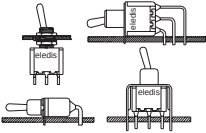




## SERIES 1A

- Miniature toggle switches



## AGENCY APPROVALS



File N° E195524



File N° E195524

## CHARACTERISTICS

- The most comprehensive range of terminations, brackets, toggle sizes and bushings.
- Diallylphthalate case and stainless steel housing.

## SPECIFICATIONS

**Contact Rating:** S (silver) - 5A with resistive load @ 125 VAC or 28 VDC - 2A with resistive load @ 250 VAC

**Electrical life:** 50,000 make and break cycles at full load

**Contact Resistance:** 10 mΩ max. initial @ 2-4 VDC, 100 mA for both coin silver and gold plated contacts

**Insulation Resistance:** 1000 MΩ min.

**Dielectric Strength:** 1500 VRMS @ sea level

**Operating Temperature:** -30°C to 85°C

## MATERIALS

**Case:** diallylphthalate (DAP)

**Toggle handle:** Brass, chrome plated

**Bushing:** Brass, nickel plated

**Housing:** Stainless Steel

## HOW TO ORDER

1 A - - - - -

### N° OF POLES

- |   |      |
|---|------|
| 1 | SPDT |
| 2 | DPDT |
| 3 | 3PDT |
| 4 | 4PDT |

### ACTUATORS

- |         |               |
|---------|---------------|
| N       | Round (std)   |
| N2      | Short round   |
| L1      | Long 13.97    |
| L2      | Long 16.26    |
| L3      | Long 21.32    |
| L4      | Long 15.75    |
| L5      | Long 18.08    |
| P       | Flat          |
| PS      | Flat Short    |
| C (◇)   | Plastic       |
| G       | Large         |
| GX      | Extra large   |
| LK (Δ)  | Locking lever |
| LK1 (Δ) | Locking lever |

### TERMINATIONS

- |        |                    |
|--------|--------------------|
| PC     | PCB                |
| W1     | Wire wrap 19.05mm  |
| W3     | Wire wrap 10.80mm  |
| ST     | Solder tag         |
| H9     | 90° horizontal     |
| V9     | 90° vertical       |
| U2     | U bracket 11.68 mm |
| U3     | U bracket 16.00 mm |
| U4 (Δ) | U bracket 11.68 mm |
| U5 (Δ) | U bracket 16.00 mm |
| QC     | Quick connect      |

### COLOUR OPTIONS

For C Plastic actuator

- |       |             |
|-------|-------------|
| 1     | White       |
| 2     | Black (std) |
| 3     | Red         |
| 4 (Δ) | Orange      |
| 5 (Δ) | Yellow      |
| 6 (Δ) | Green       |
| 7 (Δ) | Blue        |
| 8 (Δ) | Brown       |
| 9 (Δ) | Gray        |

### ELECTRICAL FUNCTIONS

- |       | on   | none | on   |
|-------|------|------|------|
| 1     | on   | none | on   |
| 2     | on   | none | (on) |
| 3     | on   | off  | on   |
| 4     | (on) | off  | (on) |
| 5     | on   | off  | (on) |
| 6 (*) | on   | on   | on   |

### BUSHING

- |        |                    |
|--------|--------------------|
| F1     | Threaded standard  |
| F2     | Unthreaded         |
| F3     | Threaded           |
| F4     | Unthreaded         |
| F5     | High torque flat   |
| F6     | High torque        |
| F7     | Long thread        |
| F8     | Metric             |
| F9 (◇) | Splash proof       |
| F0     | Large              |
| FS (◇) | Large Splash proof |
| FA     | Non Threaded (std) |
| FB     | Metric             |
| FG     | Non Thread         |
| FK     | For LK Act. Only   |

### SEALING

- |   |      |
|---|------|
| E | Seal |
|---|------|

### CONTACT MATERIAL

- |   |                |
|---|----------------|
| S | Silver (std)   |
| A | Gold           |
| G | Gold on silver |

