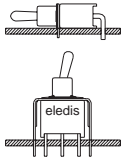




## SERIES 1B

- Sealed miniature toggle switches



## AGENCY APPROVALS



File N° E195524



File N° E195524

### IP67

- In conformity with:
- EN 60529: 1991
  - IEC 529: 1989

## CHARACTERISTICS

- Case and bushing in glass filled nylon with o-ring in the bushing for added seal.
- Many convenient options.

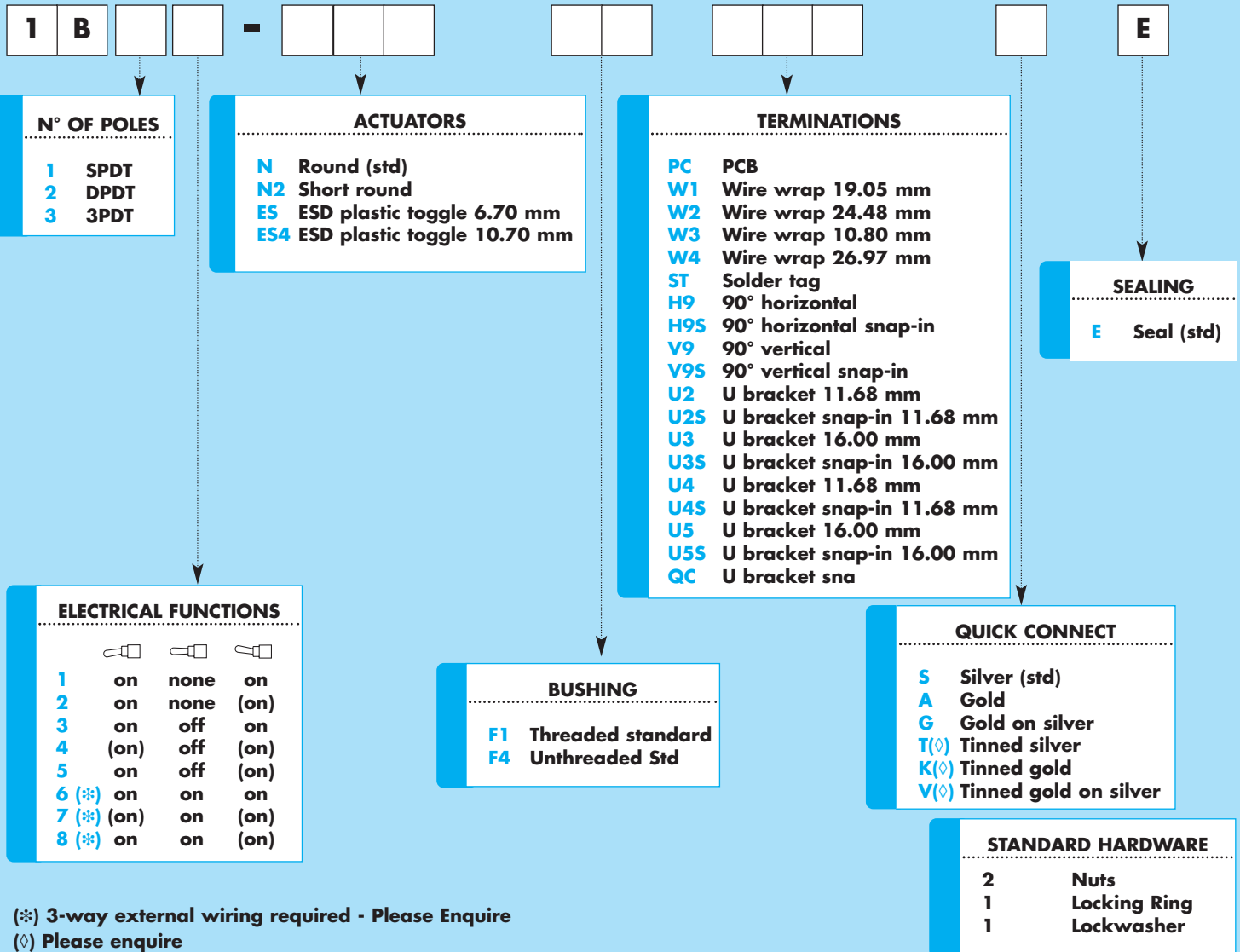
## SPECIFICATIONS

- Contact Rating:** **S** (silver) - 5A with resistive load @ 125 VAC or 28 VDC - 2A with resistive load @ 250 VAC  
**A** (gold) - 0.4 VA max @ 20 VAC or DC max  
**Electrical life:** 50,000 make and break cycles at full load  
**Contact Resistance:** 10 mΩ max. initial @ 2-4 VDC - 100 mA, for both 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 & bushing:** Glass filled nylon 6/6, flame retardant, heat stabilized (UL94V-0)  
**Actuator:** Black nylon-with internal o-ring seal std with all actuators  
**Switch support:** Brass or steel, tin plated  
**Switch support retainer:** Stainless steel  
**Terminal seal:** Epoxy

## HOW TO ORDER



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

