASLD229902⑤N-104-②-③                                                                    |
|                    | 2        | X                 | O |                          |                                                                                                 |                                                                                                               |                                                                                                               |
| <b>2NO<br/>2NC</b> | 1        | O                 | X | transformer full voltage | ASLD2 ④22⑤N-②<br>ASLD29922⑤N-②-③                                                                | ASLD21 ④22⑤N-②<br>ASLD219922⑤N-②-③                                                                            | ASLD22 ④22⑤N-②<br>ASLD229922⑤N-②-③                                                                            |
|                    | 2        | X                 | O |                          |                                                                                                 |                                                                                                               |                                                                                                               |
|                    | 3        | O                 | X |                          |                                                                                                 |                                                                                                               |                                                                                                               |
|                    | 4        | X                 | O |                          |                                                                                                 |                                                                                                               |                                                                                                               |
| <b>2NO<br/>2NC</b> | 1        | O                 | X | transformer full voltage | ASLD2 ④22⑤N-11-②<br>ASLD29922⑤N-11-②-③                                                          | ASLD21 ④22⑤N-11-②<br>ASLD219922⑤N-11-②-③                                                                      | ASLD22 ④22⑤N-11-②<br>ASLD229922⑤N-11-②-③                                                                      |
|                    | 2        | O                 | X |                          |                                                                                                 |                                                                                                               |                                                                                                               |
|                    | 3        | X                 | O |                          |                                                                                                 |                                                                                                               |                                                                                                               |
|                    | 4        | X                 | O |                          |                                                                                                 |                                                                                                               |                                                                                                               |

### **② Lens/LED Color Codes**

| Color  | Code |
|--------|------|
| Amber  | A    |
| Green  | G    |
| Red    | R    |
| Blue   | S    |
| White  | W    |
| Yellow | Y    |

### **③ Full Voltage Codes**

| Voltage            | Code |
|--------------------|------|
| 6V AC/DC           | 6V   |
| 12V AC/DC          | 12V  |
| 24V AC/DC          | 24V  |
| 120V AC            | 120V |
| 240V AC (LED only) | 240V |

### **④ Transformer Voltage Codes**

| Voltage | Code |
|---------|------|
| 120VAC  | 126  |
| 240VAC  | 246  |
| 480VAC  | 486  |

### **⑤ Lamp Type Code**

| Lamp         | Code  |
|--------------|-------|
| Incandescent | Blank |
| LED          | D     |

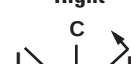


6V secondary voltage  
(uses 6V lamps).

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**Switches & Pilot Devices**

### **Part Numbers: Illuminated 3-Position Selector Switches**

| Style              |          | Operator Position |   |   |                          | Maintained<br> | Spring Return From Right<br> | Spring Return From Left<br> | Spring Return Two-Way<br> |
|--------------------|----------|-------------------|---|---|--------------------------|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Contact            | Mounting | L                 | C | R |                          |                                                                                                   |                                                                                                                 |                                                                                                                  |                                                                                                                |
| <b>2NO</b>         | 1        | X                 | O | O | transformer full voltage | ASLD3 ④ 20⑤N-②<br>ASLD39920⑤N-②-③                                                                 | ASLD31 ④ 20⑤N-②<br>ASLD319920⑤N-②-③                                                                             | ASLD32 ④ 20⑤N-②<br>ASLD329920⑤N-②-③                                                                              | ASLD33 ④ 20⑤N-②<br>ASLD339920⑤N-②-③                                                                            |
|                    | 2        | O                 | O | X |                          |                                                                                                   |                                                                                                                 |                                                                                                                  |                                                                                                                |
| <b>2NC</b>         | 1        | O                 | X | X | transformer full voltage | ASLD3 ④ 02⑤N-②<br>ASLD39902⑤N-②-③                                                                 | ASLD31 ④ 02⑤N-②<br>ASLD319902⑤N-②-③                                                                             | ASLD32 ④ 02⑤N-②<br>ASLD329902⑤N-②-③                                                                              | ASLD33 ④ 02⑤N-②<br>ASLD339902⑤N-②-③                                                                            |
|                    | 2        | X                 | X | O |                          |                                                                                                   |                                                                                                                 |                                                                                                                  |                                                                                                                |
| <b>2NO<br/>2NC</b> | 1        | X                 | O | O | transformer full voltage | ASLD3 ④ 22⑤N-②<br>ASLD39922⑤N-②-③                                                                 | ASLD31 ④ 22⑤N-②<br>ASLD319922⑤N-②-③                                                                             | ASLD32 ④ 22⑤N-②<br>ASLD329922⑤N-②-③                                                                              | ASLD33 ④ 22⑤N-②<br>ASLD339922⑤N-②-③                                                                            |
|                    | 2        | O                 | O | X |                          |                                                                                                   |                                                                                                                 |                                                                                                                  |                                                                                                                |
|                    | 3        | O                 | X | X |                          |                                                                                                   |                                                                                                                 |                                                                                                                  |                                                                                                                |
|                    | 4        | X                 | X | O |                          |                                                                                                   |                                                                                                                 |                                                                                                                  |                                                                                                                |
| <b>2NO<br/>2NC</b> | 1        | X                 | O | X | transformer full voltage | ASLD3 ④ 22⑤N-309-②<br>ASLD39922⑤N-309-②-③                                                         | ASLD31 ④ 22⑤N-309-②<br>ASLD319922⑤N-309-②-③                                                                     | ASLD32 ④ 22⑤N-309-②<br>ASLD329922⑤N-309-②-③                                                                      | ASLD33 ④ 22⑤N-309-②<br>ASLD339922⑤N-309-②-③                                                                    |
|                    | 2        | X                 | X | O |                          |                                                                                                   |                                                                                                                 |                                                                                                                  |                                                                                                                |
|                    | 3        | O                 | X | O |                          |                                                                                                   |                                                                                                                 |                                                                                                                  |                                                                                                                |
|                    | 4        | O                 | O | X |                          |                                                                                                   |                                                                                                                 |                                                                                                                  |                                                                                                                |
| <b>2NO<br/>2NC</b> | 1        | O                 | X | O | transformer full voltage | ASLD3 ④ 22⑤N-310-②<br>ASLD39922⑤N-310-②-③                                                         | ASLD31 ④ 22⑤N-310-②<br>ASLD319922⑤N-310-②-③                                                                     | ASLD32 ④ 22⑤N-310-②<br>ASLD329922⑤N-310-②-③                                                                      | ASLD33 ④ 22⑤N-310-②<br>ASLD339922⑤N-310-②-③                                                                    |
|                    | 2        | O                 | O | X |                          |                                                                                                   |                                                                                                                 |                                                                                                                  |                                                                                                                |
|                    | 3        | O                 | X | O |                          |                                                                                                   |                                                                                                                 |                                                                                                                  |                                                                                                                |
|                    | 4        | O                 | O | X |                          |                                                                                                   |                                                                                                                 |                                                                                                                  |                                                                                                                |
| <b>4NO</b>         | 1        | X                 | O | O | transformer full voltage | ASLD3 ④ 40⑤N-②<br>ASLD39940⑤N-②-③                                                                 | ASLD31 ④ 40⑤N-②<br>ASLD319940⑤N-②-③                                                                             | ASLD32 ④ 40⑤N-②<br>ASLD329940⑤N-②-③                                                                              | ASLD33 ④ 40⑤N-②<br>ASLD339940⑤N-②-③                                                                            |
|                    | 2        | O                 | O | X |                          |                                                                                                   |                                                                                                                 |                                                                                                                  |                                                                                                                |
|                    | 3        | X                 | O | O |                          |                                                                                                   |                                                                                                                 |                                                                                                                  |                                                                                                                |
|                    | 4        | O                 | O | X |                          |                                                                                                   |                                                                                                                 |                                                                                                                  |                                                                                                                |
| <b>4NC</b>         | 1        | O                 | X | X | transformer full voltage | ASLD3 ④ 04⑤N-②<br>ASLD39904⑤N-②-③                                                                 | ASLD31 ④ 04⑤N-②<br>ASLD319904⑤N-②-③                                                                             | ASLD32 ④ 04⑤N-②<br>ASLD329904⑤N-②-③                                                                              | ASLD33 ④ 04⑤N-②<br>ASLD339904⑤N-②-③                                                                            |
|                    | 2        | X                 | X | O |                          |                                                                                                   |                                                                                                                 |                                                                                                                  |                                                                                                                |
|                    | 3        | O                 | X | X |                          |                                                                                                   |                                                                                                                 |                                                                                                                  |                                                                                                                |
|                    | 4        | X                 | X | O |                          |                                                                                                   |                                                                                                                 |                                                                                                                  |                                                                                                                |