### STANDARD HARDWARE

- |   |              |
|---|--------------|
| 2 | Nuts         |
| 1 | Locking Ring |
| 1 | Lockwasher   |

(\*) 3-way external wiring required - Please enquire

(Δ) Min qty required

(◇) Please enquire

## SERIES 1A

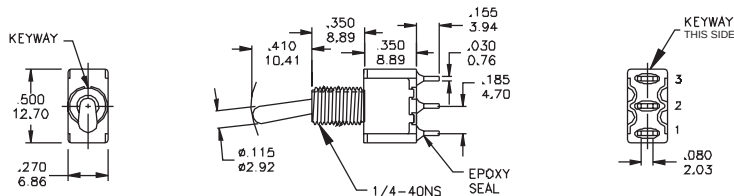
## ELECTRICAL FUNCTIONS

## DIMENSIONS

| SPDT |       |      |       |
|------|-------|------|-------|
| 1    | on    | none | on    |
| 2    | on    | none | (on)  |
| 3    | on    | off  | on    |
| 4    | (on)  | off  | (on)  |
| 5    | on    | off  | (on)  |
|      | 2 - 3 | open | 2 - 1 |

2 Comm.

1 3 •

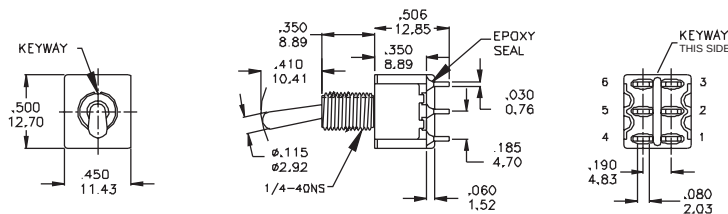


Part N° shown: 1A11-NF1STSE

| DPDT  |          |      |          |
|-------|----------|------|----------|
| 1     | on       | none | on       |
| 2     | on       | none | (on)     |
| 3     | on       | off  | on       |
| 4     | (on)     | off  | (on)     |
| 5     | on       | off  | (on)     |
| 6 (*) | on       | on   | on       |
|       | 2-3, 5-6 | open | 2-1, 5-4 |

2 Comm. 5 Comm.

1 3 • 4 6 •

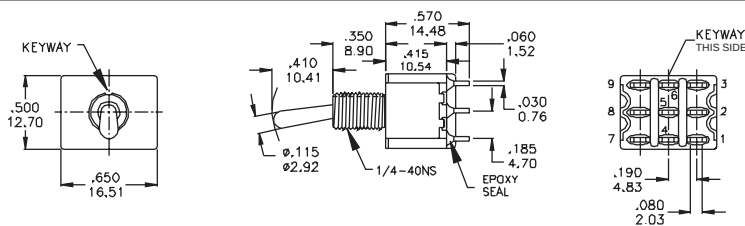


Part N° shown: 1A21-NF1STSE

| 3PDT |          |      |          |
|------|----------|------|----------|
| 1    | on       | none | on       |
| 2    | on       | none | (on)     |
| 3    | on       | off  | on       |
| 4    | (on)     | off  | (on)     |
| 5    | on       | off  | (on)     |
|      | 2-3, 5-6 | open | 2-1, 5-4 |
|      | 8-9      |      | 8-7      |

