

TL series

Subminiature washable toggle switches



DISTINCTIVE FEATURES

- Process sealed
- Single piece case
- Front and rear sealing
- Wide variety of contact materials
- Same PCB layout as TP, TR and TG subminiature switches



ENVIRONMENTAL SPECIFICATIONS

- Operating temperature : -30 °C to +85 °C (-22 °F to +185 °F)
- Moisture : 21 days 95 % (NFC 20-603 - IEC 68-2-3)



ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load :
 - gold plated contacts : 0.4 VA 20 V max. AC or DC
 - silver plated contacts : 0.5 A 48 V max. AC or DC
- Minimum load : 10 mA 50 mV - 10 μ A 5 VDC
- Contact resistance : 20 m Ω max.
- Insulation resistance : 1,000 M Ω min. at 500 VDC
- Dielectric strength :
 - 1,000 Vrms 50 Hz min. between terminals and frame
 - 500 Vrms 50 Hz min. between terminals
- Electrical life at full load :

Contacts	Number of cycles	
	2 positions	3 positions
Gold plated	60,000	30,000
Silver plated	20,000	10,000



GENERAL SPECIFICATIONS

- Strength of terminals : pull-out force - 10 N max.
- Cleaning : solvents or water + detergent
- Wave soldering : 260 °C (500 °F) - 5 sec.

The company reserves the right to change specifications without notice.



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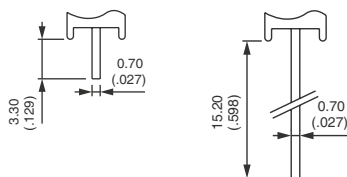
MATERIALS

- Case : PBT
- Actuator : brass, nickel plated
- Contacts and terminals :
 - 0 : brass, gold plated
 - 1 : brass, silver plated
 - 3 : brass, gold plated (1,27 micron gold)
 - 8 : contact brass, gold plated + tin plated terminals
 - 9 : contact brass, gold plated (1,27 micron gold) + tin plated terminals
- Terminal seal : epoxy

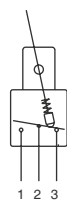
APEM products may be recycled at end-of-life for the re-claiming of valuable metal components.



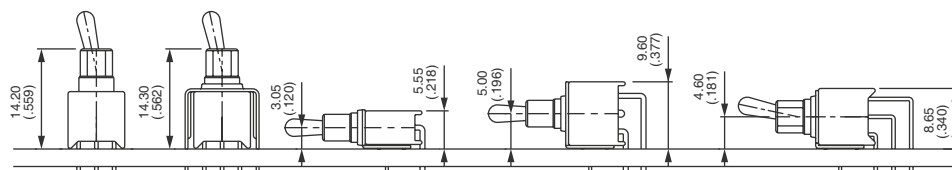
TERMINALS



ELECTRICAL FUNCTIONS



PCB MOUNTING





BUILD YOUR PART NUMBER

BASIC PART NUMBER			
SERIES	NUMBER OF POLES	ELECTRICAL FUNCTIONS	TERMINALS
TL	3 Single pole 4 Double pole	6 ON - ON 9 ON OFF ON 7 MOM OFF MOM 8 ON OFF MOM 2 ON - MOM	P0 Straight PC Y0 Bracket mounting W0 Right angle, horizontal mounting WW Right angle, vertical mounting
OPTIONS			
CONTACT AND TERMINAL MATERIALS	LEVER STYLES / CASE COLORS		SPECIAL OPTIONS
0 Brass, gold plated 1 Brass, silver plated 3 Brass, gold plated (1.27 micron gold) 8 Contact brass, gold plated + tin plated terminals 9 Contact brass, gold plated (1.27 micron gold) + tin plated terminals (SP only)	With blue case 00 Short lever, nickel plated 01 Short lever, black 02 Long lever, nickel plated 03 Long lever, black 04 Medium lever, nickel plated 05 Medium lever, black 40 Short insulated lever 30 Long insulated lever	With black case 50 Short lever, nickel plated 51 Short lever, black 52 Long lever, nickel plated 53 Long lever, black 54 Medium lever, nickel plated 55 Medium lever, black 56 Cylindrical lever, nickel plated 94 Short insulated lever 90 Long insulated lever	00 No special requirement 07 Trimmed terminals - length 3.2 (.125) 08 Extended terminals 18 Switch without ground plate 20 Ground plate with 2 pins 25 Trimmed terminals - length 5 (.196) 50 Crimped ground plate pins



ABOUT THIS SERIES

On the following pages, you will find successively basic part numbers of switches and options in the same order as in above chart.