1. In place of ②, specify the Lens/LED Color Code, in place of ③, specify the Full Voltage (lamp voltage) Code, in place of ④, specify the Transformer Voltage Code and in place of ⑤ specify the Lamp Type Code.

2. The truth table indicates the operating position of contact block when the operator is switched to that position.

X = On (Closed Contacts) O = Off (Open Contacts)

—X—X— = Overlapping Contacts: Remain on (closed contacts) when switch is moved between these positions

## Illuminated Selector Switches (Sub-Assembled)

Transformer\* + Contact Block + Operator + Lamp + Lense = Complete Part



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Switches & Pilot Devices



\*Not required for full voltage units (use APD-F full voltage clips instead).

### Part Numbers: Operators

| Appearance/<br>Positions                                                          |   | Description                   | Part Number |
|-----------------------------------------------------------------------------------|---|-------------------------------|-------------|
|  | 2 | Maintained                    | ASLD200     |
|                                                                                   | 3 | Maintained, Cam 1             | ASLD300-1   |
|                                                                                   |   | Maintained, Cam 2             | ASLD300-2   |
|                                                                                   | 2 | Spring-Ret. from Right        | ASLD2100    |
|                                                                                   |   | Spring-Ret. from Left         | ASLD2200    |
|                                                                                   |   | Spring-Ret. from Right, Cam 1 | ASLD3100-1  |
|                                                                                   |   | Spring-Ret. from Right, Cam 2 | ASLD3100-2  |
|                                                                                   | 3 | Spring-Ret. from Left, Cam 1  | ASLD3200-1  |
|                                                                                   |   | Spring-Ret. from Left, Cam 2  | ASLD3200-2  |
|                                                                                   |   | Spring-Ret. from L/R, Cam 1   | ASLD3300-1  |
|                                                                                   |   | Spring-Ret. from L/R, Cam 2   | ASLD3300-2  |

### Part Numbers: Lenses

| Style                                                                                   | Part Number |
|-----------------------------------------------------------------------------------------|-------------|
| Knob  | ASLNHU - ①  |

### Part Numbers: Lamps

| Type                                                                                | Voltage    | Part Number |
|-------------------------------------------------------------------------------------|------------|-------------|
|  | 6V AC/DC   | LSTD-6②     |
|                                                                                     | 12V AC/DC  | LSTD-1②     |
|                                                                                     | 24V AC/DC  | LSTD-2②     |
|                                                                                     | 120V AC    | LSTD-H2②    |
|                                                                                     | 240V AC    | LSTD-M4②    |
|  | 6.3V AC/DC | IS-6        |
|                                                                                     | 12V AC/DC  | IS-12       |
|                                                                                     | 24V AC/DC  | IS-24       |
|                                                                                     | 120VAC     | L-120L      |



1. In place of ②, specify the LED color code.
2. The LED contains a current-limiting resistor and a protection diode.

### Contact Blocks

| Description                                                                        | Part Number           |                       |
|------------------------------------------------------------------------------------|-----------------------|-----------------------|
|                                                                                    | 1NO                   | 1NC                   |
|  | BST-010               | BST-001               |
|                                                                                    | BST-010S (early make) | BST-001S (late break) |
|                                                                                    | Dummy Blocks          | BST-D                 |



1. Dummy blocks (no contacts) are used with an odd number of contact blocks.
2. Combining BST-010S and BST-001S result in overlapping contacts (make before break).

### Part Numbers: Full Voltage Clips

| Primary Voltage (50/60Hz)                     | Part Number |
|-----------------------------------------------|-------------|
| Full Voltage Clips<br>(2 req'd for each unit) | APD-F       |

### Part Numbers: Transformers

| Description                                                                          | Primary Voltage (50/60Hz) | Part Number |
|--------------------------------------------------------------------------------------|---------------------------|-------------|
|  | 120V AC                   | TWD-0126    |
|                                                                                      | 240V AC                   | TWD-0246    |
|                                                                                      | 480V AC                   | TWD-0486    |



6V secondary voltage

### ② Lens/LED Color Codes

| Color  | Code |
|--------|------|
| Amber  | A    |
| Green  | G    |
| Red    | R    |
| Blue   | S    |
| White  | W    |
| Yellow | Y    |

## Contact Arrangement Charts

### How to Read Contact Arrangement Charts

To determine contact block mounting position, first make sure the selector switch is oriented as shown on the right

#### Contact Arrangement

Type and quantity of switch contacts

#### Circuit Number

\* N/D = No designation

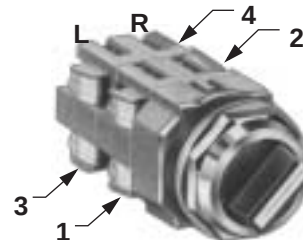
#### Contact Block Mounting

Position or mounting contact blocks on operator

#### Operator Position

Truth table indicates the operating position of contact block when operator is switched to that position.

