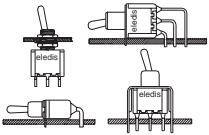




## SERIES 1A

- 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



### 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

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

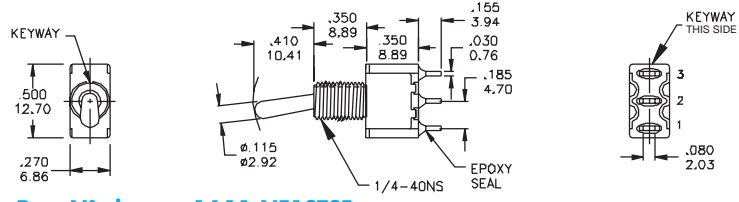
## SERIES 1A

### 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

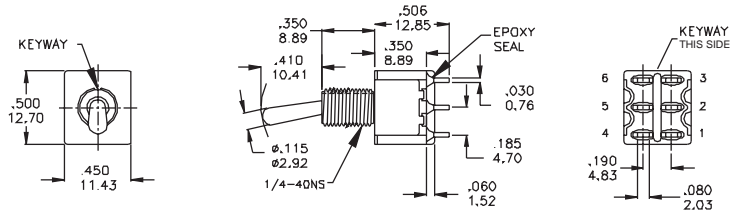
2 Comm.  
 3 •



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

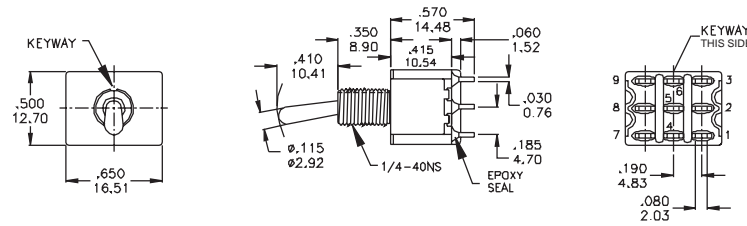
2 Comm. 5 Comm.  
 3 • - 4 • 6 •



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

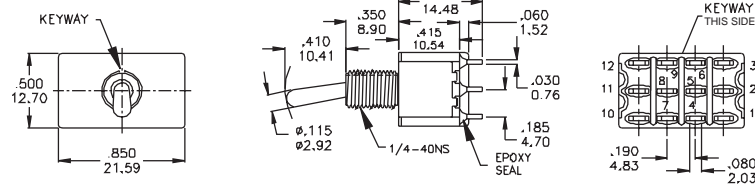
2 Comm. 5 Comm. 8 Comm.  
 3 • - 4 • 6 • - 7 • 9 •



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.  
 3 • - 4 • 6 • - 7 • 9 • - 10 • 12 •



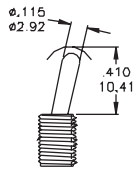
Part N° shown: 1A41-NF1STSE

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

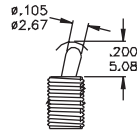


SERIES 1A

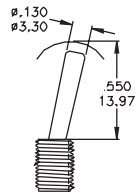
ACTUATORS



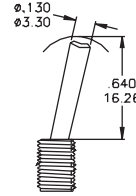
N (std)



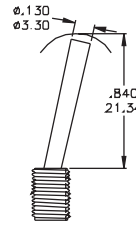
N2



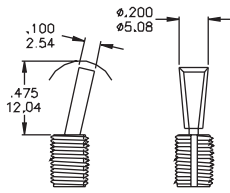
L1



L2

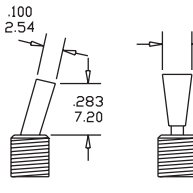


L3

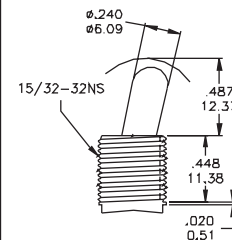


P

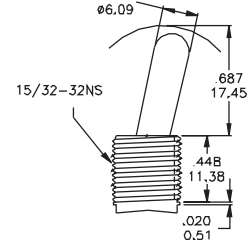
(only available with F6 & FG bushing)