2 Comm. 5 Comm. 8 Comm.

1 3 • 4 6 • 7 9 •

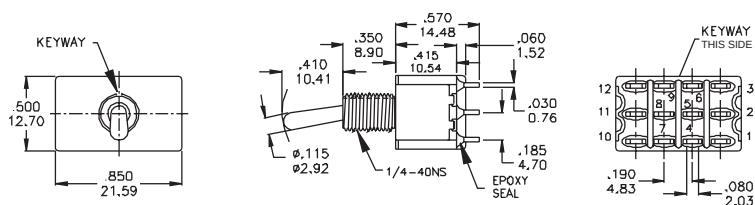


Part N° shown: 1A31-NF1STSE

| 4PDT  |            |      |            |
|-------|------------|------|------------|
| 1     | on         | none | on         |
| 2     | on         | none | (on)       |
| 3     | on         | off  | on         |
| 4     | (on)       | none | (on)       |
| 5     | on         | none | (on)       |
| 6 (*) | on         | on   | on         |
|       | 2-3, 5-6   | open | 2-1, 5-4   |
|       | 8-9, 11-12 |      | 8-7, 11-10 |

2 Comm. 5 Comm. 8 Comm. 11 Comm.

1 3 • 4 6 • 7 9 • 10 12 •



Part N° shown: 1A41-NF1STSE

(\*) See wiring for 3-Way Switching Functions pag. iii in the Technical Notations section



## SERIES 1A

### ACTUATORS

|                                                                         |                                                                                                                                                                                                                                                     |                  |                  |                  |                   |
|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|------------------|-------------------|
| <p><b>N (std)</b></p>                                                   | <p><b>N2</b></p>                                                                                                                                                                                                                                    | <p><b>L1</b></p> | <p><b>L2</b></p> | <p><b>L3</b></p> |                   |
| <p><b>P</b></p> <p>(only available with <b>F6 &amp; FG</b> bushing)</p> | <p><b>PS (※)</b></p>                                                                                                                                                                                                                                |                  | <p><b>G</b></p>  | <p><b>GX</b></p> |                   |
| <p><b>C (◇)</b></p> <p>Gloss Finish Plastic</p> <p>Chrome Finish</p>    | <div><p><b>COLOURS</b></p><ul style="list-style-type: none"><li>1 White</li><li>2 Black (std)</li><li>3 Red</li><li>4 (Δ) Orange</li><li>5 (Δ) Yellow</li><li>6 (Δ) Green</li><li>7 (Δ) Blue</li><li>8 (Δ) Brown</li><li>9 (Δ) Gray</li></ul></div> |                  |                  | <p><b>LK</b></p> | <p><b>LK1</b></p> |

### For H9 - V9 - right angle version & All U - Brackets

|                      |                 |                  |                  |
|----------------------|-----------------|------------------|------------------|
| <p><b>N2 (◇)</b></p> | <p><b>N</b></p> | <p><b>L4</b></p> | <p><b>L5</b></p> |
|----------------------|-----------------|------------------|------------------|

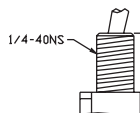
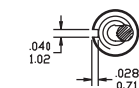
(◇) Please enquire

(Δ) Min qty required

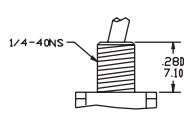
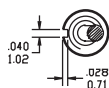
(\*) Only available 1A11 model (on - on)

## SERIES 1A

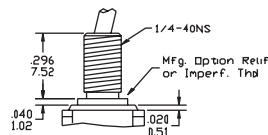
## BUSHING



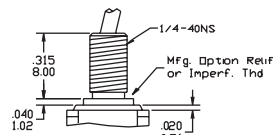
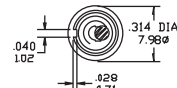
**F1** Threaded (STD)  
**F2** Non Threaded



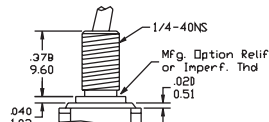
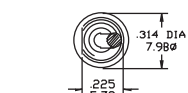
**F3** Threaded  
**F4** Non Threaded



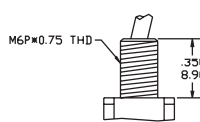
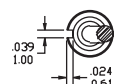
**F5** High Torque  
**FA** Non Threaded (STD)  
**FB** Metric