**X = On (Closed Contacts)**  
**O = Off (Open Contacts)**  
**X-X = Overlapping Contacts: Remain on (closed) when switch is moved between these two positions**



#### Contact Block Part Number

Part number to use when ordering sub-assembly contact blocks, as required for use with corresponding mounting position

**Contact Arrangement Chart: 2-position Selector Switches**

| Style                |                | Mounting Position | Operator Position |   | Contact Block Part Number | Description                     | Operator Part Number |                      |                      |
|----------------------|----------------|-------------------|-------------------|---|---------------------------|---------------------------------|----------------------|----------------------|----------------------|
| Contact              | Circuit Number |                   | L                 | R |                           |                                 | Maintained           | Spring Ret. from Rt. | Spring Ret. from Lt. |
|                      |                |                   | L                 | R |                           |                                 | L                    | R                    | L                    |
| <b>1NO</b>           | <b>N/D</b>     | 1                 | O                 | X | BST-010                   | Knob/Lever Key                  | ASD200               | ASD2100              | ASD2200              |
|                      |                | 2                 | O                 | O | BST-D                     | Illuminated Knob                | ASD2K00              | ASD21K00             | ASD22K00             |
| <b>1NC</b>           | <b>116</b>     | 1                 | X                 | O | BST-001                   | Knob/Lever Key                  | ASD200               | ASD2100              | ASD2200              |
|                      |                | 2                 | O                 | O | BST-D                     | Illuminated Knob                | ASD2K00              | ASD21K00             | ASD22K00             |
| <b>1NO 1NC</b>       | <b>N/D</b>     | 1                 | O                 | X | BST-010                   | Knob/Lever Key                  | ASD200               | ASD2100              | ASD2200              |
|                      |                | 2                 | X                 | O | BST-001                   | Illuminated Knob                | ASD2K00              | ASD21K00             | ASD22K00             |
|                      | <b>103</b>     | 1                 | X                 | O | BST-001                   | Knob/Lever Key                  | ASD200               | ASD2100              | ASD2200              |
|                      |                | 2                 | O                 | X | BST-010                   | Illuminated Knob                | ASD2K00              | ASD21K00             | ASD22K00             |
| <b>1NO-EM 1NC-LB</b> | <b>600</b>     | 1                 | O                 | X | BST-010S                  | Knob/Lever Key                  | ASD200               | ASD2100              | ASD2200              |
|                      |                | 2                 | X                 | O | BST-001S                  | Illuminated Knob                | ASD2K00              | ASD21K00             | ASD22K00             |
|                      | <b>601</b>     | 1                 | X                 | O | BST-001S                  | Knob/Lever Key                  | ASD200               | ASD2100              | ASD2200              |
|                      |                | 2                 | O                 | X | BST-010S                  | Illuminated Knob                | ASD2K00              | ASD21K00             | ASD22K00             |
| <b>2NO</b>           | <b>N/D</b>     | 1                 | O                 | X | BST-010                   | Knob/Lever Key                  | ASD200               | ASD2100              | ASD2200              |
|                      |                | 2                 | O                 | X | BST-010                   | Illuminated Knob                | ASD2K00              | ASD21K00             | ASD22K00             |
| <b>2NC</b>           | <b>104</b>     | 1                 | X                 | O | BST-001                   | Knob/Lever Key                  | ASD200               | ASD2100              | ASD2200              |
|                      |                | 2                 | X                 | O | BST-001                   | Illuminated Knob                | ASD2K00              | ASD21K00             | ASD22K00             |
| <b>2NO 2NC</b>       | <b>N/D</b>     | 1                 | O                 | X | BST-010                   | Knob/Lever Key Illuminated Knob | ASD200               | ASD2100              | ASD2200              |
|                      |                | 2                 | X                 | O | BST-001                   |                                 | ASD2K00              | ASD21K00             | ASD22K00             |
|                      |                | 3                 | O                 | X | BST-010                   |                                 | ASD200               | ASD2100              | ASD2200              |
|                      |                | 4                 | X                 | O | BST-001                   |                                 | ASD2K00              | ASD21K00             | ASD22K00             |
|                      | <b>110</b>     | 1                 | X                 | O | BST-001                   | Knob/Lever Key Illuminated Knob | ASD200               | ASD2100              | ASD2200              |
|                      |                | 2                 | O                 | X | BST-010                   |                                 | ASD2K00              | ASD21K00             | ASD22K00             |
|                      |                | 3                 | X                 | O | BST-001                   |                                 | ASD200               | ASD2100              | ASD2200              |
|                      |                | 4                 | O                 | X | BST-010                   |                                 | ASD2K00              | ASD21K00             | ASD22K00             |
|                      | <b>111</b>     | 1                 | O                 | X | BST-010                   | Knob/Lever Key Illuminated Knob | ASD200               | ASD2100              | ASD2200              |
|                      |                | 2                 | O                 | X | BST-010                   |                                 | ASD2K00              | ASD21K00             | ASD22K00             |
|                      |                | 3                 | X                 | O | BST-001                   |                                 | ASD200               | ASD2100              | ASD2200              |
|                      |                | 4                 | X                 | O | BST-001                   |                                 | ASD2K00              | ASD21K00             | ASD22K00             |
| <b>4NO</b>           | <b>N/D</b>     | 1                 | O                 | X | BST-010                   | Knob/Lever Key Illuminated Knob | ASD200               | ASD2100              | ASD2200              |
|                      |                | 2                 | O                 | X | BST-010                   |                                 | ASD2K00              | ASD21K00             | ASD22K00             |
|                      |                | 3                 | O                 | X | BST-010                   |                                 | ASD200               | ASD2100              | ASD2200              |
|                      |                | 4                 | O                 | X | BST-010                   |                                 | ASD2K00              | ASD21K00             | ASD22K00             |

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Switches &amp; Pilot Devices

