

# TL - TR - TP AND TG SERIES

## SUBMINIATURE WASHABLE SWITCHES

### Distinctive features

A

#### NUMBER 1 IN SEALING

##### T. SERIES

- TL toggle
- TR rocker
- TP pushbutton
- TG slide

## WHY ?

Single piece case

**means no ultrasonic welding**



O-ring seal

**actuator / bushing**

Rubber seal on slide switches



Epoxy sealing

**around terminals**

Also features :

Dry circuit switching

**Gold or silver plated contacts**

Tin lead plated terminals

**wide variety of**

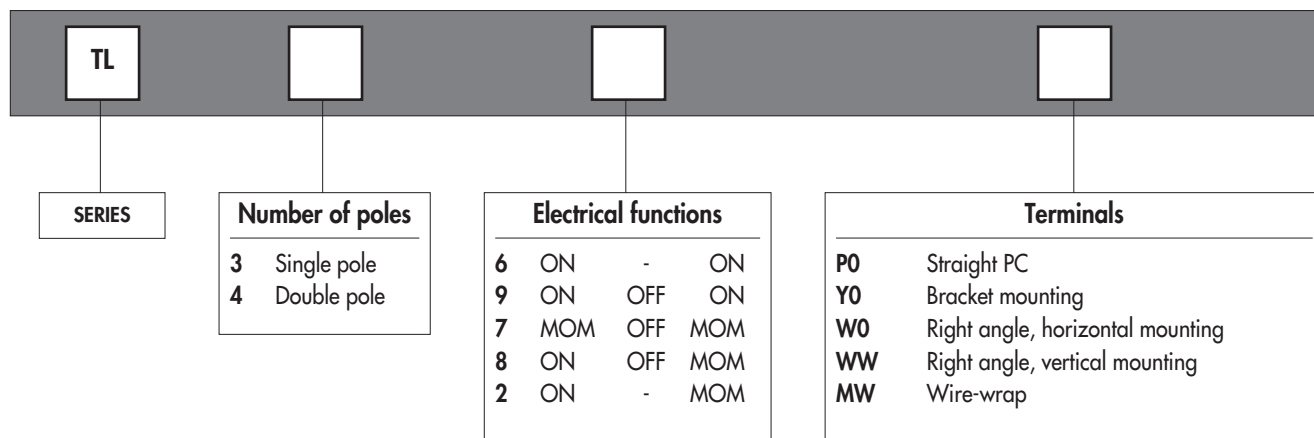
- actuators
- PCB terminals
- 2,54 (.100) PCB layout

# TL SERIES

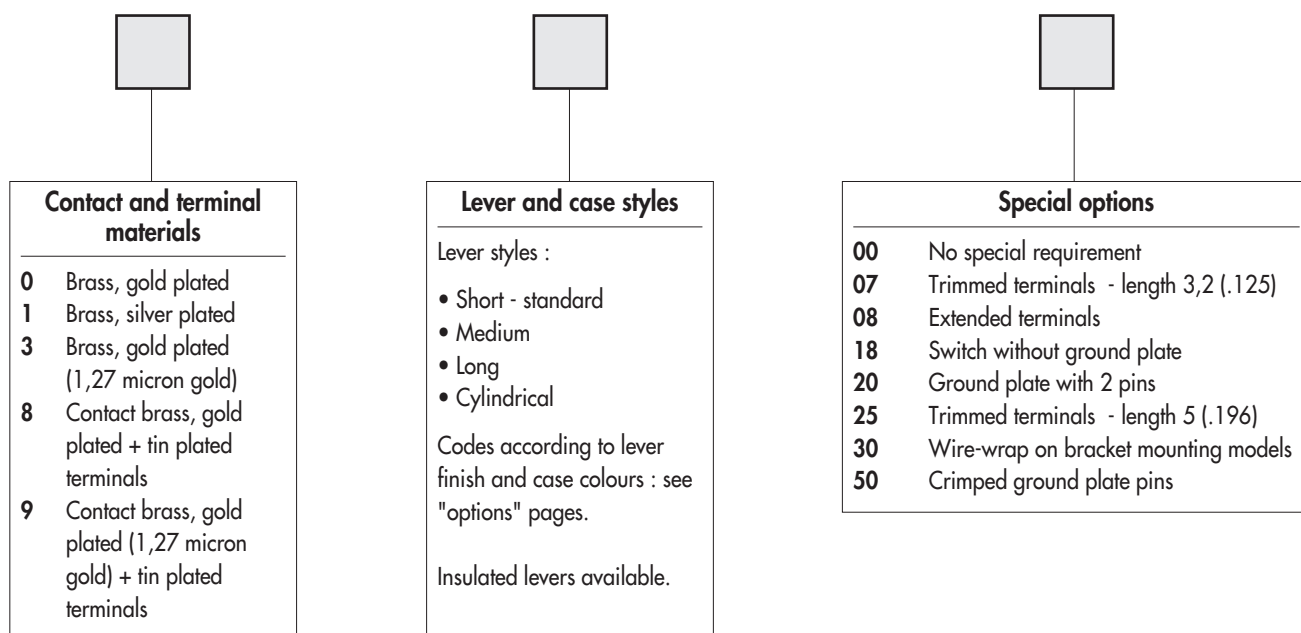
## SUBMINIATURE WASHABLE TOGGLE SWITCHES