Notice : please note that not all combinations of above numbers are available. Refer to the following pages for further information.

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STRAIGHT PC TERMINALS : TL..P0



Single pole	Double pole	III	II	I
TL36P0	TL46P0	ON	-	ON
TL39P0	TL49P0	ON	OFF	ON
TL37P0	TL47P0	MOM	OFF	MOM
TL38P0	TL48P0	ON	OFF	MOM
TL32P0	TL42P0	ON	-	MOM

STRAIGHT PC TERMINALS
BRACKET MOUNTING : TL..Y0



Single pole	Double pole	III	II	I
TL36Y0	TL46Y0	ON	-	ON
TL39Y0	TL49Y0	ON	OFF	ON
TL37Y0	TL47Y0	MOM	OFF	MOM
TL38Y0	TL48Y0	ON	OFF	MOM
TL32Y0	TL42Y0	ON	-	MOM

RIGHT ANGLE TERMINALS
HORIZONTAL MOUNTING : TL..W0



		III	II	I
Single pole	Double pole			
TL36W0	TL46W0	ON	-	ON
TL39W0	TL49W0	ON	OFF	ON
TL37W0	TL47W0	MOM	OFF	MOM
TL38W0	TL48W0	ON	OFF	MOM
TL32W0	TL42W0	ON	-	MOM

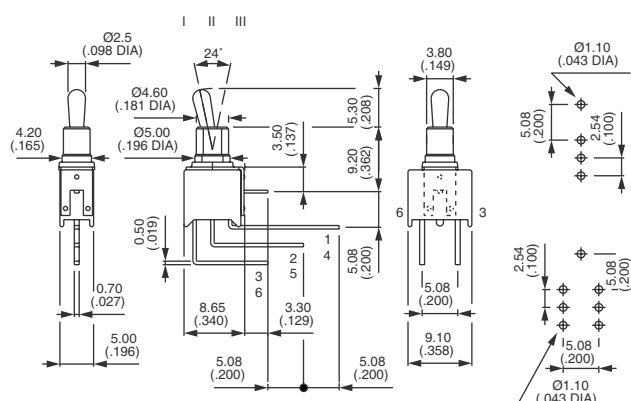
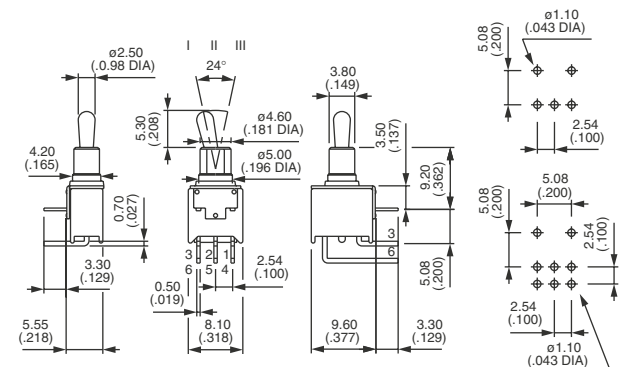
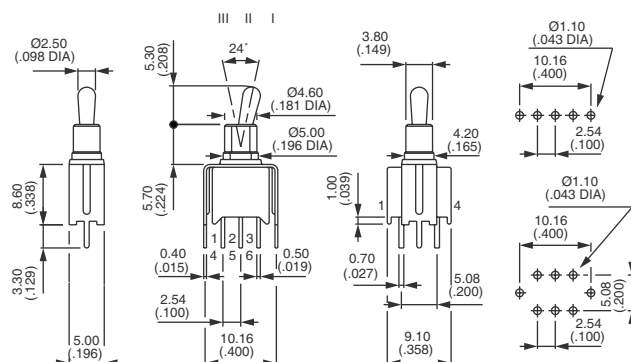
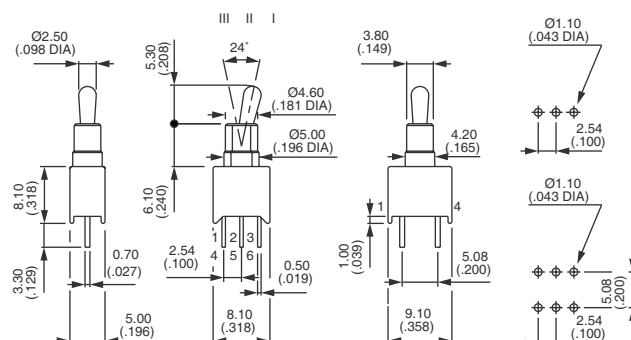
RIGHT ANGLE TERMINALS
VERTICAL MOUNTING : TL..WW



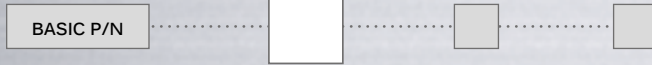
Single pole	Double pole	III	II	I
TL36WW	TL46WW	ON	-	ON
TL39WW	TL49WW	ON	OFF	ON
TL37WW	TL47WW	MOM	OFF	MOM
TL38WW*	TL48WW*	ON	OFF	MOM
TL32WW*	TL42WW*	ON	-	MOM

*Functions 2 and 8 : reversed connection available. On request.