## Contact Arrangement Chart: 3-Position Selector Switches

| Style      |                | Mounting Position | Operator Position |       |         | Contact Block Part Number          | Description                        | Operator Part Number                  |                                       |                                       |                                       |
|------------|----------------|-------------------|-------------------|-------|---------|------------------------------------|------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|
| Contact    | Circuit Number |                   |                   |       |         |                                    |                                    | Maintained                            | Spring Ret. from Rt.                  | Spring Ret. from Lt.                  | Two-Way                               |
|            |                |                   | L<br>             | C<br> | R<br>   |                                    |                                    |                                       |                                       |                                       |                                       |
| 1NO<br>1NC | 202            | 1                 | X                 | 0     | 0       | BST-010                            | Knob/Lever Key<br>Illuminated Knob | ASD300-1<br>ASD3K00-1<br>ASLD300-1    | ASD3100-1<br>ASD31K00-1<br>ASLD3100-1 | ASD3200-1<br>ASD32K00-1<br>ASLD3200-1 | ASD3300-1<br>ASD33K00-1<br>ASLD3300-1 |
|            |                | 2                 | X                 | X     | 0       | BST-001                            |                                    |                                       |                                       |                                       |                                       |
|            | 203            | 1                 | 0                 | X     | X       | BST-001                            | Knob/Lever Key<br>Illuminated Knob | ASD300-1<br>ASD3K00-1<br>ASLD300-1    | ASD3100-1<br>ASD31K00-1<br>ASLD3100-1 | ASD3200-1<br>ASD32K00-1<br>ASLD3200-1 | ASD3300-1<br>ASD33K00-1<br>ASLD3300-1 |
|            |                | 2                 | 0                 | 0     | X       | BST-010                            |                                    |                                       |                                       |                                       |                                       |
|            | 302            | 1                 | X                 | 0     | X       | BST-010                            | Knob/Lever Key<br>Illuminated Knob | ASD300-2<br>ASD3K00-2<br>ASLD300-2    | ASD3100-2<br>ASD31K00-2<br>ASLD3100-2 | ASD3200-2<br>ASD32K00-2<br>ASLD3200-2 | ASD3300-2<br>ASD33K00-2<br>ASLD3300-2 |
|            |                | 2                 | X                 | X     | 0       | BST-001                            |                                    |                                       |                                       |                                       |                                       |
|            | 303            | 1                 | 0                 | X     | 0       | BST-001                            | Knob/Lever Key<br>Illuminated Knob | ASD300-2<br>ASD3K00-2<br>ASLD300-2    | ASD3100-2<br>ASD31K00-2<br>ASLD3100-2 | ASD3200-2<br>ASD32K00-2<br>ASLD3200-2 | ASD3300-2<br>ASD33K00-2<br>ASLD3300-2 |
|            |                | 2                 | 0                 | 0     | X       | BST-010                            |                                    |                                       |                                       |                                       |                                       |
| 2NO        | N/D            | 1                 | X                 | 0     | 0       | BST-010                            | Knob/Lever Key<br>Illuminated Knob | ASD300-1<br>ASD3K00-1<br>ASLD300-1    | ASD3100-1<br>ASD31K00-1<br>ASLD3100-1 | ASD3200-1<br>ASD32K00-1<br>ASLD3200-1 | ASD3300-1<br>ASD33K00-1<br>ASLD3300-1 |
|            |                | 2                 | 0                 | 0     | X       | BST-010                            |                                    |                                       |                                       |                                       |                                       |
|            | 301            | 1                 | X                 | 0     | X       | BST-010                            | Knob/Lever Key<br>Illuminated Knob | ASD300-2<br>ASD3K00-2<br>ASLD300-2    | ASD3100-2<br>ASD31K00-2<br>ASLD3100-2 | ASD3200-2<br>ASD32K00-2<br>ASLD3200-2 | ASD3300-2<br>ASD33K00-2<br>ASLD3300-2 |
|            |                | 2                 | 0                 | 0     | X       | BST-010                            |                                    |                                       |                                       |                                       |                                       |
| 2NC        | 304            | 1                 | 0                 | X     | 0       | BST-001                            | Knob/Lever Key<br>Illuminated Knob | ASD300-2<br>ASD3K00-2<br>ASLD300-2    | ASD3100-2<br>ASD31K00-2<br>ASLD3100-2 | ASD3200-2<br>ASD32K00-2<br>ASLD3200-2 | ASD3300-2<br>ASD33K00-2<br>ASLD3300-2 |
|            |                | 2                 | X                 | X     | 0       | BST-001                            |                                    |                                       |                                       |                                       |                                       |
|            | N/D            | 1                 | 0                 | X     | X       | BST-001                            | Knob/Lever Key<br>Illuminated Knob | ASD300-1<br>ASD3K00-1<br>ASLD300-1    | ASD3100-1<br>ASD31K00-1<br>ASLD3100-1 | ASD3200-1<br>ASD32K00-1<br>ASLD3200-1 | ASD3300-1<br>ASD33K00-1<br>ASLD3300-1 |
|            |                | 2                 | X                 | X     | 0       | BST-001                            |                                    |                                       |                                       |                                       |                                       |
| 2NO<br>2NC | N/D            | 1                 | X                 | 0     | 0       | BST-010                            | Knob/Lever Key<br>Illuminated Knob | ASD300-1<br>ASD3K00-1<br>ASLD300-1    | ASD3100-1<br>ASD31K00-1<br>ASLD3100-1 | ASD3200-1<br>ASD32K00-1<br>ASLD3200-1 | ASD3300-1<br>ASD33K00-1<br>ASLD3300-1 |
|            |                | 2                 | 0                 | 0     | X       | BST-010                            |                                    |                                       |                                       |                                       |                                       |
|            |                | 3                 | 0                 | X     | X       | BST-001                            |                                    |                                       |                                       |                                       |                                       |
|            |                | 4                 | X                 | X     | 0       | BST-001                            |                                    |                                       |                                       |                                       |                                       |
|            | 210            | 1                 | 0                 | X     | X       | BST-001                            | Knob/Lever Key<br>Illuminated Knob | ASD300-1<br>ASD3K00-1<br>ASLD300-1    | ASD3100-1<br>ASD31K00-1<br>ASLD3100-1 | ASD3200-1<br>ASD32K00-1<br>ASLD3200-1 | ASD3300-1<br>ASD33K00-1<br>ASLD3300-1 |
|            |                | 2                 | 0                 | 0     | X       | BST-010                            |                                    |                                       |                                       |                                       |                                       |
|            |                | 3                 | 0                 | X     | X       | BST-001                            |                                    |                                       |                                       |                                       |                                       |
|            |                | 4                 | 0                 | 0     | X       | BST-010                            |                                    |                                       |                                       |                                       |                                       |
|            | 308            | 1                 | X                 | 0     | X       | BST-010                            | Knob/Lever Key<br>Illuminated Knob | ASD300-2<br>ASD3K00-2<br>ASLD300-2    | ASD3100-2<br>ASD31K00-2<br>ASLD3100-2 | ASD3200-2<br>ASD32K00-2<br>ASLD3200-2 | ASD3300-2<br>ASD33K00-2<br>ASLD3300-2 |
|            |                | 2                 | X                 | X     | 0       | BST-001                            |                                    |                                       |                                       |                                       |                                       |
|            |                | 3                 | X                 | 0     | X       | BST-010                            |                                    |                                       |                                       |                                       |                                       |
|            |                | 4                 | X                 | X     | 0       | BST-001                            |                                    |                                       |                                       |                                       |                                       |
|            | 309            | 1                 | X                 | 0     | X       | BST-010                            | Knob/Lever Key<br>Illuminated Knob | ASD300-2<br>ASD3K00-2<br>ASLD300-2    | ASD3100-2<br>ASD31K00-2<br>ASLD3100-2 | ASD3200-2<br>ASD32K00-2<br>ASLD3200-2 | ASD3300-2<br>ASD33K00-2<br>ASLD3300-2 |
|            |                | 2                 | X                 | X     | 0       | BST-001                            |                                    |                                       |                                       |                                       |                                       |
|            |                | 3                 | 0                 | X     | 0       | BST-001                            |                                    |                                       |                                       |                                       |                                       |
|            |                | 4                 | 0                 | 0     | X       | BST-010                            |                                    |                                       |                                       |                                       |                                       |
| 310        | 1              | 0                 | X                 | 0     | BST-001 | Knob/Lever Key<br>Illuminated Knob | ASD300-2<br>ASD3K00-2<br>ASLD300-2 | ASD3100-2<br>ASD31K00-2<br>ASLD3100-2 | ASD3200-2<br>ASD32K00-2<br>ASLD3200-2 | ASD3300-2<br>ASD33K00-2<br>ASLD3300-2 |                                       |
|            | 2              | 0                 | 0                 | X     | BST-010 |                                    |                                    |                                       |                                       |                                       |                                       |
|            | 3              | 0                 | X                 | 0     | BST-001 |                                    |                                    |                                       |                                       |                                       |                                       |
|            | 4              | 0                 | 0                 | X     | BST-010 |                                    |                                    |                                       |                                       |                                       |                                       |
| 4NO        | N/D            | 1                 | X                 | 0     | 0       | BST-010                            | Knob/Lever Key<br>Illuminated Knob | ASD300-1<br>ASD3K00-1<br>ASLD300-1    | ASD3100-1<br>ASD31K00-1<br>ASLD3100-1 | ASD3200-1<br>ASD32K00-1<br>ASLD3200-1 | ASD3300-1<br>ASD33K00-1<br>ASLD3300-1 |
|            |                | 2                 | 0                 | 0     | X       | BST-010                            |                                    |                                       |                                       |                                       |                                       |
|            |                | 3                 | X                 | 0     | 0       | BST-010                            |                                    |                                       |                                       |                                       |                                       |
|            |                | 4                 | 0                 | 0     | X       | BST-010                            |                                    |                                       |                                       |                                       |                                       |
|            | 305            | 1                 | X                 | 0     | X       | BST-010                            | Knob/Lever Key<br>Illuminated Knob | ASD300-2<br>ASD3K00-2<br>ASLD300-2    | ASD3100-2<br>ASD31K00-2<br>ASLD3100-2 | ASD3200-2<br>ASD32K00-2<br>ASLD3200-2 | ASD3300-2<br>ASD33K00-2<br>ASLD3300-2 |
|            |                | 2                 | 0                 | 0     | X       | BST-010                            |                                    |                                       |                                       |                                       |                                       |
|            |                | 3                 | X                 | 0     | X       | BST-010                            |                                    |                                       |                                       |                                       |                                       |
|            |                | 4                 | 0                 | 0     | X       | BST-010                            |                                    |                                       |                                       |                                       |                                       |
| 4NC        | N/D            | 1                 | 0                 | X     | X       | BST-001                            | Knob/Lever Key<br>Illuminated Knob | ASD300-1<br>ASD3K00-1<br>ASLD300-1    | ASD3100-1<br>ASD31K00-1<br>ASLD3100-1 | ASD3200-1<br>ASD32K00-1<br>ASLD3200-1 | ASD3300-1<br>ASD33K00-1<br>ASLD3300-1 |
|            |                | 2                 | X                 | X     | 0       | BST-001                            |                                    |                                       |                                       |                                       |                                       |
|            |                | 3                 | 0                 | X     | X       | BST-001                            |                                    |                                       |                                       |                                       |                                       |
|            |                | 4                 | X                 | X     | 0       | BST-001                            |                                    |                                       |                                       |                                       |                                       |
|            | 314            | 1                 | 0                 | X     | 0       | BST-001                            | Knob/Lever Key<br>Illuminated Knob | ASD300-2<br>ASD3K00-2<br>ASLD300-2    | ASD3100-2<br>ASD31K00-2<br>ASLD3100-2 | ASD3200-2<br>ASD32K00-2<br>ASLD3200-2 | ASD3300-2<br>ASD33K00-2<br>ASLD3300-2 |
|            |                | 2                 | X                 | X     | 0       | BST-001                            |                                    |                                       |                                       |                                       |                                       |
|            |                | 3                 | 0                 | X     | 0       | BST-001                            |                                    |                                       |                                       |                                       |                                       |
|            |                | 4                 | X                 | X     | 0       | BST-001                            |                                    |                                       |                                       |                                       |                                       |



