

# 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  $\mu$ A 5 VDC
- Contact resistance : 20 m $\Omega$  max.
- Insulation resistance : 1,000 M $\Omega$  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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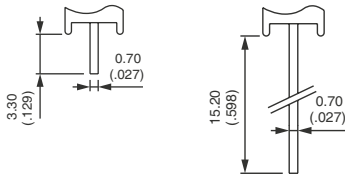
## MATERIALS

- 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

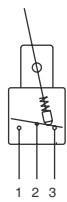
APEM products may be recycled at end-of-life for the re-claiming of valuable metal components.



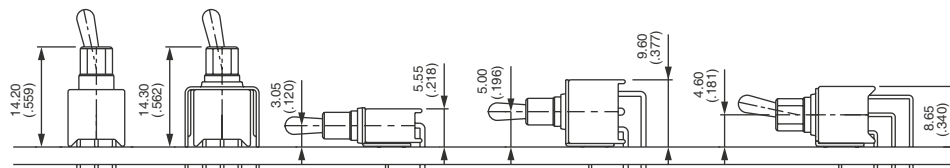
## TERMINALS



## ELECTRICAL FUNCTIONS

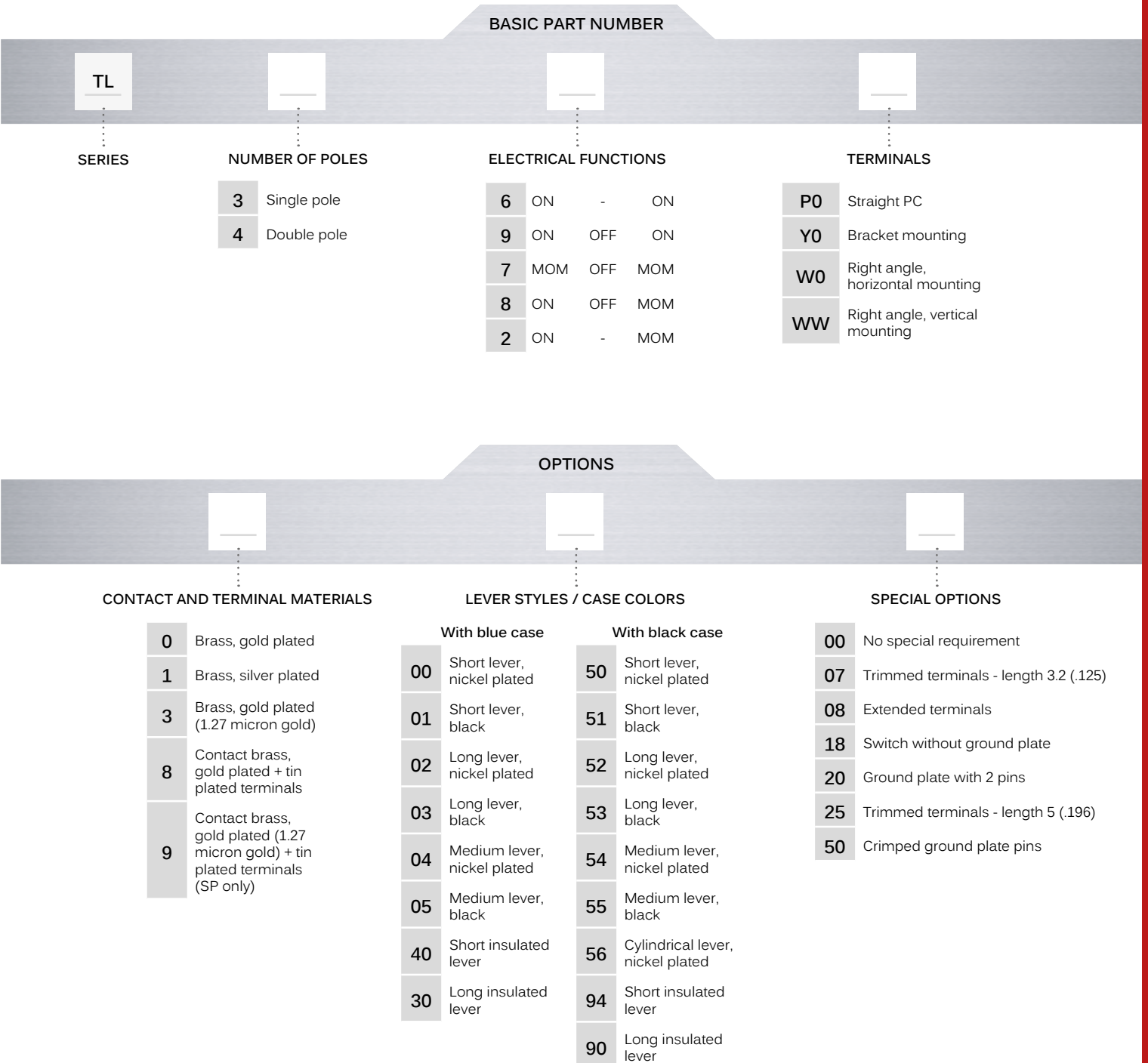


## PCB MOUNTING





### BUILD YOUR PART NUMBER



### 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.

# TL series

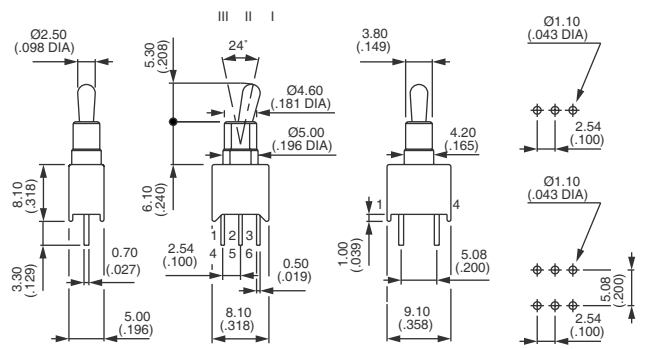