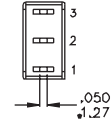
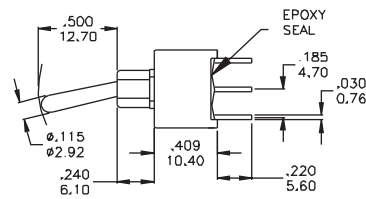
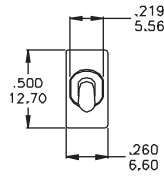
## SERIES 1B

### 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

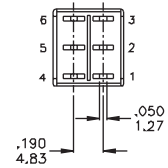
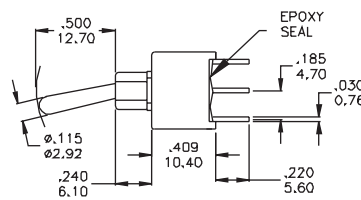
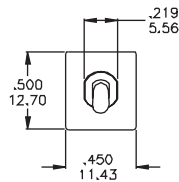
2 Comm.  
 1 3 •



Part N° shown: 1B11-NF4PCAE

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
7 (*)	(on)	on	(on)
8 (*)	on	on	(on)
	2-3, 5-6	open	2-1, 5-4

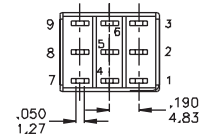
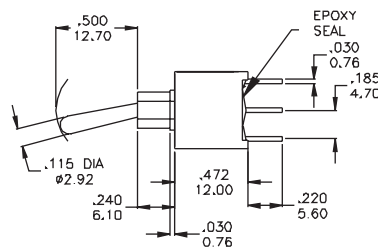
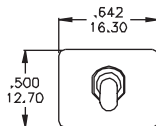
2 Comm. 5 Comm.  
 1 3 • 4 6 •



Part N° shown: 1B21-NF4PCAE

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

2 Comm. 5 Comm. 8 Comm.  
 1 3 • 4 6 • 7 9 •

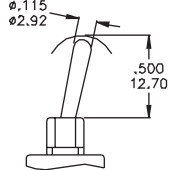


Part N° shown: 1B31-NF4PCAE

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

### ACTUATORS

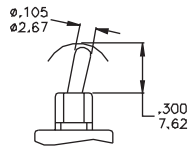
Standard when ordered with ST, PC terminations



Subtract 2.68 for F1 bushing

N

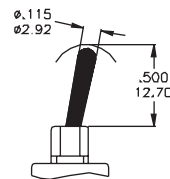
Standard when ordered with H9, V9, U2 terminations