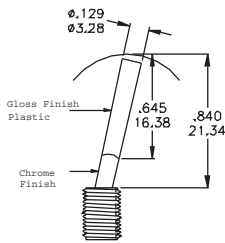
PS (\*)



G

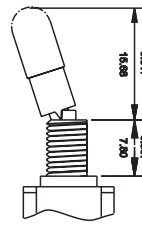


GX

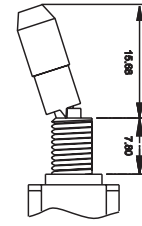


C (◇)

COLOURS	
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

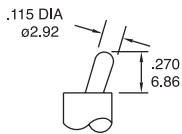


LK

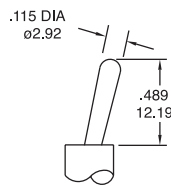


LK1

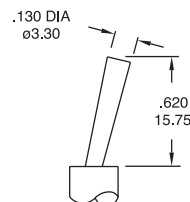
For H9 - V9 - right angle version & All U - Brackets



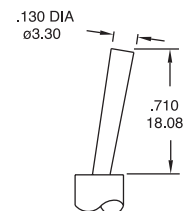
N2 (◇)



N



L4



L5

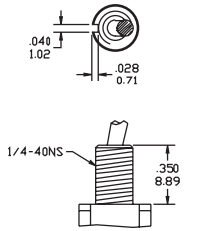
(◇) Please enquire

(Δ) Min qty required

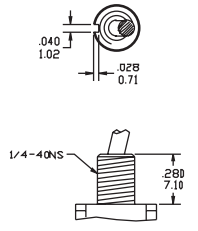
(\*) Only available 1A11 model (on - on)

**SERIES 1A**

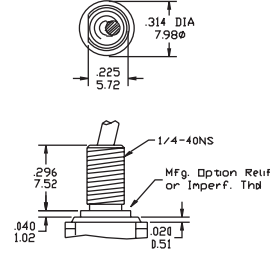
**BUSHING**



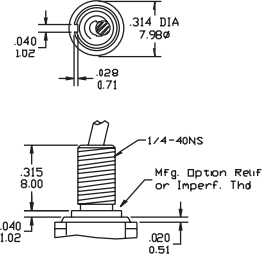
**F1** Threaded (STD)  
**F2** Non Threaded



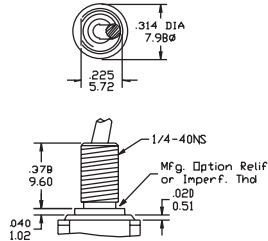
**F3** Threaded  
**F4** Non Threaded



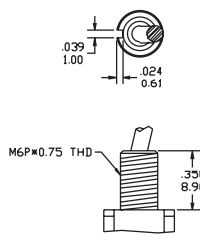
**F5** High Torque  
**FA** Non Threaded (STD)  
**FB** Metric



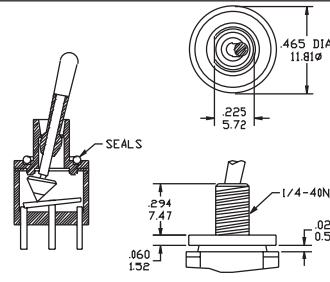
**F6** High Torque  
**FC** Metric  
**FG** Non Threaded



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

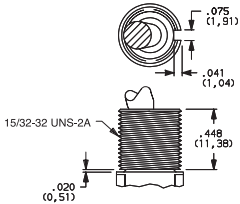


**F8** Metric



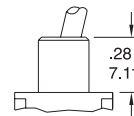
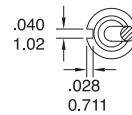
**F9** Splash-proof