Shown with standard lever

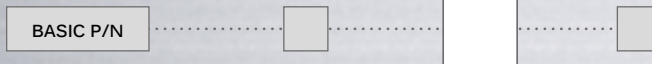


CONTACT AND TERMINAL MATERIALS

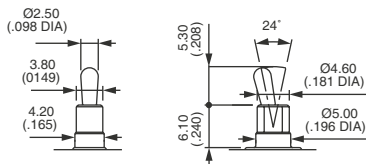


- 0 Brass, gold plated
- 1 Brass, silver plated
- 3 Brass, gold plated (1.27 micron gold)
- 8 Contact brass, gold plated + tin plated terminals
- 9 Contact brass, gold plated (1.27 micron gold) + tin plated terminals (single pole only)

LEVER AND CASE STYLES

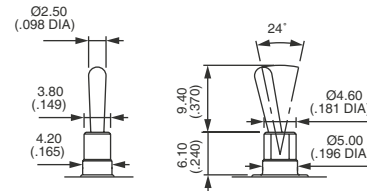


SHORT - STANDARD



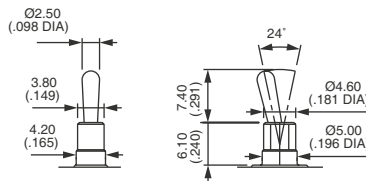
CASE	Blue	Black
LEVER		
Nickel plated	00	50
Black	01	51

LONG



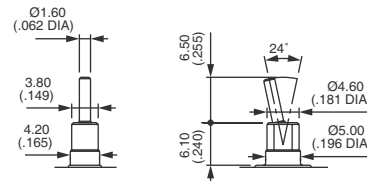
CASE	Blue	Black
LEVER		
Nickel plated	02	52
Black	03	53

MEDIUM



CASE	Blue	Black
LEVER		
Nickel plated	04	54
Black	05	55

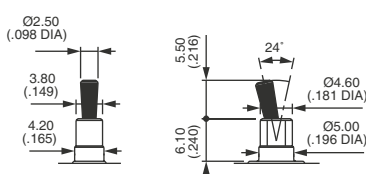
CYLINDRICAL



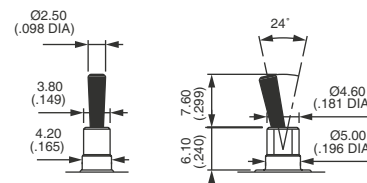
CASE	Blue	Black
LEVER		
Nickel plated	-	56

INSULATED LEVERS

Protected against electrostatic discharges (ESD) up to 10 KV.



CASE	Blue	Black
LEVER		
Black	40	94



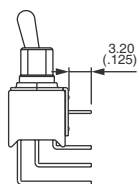
CASE	Blue	Black
LEVER		
Black	30	90

TL series

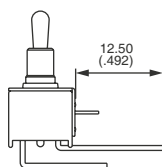
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SPECIAL OPTIONS

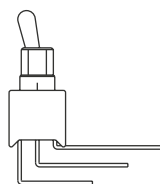
- BASIC P/N
- 00 No special requirement
 - 07 **Trimmed terminals** - length 3,2 mm (.125) for TL..WW models only
 - 08 **Extended terminals** for TL..W0 models only
 - 18 Switch **without ground plate** for TL..WW models only
 - 20 **Ground plate with 2 pins** for TL..WW models only
 - 25 **Trimmed terminals** - length 5 mm (.196) for all models, except TL..WW
 - 50 **Crimped ground plate pins.**
Retains switch on PCB during handling and wave soldering.
For models TL..W0, TL..WW and TL..Y0 single and double pole.



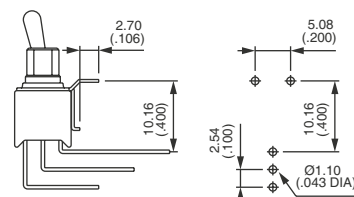
07



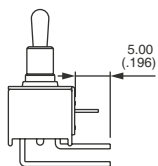
08



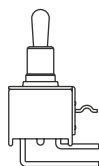
18



20



25



50