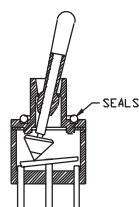
**F6** High Torque  
**FC** Metric  
**FG** Non Threaded



**F7 (Δ)** Long  
**FD (Δ)** Non Threaded  
**FE (Δ)** Metric

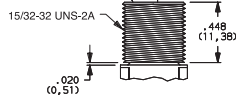
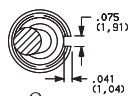


**F8** Metric



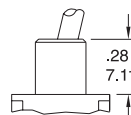
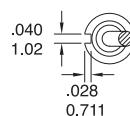
**F9** Splash-proof

Available only for **on-on** and **on-off-on** functions - Only for "**N**" Actuator

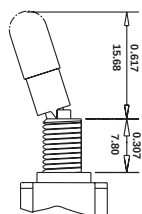


**FO (Δ)** Not splashproof  
**FS (Δ)** Splashproof. (Available only for **on-on** functions)

**For H9 - V9 - right angle version & All U - Brackets**



**F4** Standard



**FK (Δ)** Threaded,  
only for locking lever

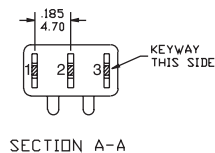
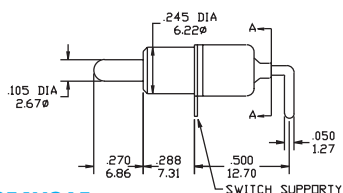
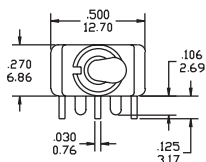
(Δ) Min qty required



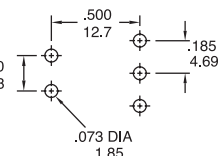
## SERIES 1A

### TERMINATIONS

#### H9 SPDT

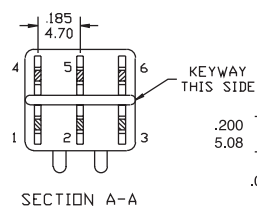
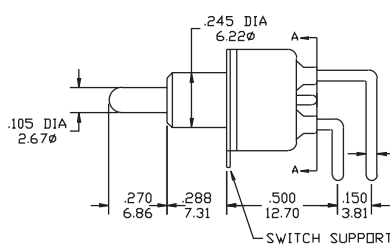
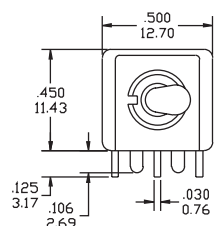


#### P.C. LAYOUT

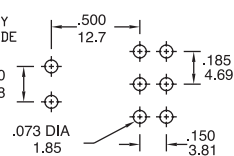


Part N° shown: 1A11-N2F4H9AE

#### H9 DPDT

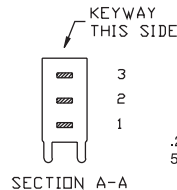
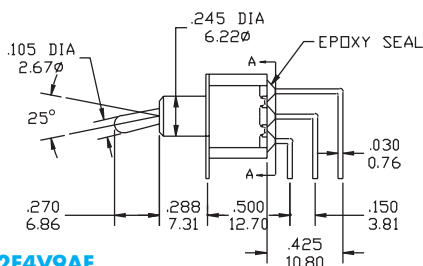
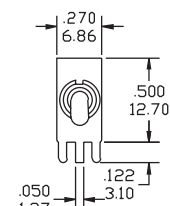


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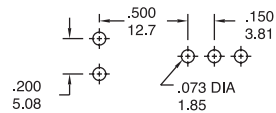