- Each operator sub-assembly is available as a "-1" and a "-2" for 3-position selector switches. The internal cam of a "-1" is different from that of a "-2". This results in designated combinations of open and closed contacts in the various operator positions.
- N/D = No circuit number designation required in assembled part number.
- X = On (closed contacts) O = Off (open contacts). X—X Overlapping contacts remain on (closed) when switch is moved between these two positions.

## **Operator Truth Tables**

Use the following tables to build custom selector switches.

### **2 Position Selector Switches**

|               | Contact          | Mounting Position | Operator Position |              |
|---------------|------------------|-------------------|-------------------|--------------|
|               |                  |                   | Left              | Right        |
| <b>ASD200</b> | BST-010 (NO)     | L                 | 0                 | X            |
|               |                  | R                 | 0                 | X            |
|               | BST-001 (NC)     | L                 | X                 | 0            |
|               |                  | R                 | X                 | 0            |
|               | BST-010S (NO-EM) | L                 | 0                 | <del>X</del> |
|               |                  | R                 | 0                 | <del>X</del> |
|               | BST-001S (NC-LB) | L                 | <del>X</del>      | 0            |
|               |                  | R                 | <del>X</del>      | 0            |

### **3 Position Selector Switches**

|                                             | Contact          | Mounting Position | Operator Position |              |              |
|---------------------------------------------|------------------|-------------------|-------------------|--------------|--------------|
|                                             |                  |                   | Left              | Center       | Right        |
| <b>ASD300-1<br/>ASLD300-1<br/>ASD3K00-1</b> | BST-010 (NO)     | L                 | X                 | 0            | 0            |
|                                             |                  | R                 | 0                 | 0            | X            |
|                                             | BST-001 (NC)     | L                 | 0                 | X            | <del>X</del> |
|                                             |                  | R                 | X                 | <del>X</del> | 0            |
|                                             | BST-010S (NO-EM) | L                 | X                 | 0            | 0            |
|                                             |                  | R                 | 0                 | 0            | X            |
|                                             | BST-001S (NC-LB) | L                 | 0                 | <del>X</del> | <del>X</del> |
|                                             |                  | R                 | X                 | <del>X</del> | 0            |

|                                             | Contact          | Mounting Position | Operator Position |              |              |
|---------------------------------------------|------------------|-------------------|-------------------|--------------|--------------|
|                                             |                  |                   | Left              | Center       | Right        |
| <b>ASD300-2<br/>ASLD300-2<br/>ASD3K00-2</b> | BST-010 (NO)     | L                 | X                 | 0            | X            |
|                                             |                  | R                 | 0                 | 0            | X            |
|                                             | BST-001 (NC)     | L                 | 0                 | X            | 0            |
|                                             |                  | R                 | X                 | <del>X</del> | 0            |
|                                             | BST-010S (NO-EM) | L                 | X                 | 0            | <del>X</del> |
|                                             |                  | R                 | 0                 | 0            | X            |
|                                             | BST-001S (NC-LB) | L                 | 0                 | <del>X</del> | 0            |
|                                             |                  | R                 | X                 | <del>X</del> | 0            |



1. For Operator Truth Tables, see next page.

2. For examples of how to assemble selector switches, see A3-82.

### **3 Position Push/Pull Switches**

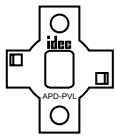
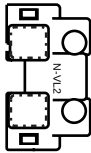
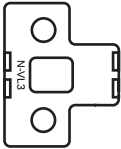
|               | Contact          | Operator Position |        |      |
|---------------|------------------|-------------------|--------|------|
|               |                  | Pull              | Normal | Push |
| <b>AYLD22</b> | BST-010 (NO)     | 0                 | 0      | X    |
|               | BST-001 (NC)     | X                 | 0      | 0    |
|               | BST-010S (NO-EM) | 0                 | X      | X    |
|               | BST-001S (NC-LB) | X                 | X      | 0    |