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

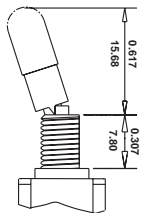


**FO** (Δ) Not splashproof  
**FS** (Δ) Splashproof. (Available only for **on-on** functions)

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



**F4** Standard



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

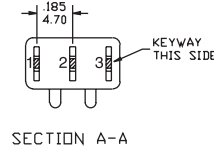
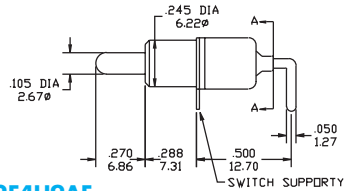
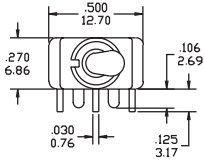
(Δ) Min qty required



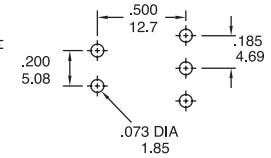
**SERIES 1A**

**TERMINATIONS**

**H9  
SPDT**

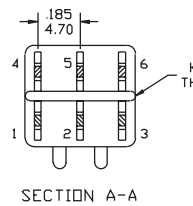
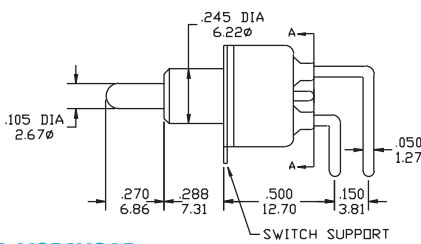
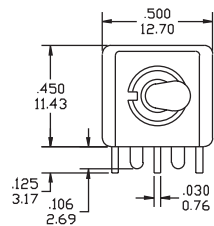


**P.C. LAYOUT**

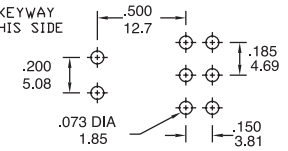


Part N° shown: 1A11-N2F4H9AE

**H9  
DPDT**

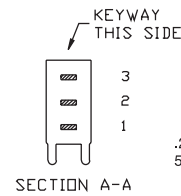
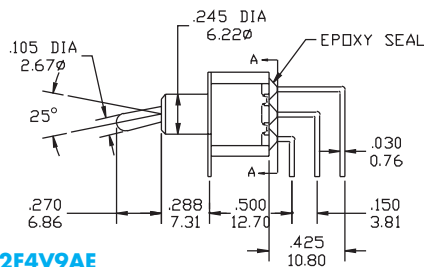
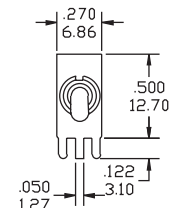


**P.C. LAYOUT**

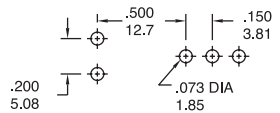


Part N° shown: 1A21-N2F4H9AE

**V9  
SPDT**

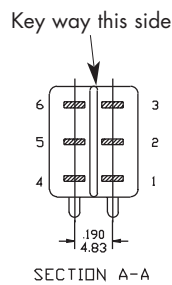
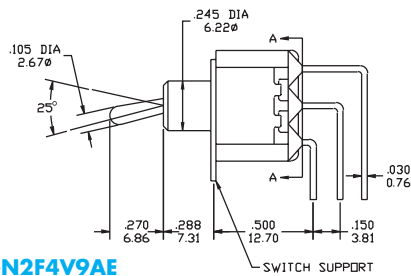
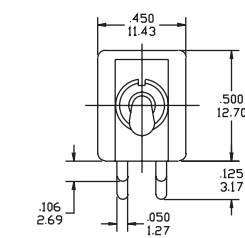


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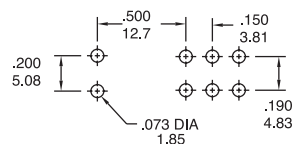


Part N° shown: 1A11-N2F4V9AE

**V9  
DPDT**

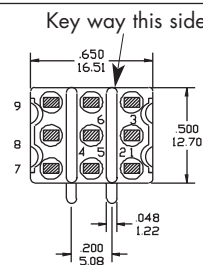
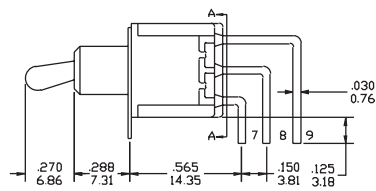
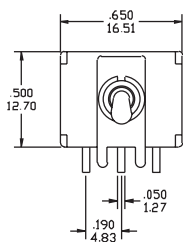