Part N° shown: 1A21-N2F4H9AE

#### V9 SPDT

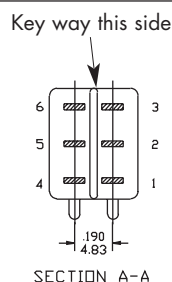
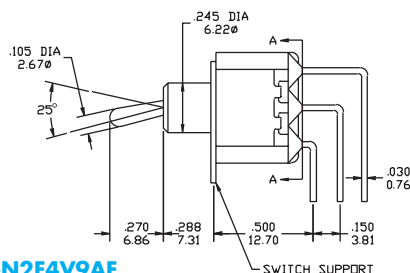
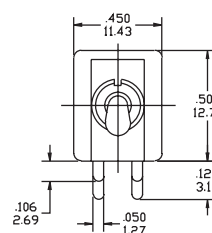


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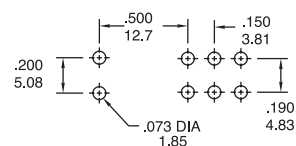


Part N° shown: 1A11-N2F4V9AE

#### V9 DPDT

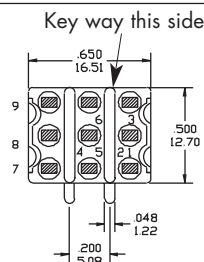
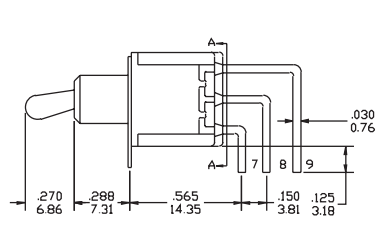
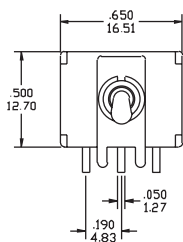


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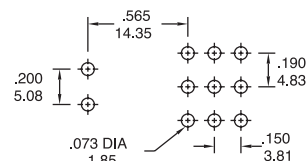


Part N° shown: 1A21-N2F4V9AE

#### V9 3PDT



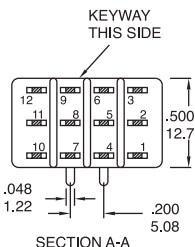
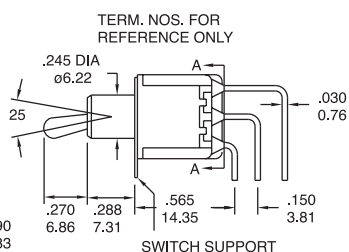
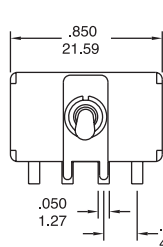
#### P.C. LAYOUT



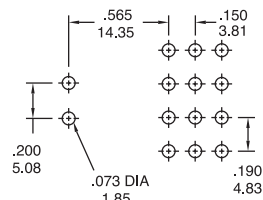
Part N° shown: 1A31-N2F4V9AE

## SERIES 1A

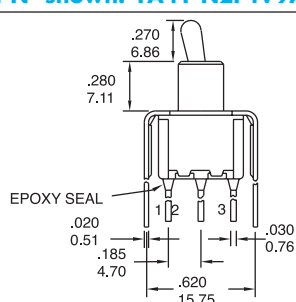
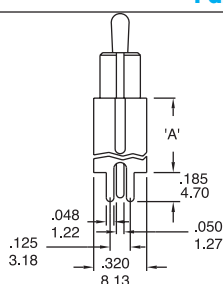
## TERMINATIONS

**V9**  
**4PDT**


## P.C. LAYOUT

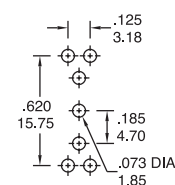


Part N° shown: 1A41-N2F4V9AE

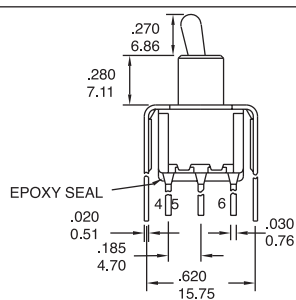
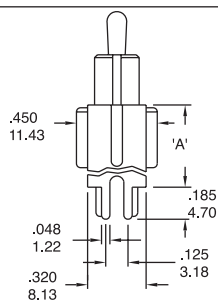
**U2 U3**  
**SPDT**


| Dim. A        |                     |
|---------------|---------------------|
| <b>U2</b>     | <b>.460 (11.68)</b> |
| <b>U3 (Δ)</b> | <b>.630 (16.00)</b> |