## Accessories — TWTD Series

|                      |                                                                                     |                                                                                                  |                                                                                                                                            |
|----------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| Lamp Removal Tool    |    | Tool used to install LED's and incandescent lamps.                                               | OR-55                                                                                                                                      |
| Metal Bezel          |    | Replacement locking ring/bezel                                                                   | Standard octagonal units (chrome-pl.).<br>OG-81                                                                                            |
|                      |                                                                                     |                                                                                                  | Extended, non-illuminated (chrome-pl.).<br>OG-82                                                                                           |
|                      |                                                                                     |                                                                                                  | Extended, illuminated (chrome-pl.).<br>OG-83L                                                                                              |
|                      |                                                                                     |                                                                                                  | Jumbo Mushroom Shallow Shroud<br>ABN4G                                                                                                     |
|                      |                                                                                     |                                                                                                  | Jumbo Mushroom Deep Shroud<br>ABN4F                                                                                                        |
| Plastic Bezel        |    | Black plastic locking ring/bezel                                                                 | OGP11B                                                                                                                                     |
| Boot/Cover           |    | Used to cover and protect push-buttons.                                                          | In place of ①, specify neoprene <b>Rubber Boot</b> color: <b>B</b> (black), <b>G</b> (green), <b>R</b> (red), <b>Y</b> (yellow)<br>OC-11 ① |
|                      |                                                                                     |                                                                                                  | Flush units (clear plastic -40° to +60°C).<br>OC-121                                                                                       |
|                      |                                                                                     |                                                                                                  | Extended units (clear plastic -40° to +60°C).<br>OC-122                                                                                    |
| Anti-Rotation Ring   |  | Plastic washer<br>For nameplates or panels that should not be scratched.                         | OGL-D1T                                                                                                                                    |
|                      |                                                                                     | Thrust washer/Anti-rotation ring for use with notched panel cutout.                              | OGL-D1S                                                                                                                                    |
| Mounting Hole Plug   |  | Plugs used to fill unused 30mm panel cutouts.                                                    | Plastic with locking nut attached.<br>OBP-11                                                                                               |
|                      |                                                                                     |                                                                                                  | Metal with locking nut attached<br>OB-11                                                                                                   |
|                      |                                                                                     |                                                                                                  | Grey rubber (-5° to +60°C)<br>OB-13                                                                                                        |
| Terminal Tab Adaptor |  | Tab #250 17/64" x 3/64" (6.35mm x 0.8mm): Single tab                                             | TW-FA1                                                                                                                                     |
| Full Voltage Adaptor |  | Used on all full voltage illuminated units.<br>Two required per unit. (M3.5 screw and saddle)    | APD-F                                                                                                                                      |
| Lock Out Adaptor     |  | Used to provide lockout protection for TWTD pushbuttons and knob selectors.<br>Ø 1-13/64" (30mm) | OL-KL1                                                                                                                                     |
| Replacement Keys     |  | Pair of Keys (#0)                                                                                | TW-SK                                                                                                                                      |

Accessories con't

Part Numbers: Fingersafe Covers for TWTD Series

| Appearance                                                                         | Description                                                                         | Used with                                      | Part Number |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------|-------------|
|   | Fingersafe terminal cover, for full voltage pilot lights, adds 3mm to overall depth | APD199... full voltage pilot lights            | APD-PVL     |
|   | Fingersafe terminal cover, for contact blocks, adds 3mm to overall depth            | Non-Illuminated pushbuttons ABD..., and AOD... | N-VL2       |
|   | Fingersafe terminal cover, adds 1.5mm to overall depth                              | Transformer pilot lights and illuminated units | N-VL3       |
|  | Fingersafe terminal cover, adds 4 mm to depth                                       | Full voltage illuminated pushbuttons           | N-VL4       |

A4

Switches & Pilot Devices

 Dimensions on page A4-192.

## Nameplates — TWTD Series

### Part Numbers: Nameplates

|                      |       | NALD        | NAKD        | NAQD        | HNAV                     |
|----------------------|-------|-------------|-------------|-------------|--------------------------|
| Dimensions           |       |             |             |             |                          |
| Description          |       | Part Number | Part Number | Part Number | Part Number              |
| Nameplate (blank)    | Black | NALD-B      | NAKD-B      | NAQD-B      | HNAV-0                   |
|                      | Red   | NALD-R      | NAKD-R      | NAQD-R      |                          |
| Nameplate (engraved) |       | NALD-①      | NAKD-①      | NAQD-①      | HNAV-27 "Emergency Stop" |



1. Nameplates are made of 0.031" aluminum. Lettering is white letters engraved on black background.
2. In place of ①, insert either the standard legend code from table below or custom engraving delimited by " ".
3. HNAV available in yellow only.

### \* Standard Legend Codes

| Pushbuttons |      |               |      | Pushbuttons/Selector Switches |      |            |      | Selector Switches |      |
|-------------|------|---------------|------|-------------------------------|------|------------|------|-------------------|------|
| Legend      | Code | Legend        | Code | Legend                        | Code | Legend     | Code | Legend            | Code |
| AUTO        | 101  | OPEN          | 116  | AUTO-MAN                      | 201  |            |      | AUTO-MAN-OFF      | 301  |
| CLOSE       | 102  | OUT           | 117  | CLOSE-OPEN                    | 202  |            |      | AUTO-OFF-MAN      | 302  |
| DOWN        | 103  | RAISE         | 118  | DOWN-UP                       | 203  |            |      | CLOSE-OFF-OPEN    | 303  |
| *EMERG.STOP | 104  | RESET         | 119  | FAST-SLOW                     | 204  |            |      | DOWN-OFF-SLOW     | 304  |
| FAST        | 105  | REVERSE       | 120  | FOR-REV                       | 205  | REV-FOR    | 216  | FAST-OFF-SLOW     | 305  |
| FORWARD     | 106  | RUN           | 121  | HAND-AUTO                     | 206  | RUN-JOG    | 217  | FOR-OFF-REV       | 306  |
| HAND        | 107  | SLOW          | 122  | HIGH-LOW                      | 207  | RUN-SAFE   | 218  | LEFT-OFF-RIGHT    | 307  |
| HIGH        | 108  | START         | 123  | JOG-RUN                       | 208  | SAFE-RUN   | 219  | LOWER-OFF-RAISE   | 308  |
| IN          | 109  | *STOP         | 124  | LEFT-RIGHT                    | 209  | SLOW-FAST  | 220  | OFF-MAN-AUTO      | 309  |
| INCH        | 110  | STOP          | 125  | LOWER-RAISE                   | 210  | START-STOP | 221  | OFF-SLOW-FAST     | 310  |
| JOG         | 111  | TEST          | 126  | MAN-AUTO                      | 211  | STOP-START | 222  | OFF-1-2           | 311  |
| LOW         | 112  | UP            | 127  | OFF-ON                        | 212  | UP-DOWN    | 223  | OPEN-OFF-CLOSE    | 312  |
| LOWER       | 113  | I (Int'l On)  | 150  | ON-OFF                        | 213  |            |      | SLOW-OFF-FAST     | 313  |
| OFF         | 114  | O (Int'l Off) | 151  | OPEN-CLOSE                    | 214  |            |      | SUMMER-OFF-WINTER | 314  |
| ON          | 115  | EMO           | 152  | RAISE-LOWER                   | 215  |            |      | UP-OFF-DOWN       | 315  |
|             |      |               |      |                               |      |            |      | 1-OFF-2           | 316  |
|             |      |               |      |                               |      |            |      | HAND-OFF-AUTO     | 317  |



1. \*Available in Red as standard legend code 104 and 124. To order engraved nameplate and codes, add legend code to nameplate part number. Character height based on the number of characters, space and size of nameplate. Standard character size is 3/16".
2. Nameplates with standard legends are the same list price as blank nameplates. Special engravings, additional cost.

To specify engraving instructions, use the Nameplate order form on next page.