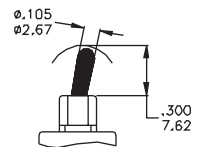
Subtract 2.68 for F1 bushing

N2

Antistatic Plastic Black Toggle



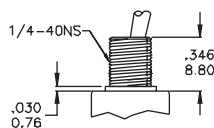
ES



ES4

**Note:** Static resistance 9000 VDC, between actuator and terminals. Not available with E1 conductive bushing

### BUSHING



F1

Standard with PC, H9, V9, U terminations

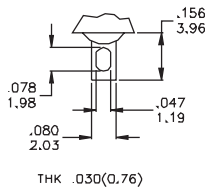


F4

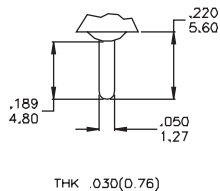


SERIES 1B

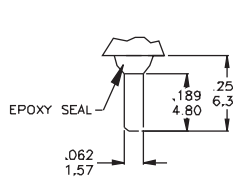
TERMINATIONS



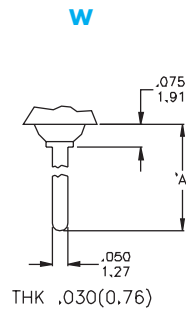
ST



PC



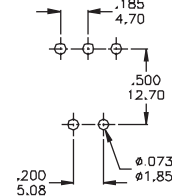
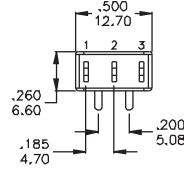
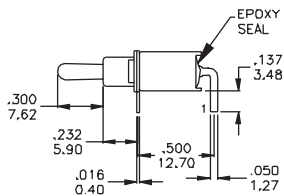
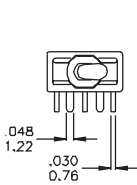
QC



W

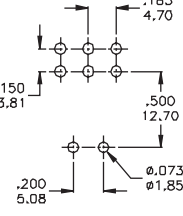
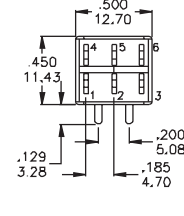
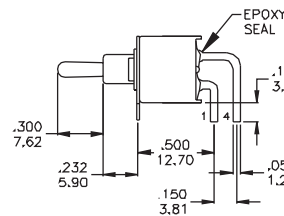
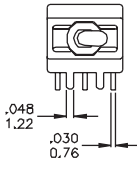
Dim. A	
W1	.750 (19.05)
W2	.964 (24.48)
W3	.425 (10.80)
W4	1.062 (26.97)

H9 SPDT



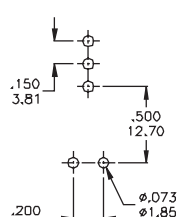
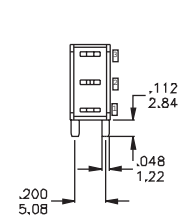
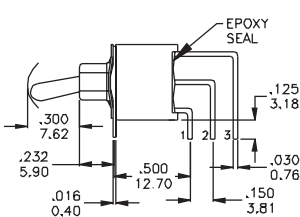
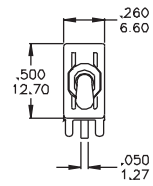
Part N° shown: 1B11-N2F4H9AE

H9 DPDT



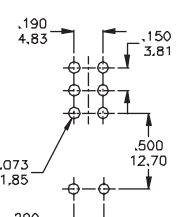
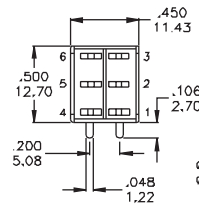
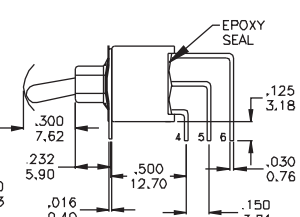
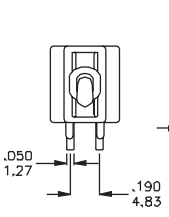
Part N° shown: 1B21-N2F4H9AE