## P.C. LAYOUT

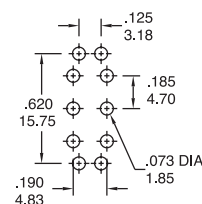


Part N° shown: 1A11-N2F4U\_SE

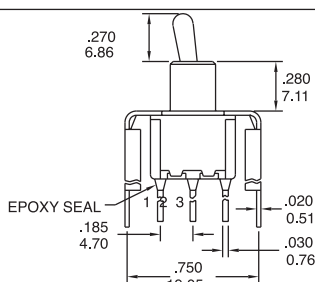
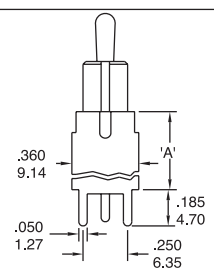
**U2 U3**  
**DPDT**


| Dim. A        |                     |
|---------------|---------------------|
| <b>U2</b>     | <b>.460 (11.68)</b> |
| <b>U3 (Δ)</b> | <b>.630 (16.00)</b> |

## P.C. LAYOUT

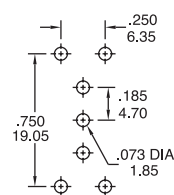


Part N° shown: 1A21-N2F4U\_SE

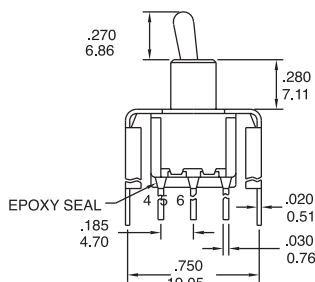
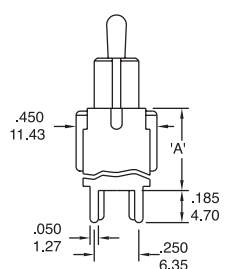
**U4 U5**  
**SPDT**


| Dim. A        |                     |
|---------------|---------------------|
| <b>U4 (Δ)</b> | <b>.460 (11.68)</b> |
| <b>U5</b>     | <b>.630 (16.00)</b> |

## P.C. LAYOUT

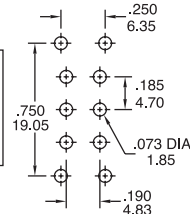


Part N° shown: 1A11-N2F4U\_SE

**U4 U5**  
**DPDT**


| Dim. A        |                     |
|---------------|---------------------|
| <b>U4 (Δ)</b> | <b>.460 (11.68)</b> |
| <b>U5</b>     | <b>.630 (16.00)</b> |

## P.C. LAYOUT



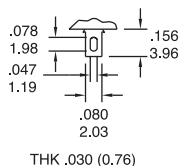
Part N° shown: 1A21-N2F4U\_SE

(Δ) Min qty required

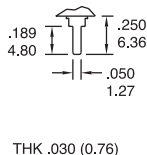


## SERIES 1A

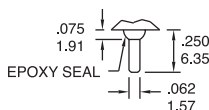
### TERMINATIONS



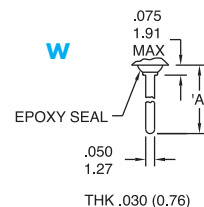
ST



PC



QC Quick Connect



W

EPOXY SEAL

THK .030 (0.76)

#### Dim. A

W1 .750 (19.05)

W3 .425 (10.80)

#### SEALING



E



E

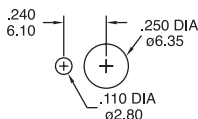
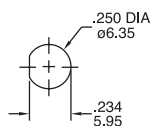
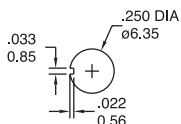
### CONTACT MATERIALS