### Overview

MODEL  
STRUCTURE



OPTIONS



#### ABOUT THIS SERIES

On the following pages, you will find successively :

- specifications
- model structure of switches
- options in the same order as in above chart

**Dimensions** : first dimensions are in mm while inches are shown as bracketted numbers.



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



**Packaging unit** : 100 pieces, except for models with WW terminals (50 pieces)

# TL SERIES

## SUBMINIATURE WASHABLE TOGGLE SWITCHES

### Specifications

#### ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load :
  - gold plated contacts : 0,4VA 20V max. AC or DC
  - silver plated contacts : 0,5A 48V max. AC or DC
- Minimum load : 10mA 50mV - 10 $\mu$ A 5VDC
- Contact resistance : 20 m $\Omega$  max.
- Insulation resistance : 1.000 M $\Omega$  min. at 500VDC
- 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      |

#### 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

#### GENERAL SPECIFICATIONS

- Strength of terminals : pull-out force - 10N max.
- Operating temperature : -30°C to +85°C
- Moisture : 21 days 95 % (NFC 20-603 - IEC 68-2-3)
- Cleaning : solvents or water + detergent
- Wave soldering : 260°C - 5 sec.

#### SOLDERING

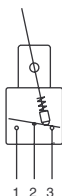
Compatible wave soldering processes : see specifications S and SF, section B.

# TL SERIES

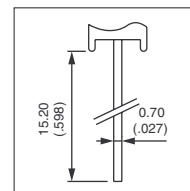
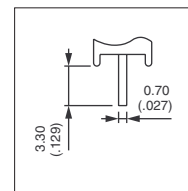
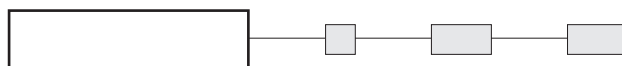
## SUBMINIATURE WASHABLE TOGGLE SWITCHES

MODEL

STRUCTURE



- Straight PC, right angle or wire-wrap terminals
- 1 and 2 pole configurations

MODEL  
STRUCTURE

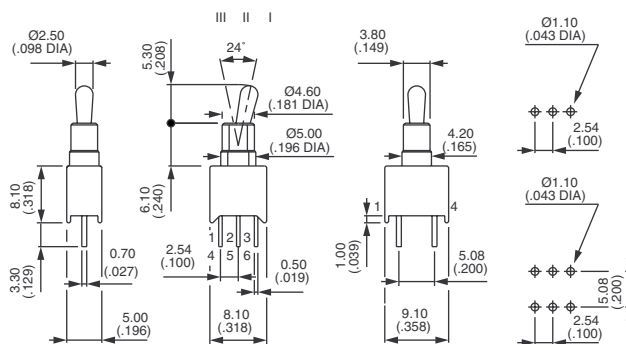
Shown with standard lever

### Straight PC terminals : TL..P0



| Single pole | Double pole |
|-------------|-------------|
| TL36P0      | TL46P0      |
| TL39P0      | TL49P0      |
| TL37P0      | TL47P0      |
| TL38P0      | TL48P0      |
| TL32P0      | TL42P0      |

| III | II  | I   |
|-----|-----|-----|
| ON  | -   | ON  |
| ON  | OFF | ON  |
| MOM | OFF | MOM |
| ON  | OFF | MOM |
| ON  | -   | MOM |

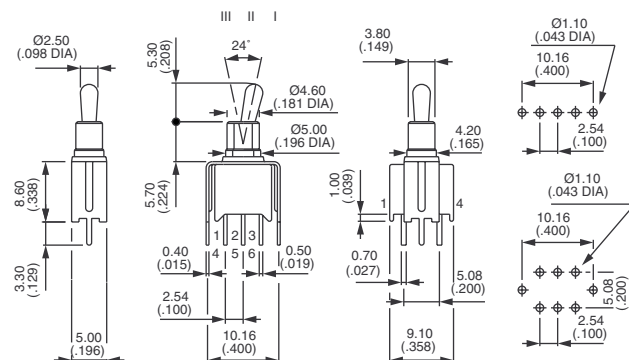


### Straight PC terminals - bracket mounting : TL..Y0



| Single pole | Double pole |
|-------------|-------------|
| TL36Y0      | TL46Y0      |
| TL39Y0      | TL49Y0      |
| TL37Y0      | TL47Y0      |
| TL38Y0      | TL48Y0      |
| TL32Y0      | TL42Y0      |

| III | II  | I   |
|-----|-----|-----|
| ON  | -   | ON  |
| ON  | OFF | ON  |
| MOM | OFF | MOM |
| ON  | OFF | MOM |
| ON  | -   | MOM |