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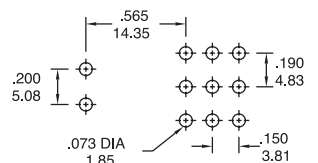


Part N° shown: 1A21-N2F4V9AE

**V9  
3PDT**



**P.C. LAYOUT**

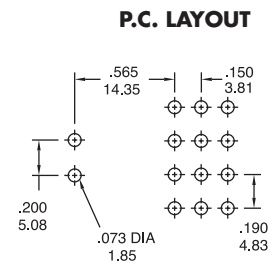
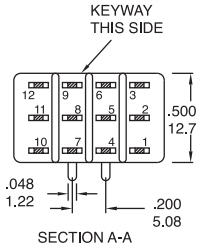
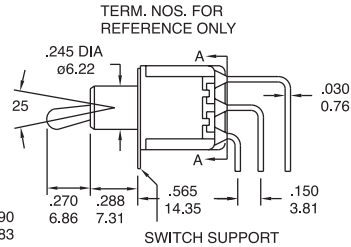
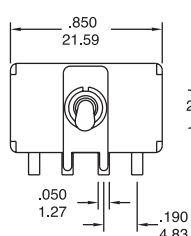


Part N° shown: 1A31-N2F4V9AE

SERIES 1A

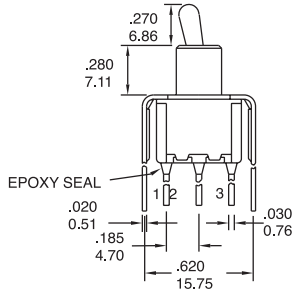
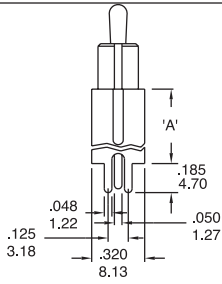
TERMINATIONS

**V9**  
**4PDT**

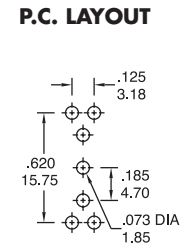


Part N° shown: 1A41-N2F4V9AE

**U2 U3**  
**SPDT**

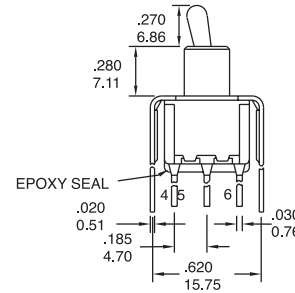
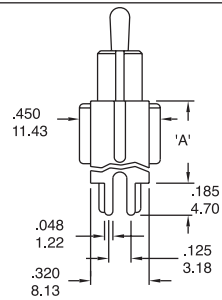


Dim. A	
U2	.460 (11.68)
U3 (Δ)	.630 (16.00)

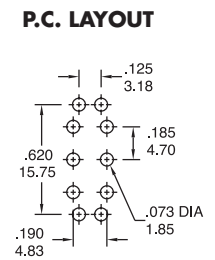


Part N° shown: 1A11-N2F4U\_SE

**U2 U3**  
**DPDT**

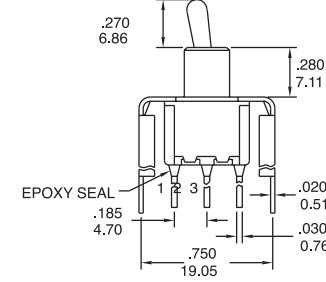
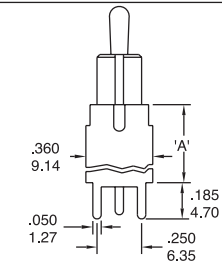


Dim. A	
U2	.460 (11.68)
U3 (Δ)	.630 (16.00)