### CONTACT RATINGS

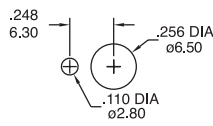
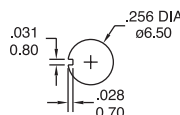
- S (std)** **Moving Contacts:** silver plated brass  
**Terminals:** silver plated brass  
**Rating:** 2 Amps with resistive load @ 250 VAC  
 5 Amps with resistive load @ 125 VAC or 28 VDC
- A** **Moving Contacts:** gold plating over nickel plated brass  
**Terminals:** gold plating over nickel plated brass  
**Rating:** 0.4 Volts/Amps max @ 20 Volts max (AC or DC)
- G** **Moving Contacts:** gold plating over silver plated brass  
**Terminals:** gold plating over silver plated brass  
**Note:** G option is used for either "high" (2 Amps @ 250 VAC) or "low" (0.4 Volts/Amps max) contact rating (one excludes the other)

### PANEL CUT-OUT

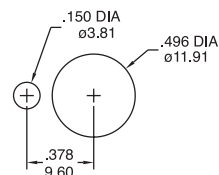
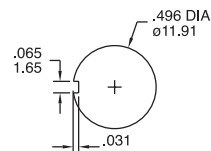
#### 1/4 IN.BUSHING



#### METRIC BUSHING



#### 15/32 IN.BUSHING

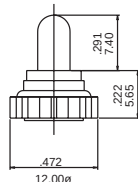


## SERIES 1A

## ACCESSORIES

## SEALINGS

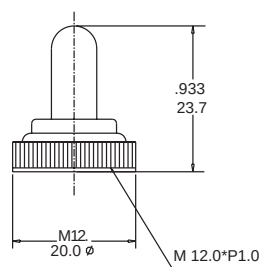
Rubber Hood sealing  
for toggle "N"



**1AK1** Metric

**1AE1** Inch (STD)

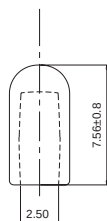
Rubber Hood sealing  
for toggle "G" and "GX"



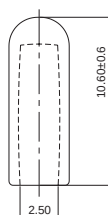
**1AF0**

## TOGGLE CAPS

**C1**



**C2**



## TOGGLE CAPS COLOUR

|              |                    |              |              |
|--------------|--------------------|--------------|--------------|
| <b>1</b>     | <b>White</b>       | <b>6 (Δ)</b> | <b>Green</b> |
| <b>2</b>     | <b>Black (std)</b> | <b>7 (Δ)</b> | <b>Blue</b>  |
| <b>3</b>     | <b>Red</b>         | <b>8 (Δ)</b> | <b>Brown</b> |
| <b>4 (Δ)</b> | <b>Orange</b>      | <b>9 (Δ)</b> | <b>Gray</b>  |
| <b>5 (Δ)</b> | <b>Yellow</b>      |              |              |

**Part Number**

**Colour**

## PACKAGING

## Transparent Trays 15x21x4 cm



Qty per tray: (ST, PC Terminals)

Series 1A1x 200 pcs

1A2x 100 pcs

1A3x 100 pcs

1A4x 50 pcs

MARKING  
(on products)

The switches are individually marked with the following information:

**Side 1** TRADE MARK  
SERIES AND MODEL  
DATE CODE

**Side 2** RATING  
CONTACTS

Note: Not all information may be available on some products.

LABELLING  
(on packaging)

The label on each tray gives full information on the products contained.

|                                                                                                                                 |                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| P/N:<br>ELFNC.:<br>Q.TY:<br>DATE CODE:<br> | <br>Made in Taiwan |
| Remarks                                                                                                                         |                                                                                                         |

A Bar code indicating Model, Quantity, Date Code enables easy traceability.

(Δ) Min qty required