V9 SPDT



Part N° shown: 1B11-N2F4V9AE

V9 DPDT

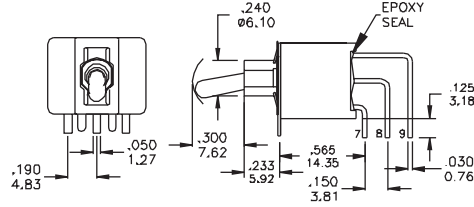


Part N° shown: 1B21-N2F4V9AE

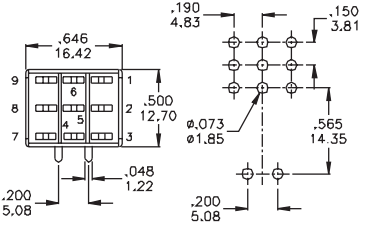
**SERIES 1B**

**TERMINATIONS**

**V9  
3PDT**

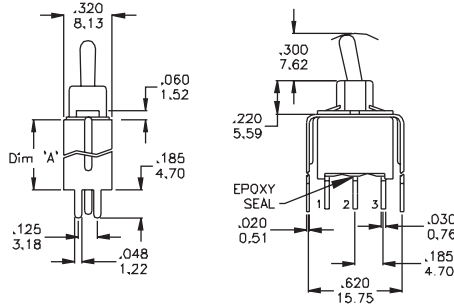


**P.C. LAYOUT**

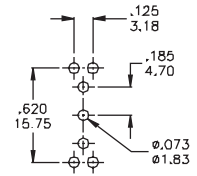


**Part N° shown: 1B31-N2F4V9AE**

**U2 U3  
SPDT**



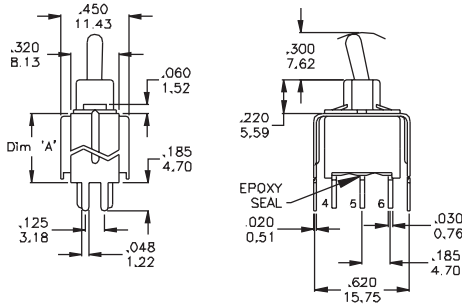
**P.C. LAYOUT**



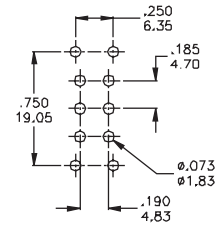
Dim. A	
<b>U2</b>	<b>.460 (11.68)</b>
<b>U3</b>	<b>.630 (16.00)</b>

**Part N° shown: 1B11-N2F4U\_AE**

**U4 U5  
SPDT**



**P.C. LAYOUT**



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

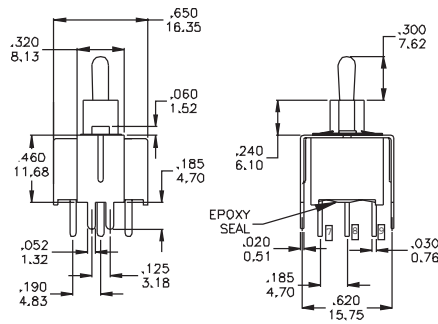
**Part N° shown: 1B11-N2F4U\_AE**



**SERIES 1B**

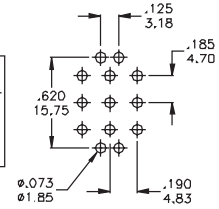
**TERMINATIONS**

**U4 U5  
3PDT**



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

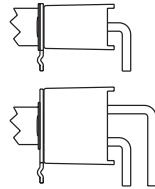
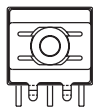
**P.C. LAYOUT**



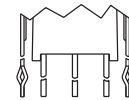
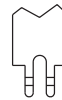
Part N° shown: **1B31-N2F4U\_AE**

**Snap-in termination options**

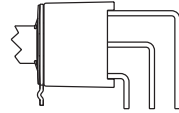
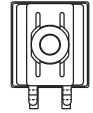
**H9S**



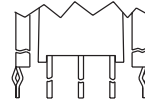
**U2S  
U3S**



**V9S**



**U4S  
U5S**



**H9S, V9S, U2S, U3S, U4S, U5S** have the same P.C layout but are supplied with snap-in bracket to grip onto the PCB



# TOGGLE SWITCHES

## SERIES 1B

### CONTACT MATERIALS

### CONTACT RATINGS

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

### PACKAGING

### MARKING (on products)

### LABELLING (on packaging)

#### Transparent Trays 15x21x4 cm



Qty per tray: (ST, PC Terminals)  
 Series 1B1x 200 pcs  
 1B2x 100 pcs  
 1B3x 100 pcs

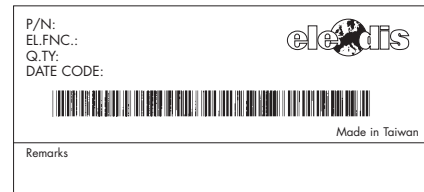
The switches are individually marked with the following information:

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

**Side 2** RATING  
 CONTACTS

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

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



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