Subminiature washable toggle switches

## 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

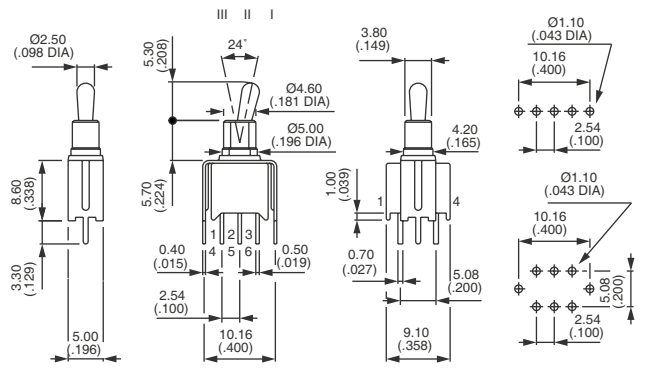
Shown with standard lever



## STRAIGHT PC TERMINALS BRACKET MOUNTING : TL..Y0



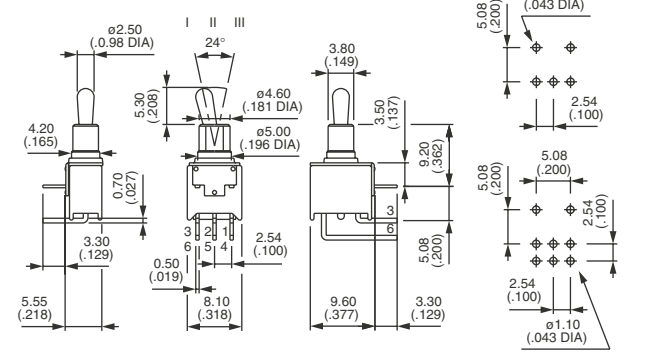
Single pole	Double pole	III	II	I
TL36Y0	TL46Y0	ON	-	ON
TL39Y0	TL49Y0	ON	OFF	ON
TL37Y0	TL47Y0	MOM	OFF	MOM
TL38Y0	TL48Y0	ON	OFF	MOM
TL32Y0	TL42Y0	ON	-	MOM



## RIGHT ANGLE TERMINALS HORIZONTAL MOUNTING : TL..W0



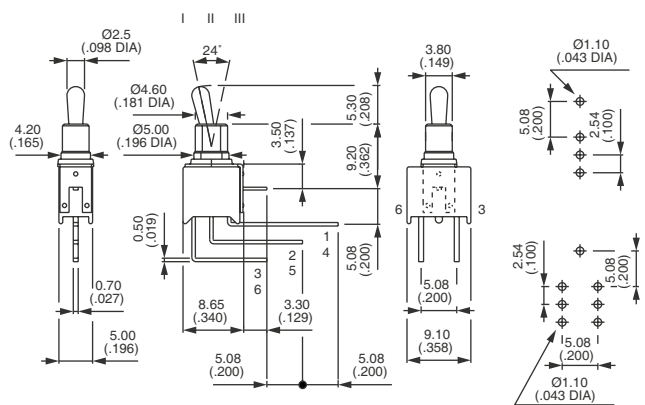
Single pole	Double pole	III	II	I
TL36W0	TL46W0	ON	-	ON
TL39W0	TL49W0	ON	OFF	ON
TL37W0	TL47W0	MOM	OFF	MOM
TL38W0	TL48W0	ON	OFF	MOM
TL32W0	TL42W0	ON	-	MOM