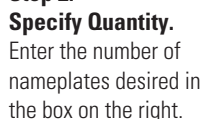
Copy this order form and use it to specify Letter Height, Custom Engravings, Location of Engraving on Nameplate, and Quantity Desired.  
To insure engraving accuracy, fax it to your IDEC representative or Distributor.

Fax &amp; Email

IDEC Rep/Distributor Fax & Email

A4

## Switches & Pilot Devices

**Qty**

A B C D

16 characters max  
(for 7/64" size letters)

13 characters max  
(for 1/8" size letters)

A number line from 1 to 16. The line is labeled with numbers 1 through 16 below it. A dashed vertical line is drawn at 13.5, halfway between 13 and 14.

Write your lettering in box to the right. Maximum 17 characters per line, maximum 4 lines.

Enter the number of nameplates desired in the box on the right.

**Qty**This image shows a blank sheet of white paper with horizontal blue ruling lines. At the bottom of the page, there are 17 small black numbers, each centered under one of the columns defined by the vertical margin lines. The numbers range from 1 to 17, starting from the left edge and ending at the right edge. The rest of the page is empty, providing space for writing or drawing.

1/8" Letters: A B C D

Check the box for the letter size you want. Then write your lettering in box below checkboxes. Note: 1/8" size letters cannot exceed 16 characters.

20 characters max  
(for 7/64" size letters)

16 characters max  
(for 1/8" size letters)

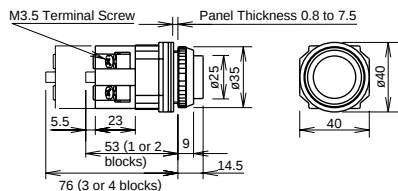
Enter the number of nameplates desired in the box on the right.

Qtv

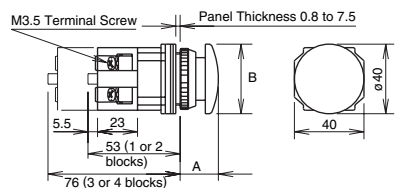
1/8" Letters: A B C D

## Dimensions — TWTD Series

### Pushbutton

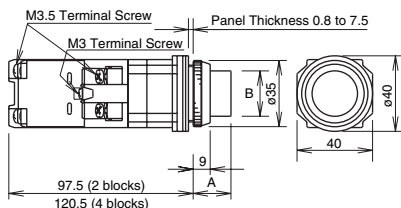


### Mushroom Pushbutton w/Full Shroud



### Illuminated Pushbuttons

#### w/AC Adapter w/Transformer



### Pushbuttons

#### Flush Extended Extended w/Full Shroud

### Dimension A

### Dimension B

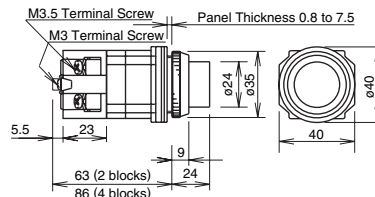
#### Mushroom Mushroom w/Full Shroud Jumbo Mushroom Ø 1.56" (40mm)

#### Mushroom, Pushlock Turn Reset and Push-Pull Ø 1.56" (40mm)

|                 |                  |
|-----------------|------------------|
| 0.351" (9mm)    | Ø 0.975" (25mm)  |
| 0.566" (14.5mm) | Ø 0.975" (25mm)  |
| 0.663" (17mm)   | Ø 1.11" (28.5mm) |
| 0.858" (22mm)   | Ø 1.56" (40mm)   |
| 0.936" (24mm)   | Ø 1.87" (48mm)   |
| 1.13" (29mm)    | Ø 2.54" (65mm)   |
| *0.975" (25mm)  | Ø 1.56" (40mm)   |
| **0.975" (25mm) | Ø 1.56" (40mm)   |

**Note:** \*Dimension when operator is in reset position.  
\*\*Dimension when operator is in pull position.

### Full Voltage



### Illuminated Pushbuttons

### Dimension A

### Dimension B

#### Flush w/Full Shroud

|                 |                 |
|-----------------|-----------------|
| 0.975" (25mm)   | Ø 0.936" (24mm) |
| 0.995" (25.5mm) | Ø 0.936" (24mm) |

#### Extended w/Full Shroud

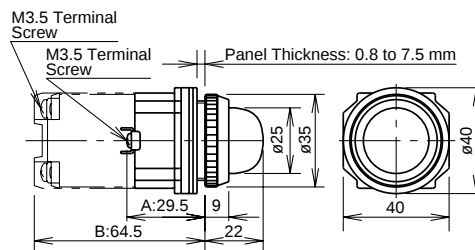
|                 |                 |
|-----------------|-----------------|
| 0.741" (19mm)   | Ø 0.936" (24mm) |
| 0.761" (19.5mm) | Ø 0.936" (24mm) |

#### Ø 1.56" (40mm) Mushroom Pushlock Turn Reset, Push-Pull

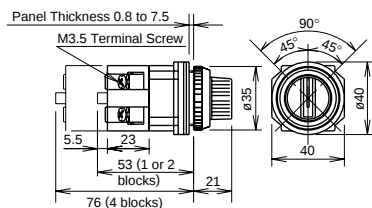
|                 |                |
|-----------------|----------------|
| *0.975" (25mm)  | Ø 1.56" (40mm) |
| **0.975" (25mm) | Ø 1.56" (40mm) |

**Note:** \*Dimension when operator is in reset position.  
\*\*Dimension when operator is in pull position.

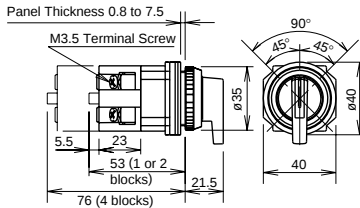
### Pilot Lights



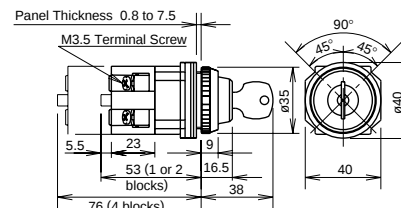
### Selector Switches Knob



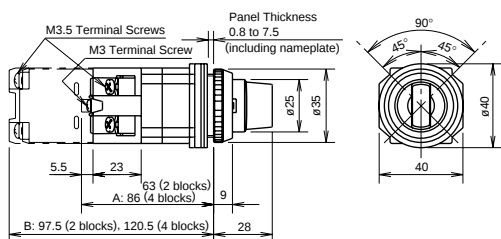
### Lever



### Key



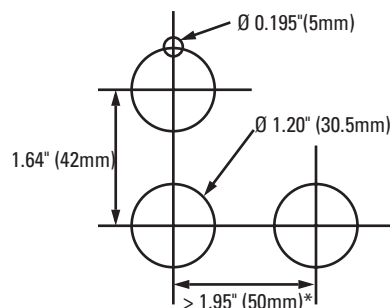
### Illuminated Knob



All measurements in mm.