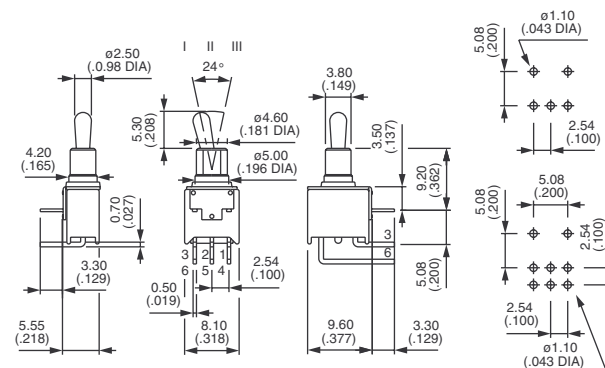


### Right angle terminals - horizontal mounting : TL..W0



| Single pole | Double pole |
|-------------|-------------|
| TL36W0      | TL46W0      |
| TL39W0      | TL49W0      |
| TL37W0      | TL47W0      |
| TL38W0      | TL48W0      |
| TL32W0      | TL42W0      |

| III | II  | I   |
|-----|-----|-----|
| ON  | -   | ON  |
| ON  | OFF | ON  |
| MOM | OFF | MOM |
| ON  | OFF | MOM |
| ON  | -   | MOM |



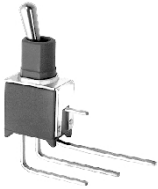
# TL SERIES

## SUBMINIATURE WASHABLE TOGGLE SWITCHES

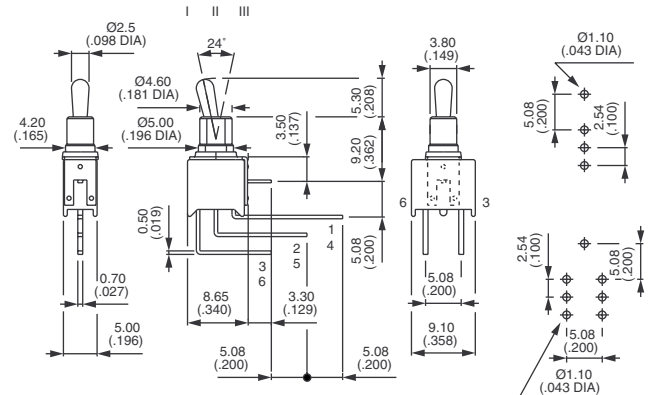
MODEL  
STRUCTURE

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### Right angle terminals - vertical mounting : TL..WW



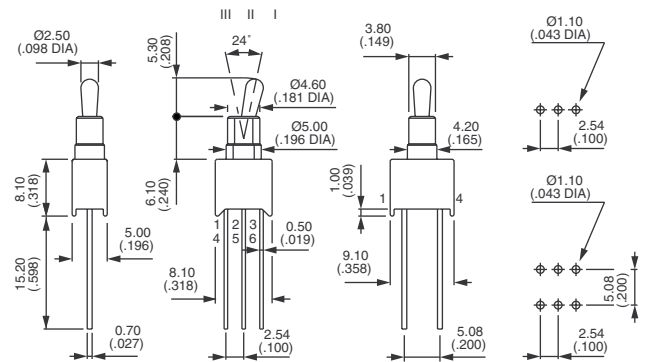
| Single pole | Double pole | III | II  | I   |
|-------------|-------------|-----|-----|-----|
| TL36WW      | TL46WW      | ON  | -   | ON  |
| TL39WW      | TL49WW      | ON  | OFF | ON  |
| TL37WW      | TL47WW      | MOM | OFF | MOM |
| TL38WW*     | TL48WW*     | ON  | OFF | MOM |
| TL32WW*   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



### Wire-wrap terminals : TL..MW

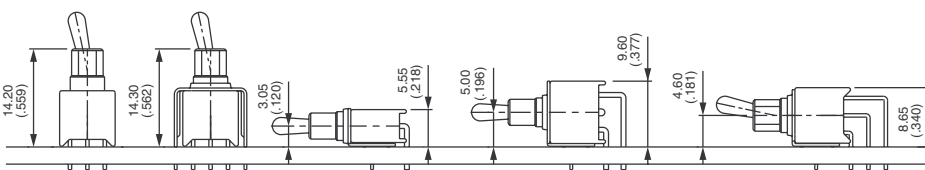


| Single pole | Double pole | III | II  | I   |
|-------------|-------------|-----|-----|-----|
| TL36MW      | TL46MW      | ON  | -   | ON  |
| TL39MW      | TL49MW      | ON  | OFF | ON  |
| TL37MW      | TL47MW      | MOM | OFF | MOM |
| TL38MW      | TL48MW      | ON  | OFF | MOM |
| TL32MW      | TL42MW      | ON  | -   | MOM |



\* Functions 2 and 8 : reversed connection available. Consult factory.