## 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



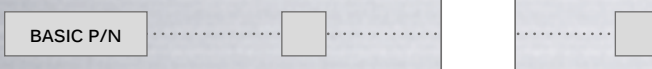
\*Functions 2 and 8 : reversed connection available. On request.

### CONTACT AND TERMINAL MATERIALS

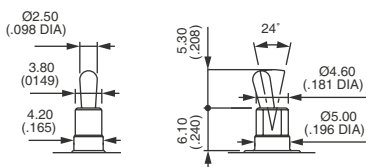


- 0 Brass, gold plated
- 1 Brass, silver plated
- 3 Brass, gold plated (1.27 micron gold)
- 8 Contact brass, gold plated + tin plated terminals
- 9 Contact brass, gold plated (1.27 micron gold) + tin plated terminals (single pole only)

### LEVER AND CASE STYLES

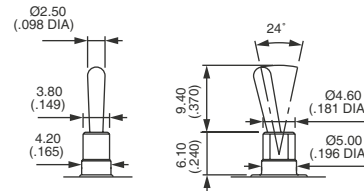


#### SHORT - STANDARD



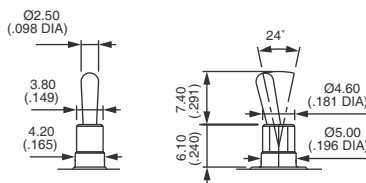
LEVER \ CASE	Blue	Black
Nickel plated	00	50
Black	01	51

#### LONG



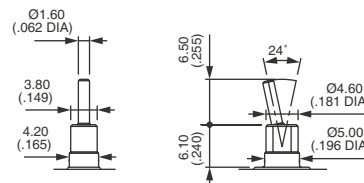
LEVER \ CASE	Blue	Black
Nickel plated	02	52
Black	03	53

#### MEDIUM



LEVER \ CASE	Blue	Black
Nickel plated	04	54
Black	05	55

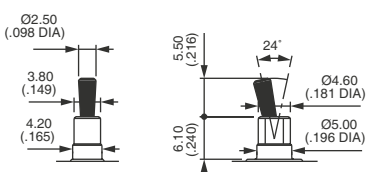
#### CYLINDRICAL



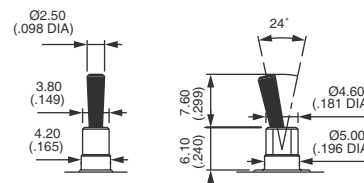
LEVER \ CASE	Blue	Black
Nickel plated	-	56

#### INSULATED LEVERS

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



LEVER \ CASE	Blue	Black
Black	40	94



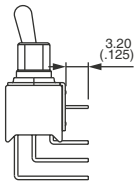
LEVER \ CASE	Blue	Black
Black	30	90

# TL series

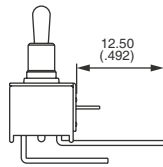
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## SPECIAL OPTIONS

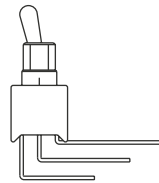
- BASIC P/N
- 00 No special requirement
  - 07 **Trimmed terminals** - length 3,2 mm (.125) for TL..WW models only
  - 08 **Extended terminals** for TL..W0 models only
  - 18 **Switch without ground plate** for TL..WW models only
  - 20 **Ground plate with 2 pins** for TL..WW models only
  - 25 **Trimmed 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.



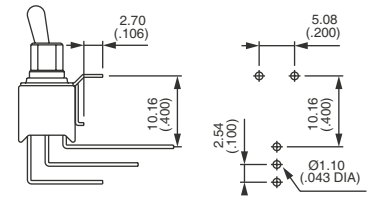
07



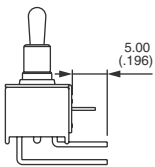
08



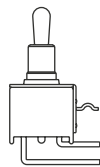
18



20



25



50

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