## **Dimensions — TWTD Series con't**

### **Selector Switches Panel Cut-Out**

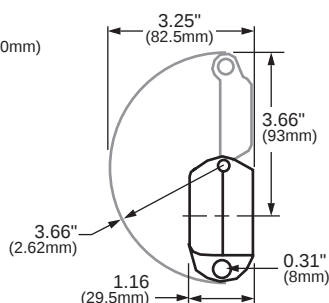
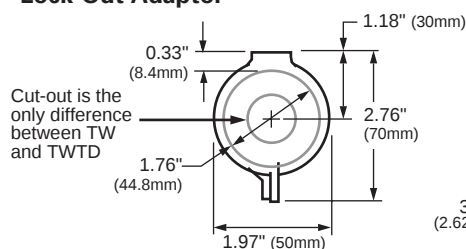


1. \*Jumbo Mushroom < 2.61" (66mm)
2. Minimum mounting centers are applicable to switches with one stack of contact blocks. When mounting two stacks of contact blocks, minimum centers should allow for access to wiring.
3. The Ø 0.195" (Ø 5mm) recess is necessary when either the nameplate or anti-rotation ring is used.

### **Accessory Dimensions**

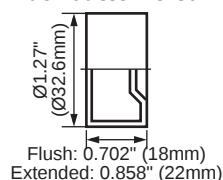
#### **OL-KL1**

#### **Lock-Out Adaptor**



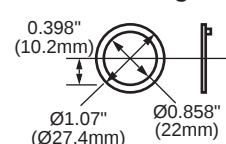
#### **OC-31**

#### **Pushbutton Clear Boot**



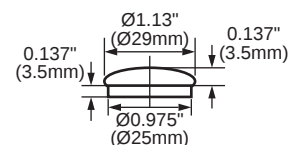
#### **OGL-31**

#### **Anti-Rotation Ring**



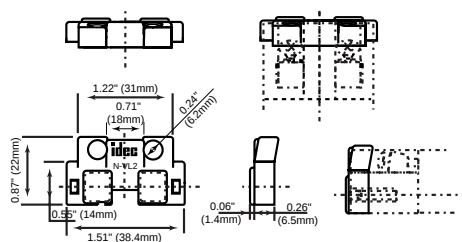
#### **OB-31**

#### **Mounting Hole Rubber Plug**

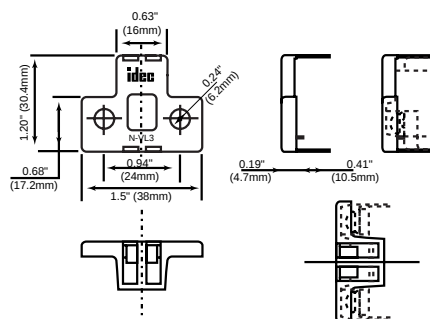


### **Finger-Safe Cover**

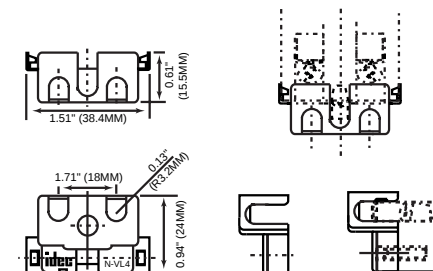
#### **N-VL2**



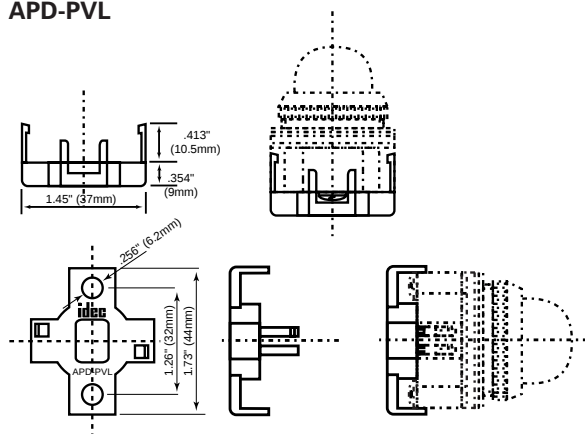
#### **N-VL3**



#### **N-VL4**



#### **APD-PVL**



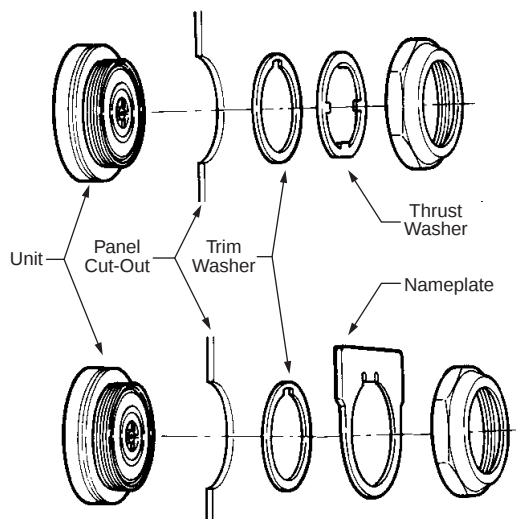
A4

Switches & Pilot Devices

### Adjustment for Panel Thickness

Each unit is shipped with several waterproof gaskets which are 0.06" (1.5mm) and 0.12" (3mm) thick. Combine the gaskets for a dimension approximately equal to panel thickness and install between the bezel and the body of the unit.

A trim washer must be used with a thrust washer or a nameplate to prevent the control unit from rotating in the mounting hole. When using anti-rotation rings (trim washer with thrust washer or nameplate), install as shown below.



### Selector Switches

The operator shaft of each unit has a recess to identify in which direction to install the handle. Align the handle with the recess. Press color insert (TW-HC1) into the Standard Operating Positions.

#### Standard operation positions

2-Position, 90°



3-Position, 45°

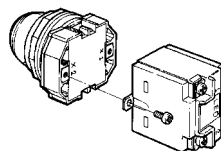


#### Non-Illuminated 3-Position Operators

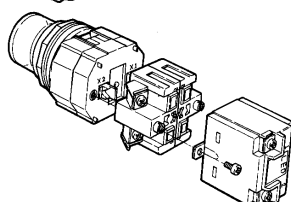


#### Installation of TWTD Series Units

##### TWTD Pilot Lights



TWTD Illuminated Pushbuttons,  
TWTD Selector Switches  
(Transformer or Full Voltage)



Terminal X1 =  
Positive  
Terminal X2 =  
Negative

**Installation of LED Illuminated Units**—Transformer units are recommended for use in areas subjected to inductive noise. When using full voltage types, install a protection diode as shown below. Use diode with AC power supply to protect against reverse polarity. Use with DC power supply to protect against surges and noise.

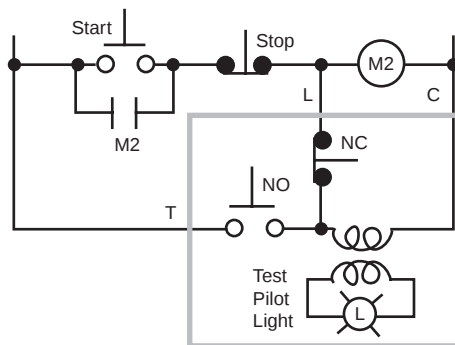


Make sure that LED illuminated units are installed with correct polarity, as indicated at the terminals.

#### Application Example For Push-To-Test Pilot Light

A typical application of illuminated pushbuttons is a push-to-test pilot light which can be used to check the lamp/LED circuit.

##### Transformer/AC-Adapter Circuit



##### Full Voltage Circuit