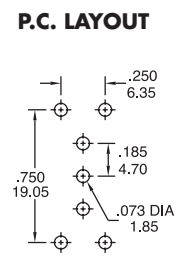


Part N° shown: 1A21-N2F4U\_SE

**U4 U5**  
**SPDT**

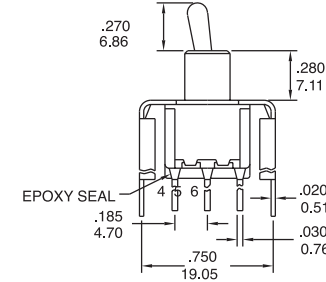
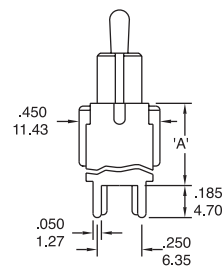


Dim. A	
U4 (Δ)	.460 (11.68)
U5	.630 (16.00)

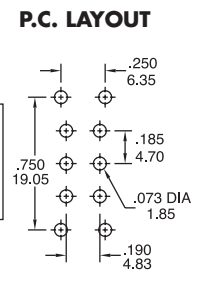


Part N° shown: 1A11-N2F4U\_SE

**U4 U5**  
**DPDT**



Dim. A	
U4 (Δ)	.460 (11.68)
U5	.630 (16.00)



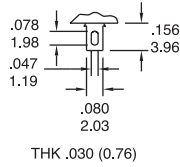
Part N° shown: 1A21-N2F4U\_SE

(Δ) Min qty required

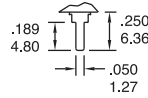


## SERIES 1A

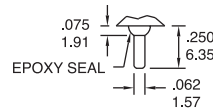
### TERMINATIONS



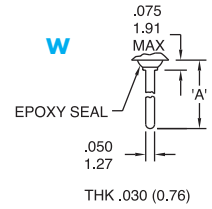
**ST**



**PC**



**QC** Quick Connect



**W**

EPOXY SEAL

THK .030 (0.76)

**Dim. A**

**W1 .750 (19.05)**

**W3 .425 (10.80)**

### SEALING



**E**



**E**

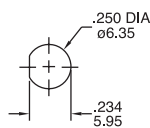
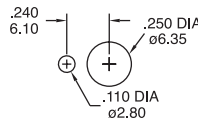
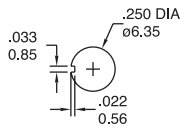
### CONTACT MATERIALS

### CONTACT RATINGS

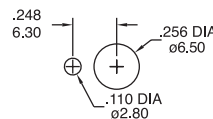
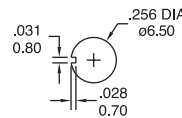
- S (std)** **Moving Contacts:** silver plated brass  
**Terminals:** silver plated brass  
**Rating:** 2 Amps with resistive load @ 250 VAC  
 5 Amps with resistive load @ 125 VAC or 28 VDC
- A** **Moving Contacts:** gold plating over nickel plated brass  
**Terminals:** gold plating over nickel plated 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

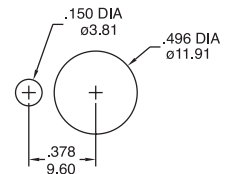
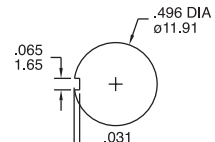
#### 1/4 IN. BUSHING



#### METRIC BUSHING



#### 15/32 IN. BUSHING

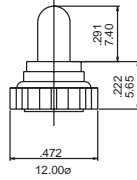


**SERIES 1A**

**ACCESSORIES**

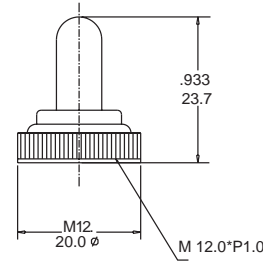
**SEALINGS**

Rubber Hood sealing for toggle "N"



**1AK1** Metric  
**1AE1** Inch (STD)

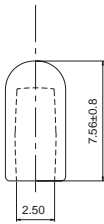
Rubber Hood sealing for toggle "G" and "GX"



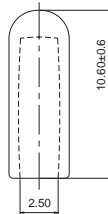
**1AF0**

**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.



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

(Δ) Min qty required