### PCB MOUNTING



# TL SERIES

## SUBMINIATURE WASHABLE TOGGLE SWITCHES

OPTIONS

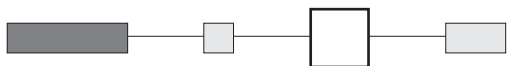


### CONTACT AND TERMINAL MATERIALS



- 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

### LEVER AND CASE STYLES



|                  |           |           |  |
|------------------|-----------|-----------|--|
|                  |           |           |  |
| Short - standard |           |           |  |
| LEVER \ CASE     | Blue      | Black     |  |
| Nickel plated    | <b>00</b> | <b>50</b> |  |
| Matt black       | <b>01</b> | <b>51</b> |  |

|               |           |           |  |
|---------------|-----------|-----------|--|
|               |           |           |  |
| Long          |           |           |  |
| LEVER \ CASE  | Blue      | Black     |  |
| Nickel plated | <b>02</b> | <b>52</b> |  |
| Matt black    | <b>03</b> | <b>53</b> |  |

|               |           |           |  |
|---------------|-----------|-----------|--|
|               |           |           |  |
| Medium        |           |           |  |
| LEVER \ CASE  | Blue      | Black     |  |
| Nickel plated | <b>04</b> | <b>54</b> |  |
| Matt black    | <b>05</b> | <b>55</b> |  |

|               |      |           |  |
|---------------|------|-----------|--|
|               |      |           |  |
| Cylindrical   |      |           |  |
| LEVER \ CASE  | Blue | Black     |  |
| Nickel plated | -    | <b>56</b> |  |

# TL SERIES

## SUBMINIATURE WASHABLE TOGGLE SWITCHES

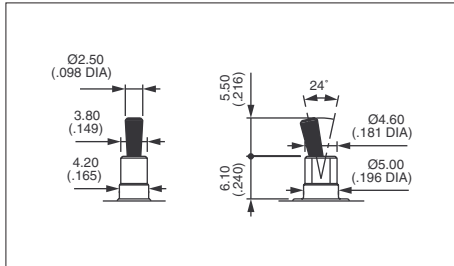
OPTIONS

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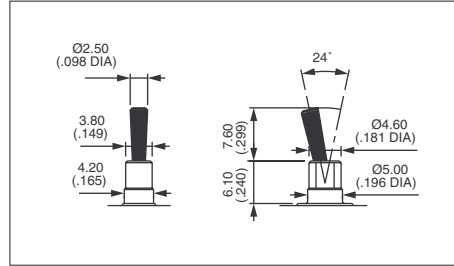
### LEVER AND CASE STYLES (continued)

#### Insulated levers

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

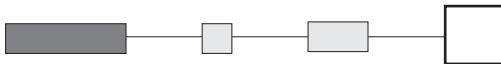


**40**  
**94** With blue case  
With black case



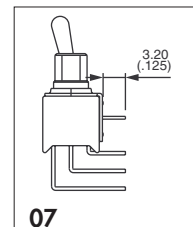
**30**  
**90** With blue case  
With black case

### SPECIAL OPTIONS

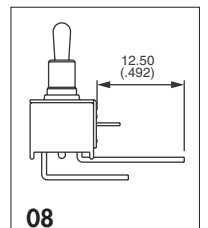


**00** No special requirement

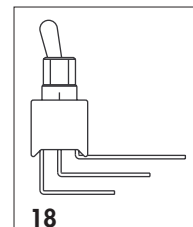
**07** Trimmed terminals - length 3,2 mm (.125) for TL..WW models only



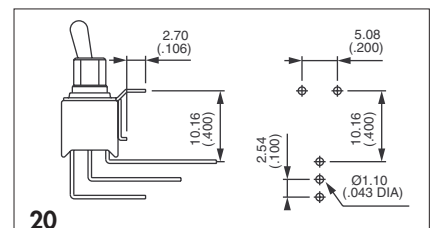
**08** Extended terminals for TL..W0 models only



**18** Switch without ground plate for TL..WW models only



**20** Ground plate with 2 pins for TL..WW models only



# TL SERIES

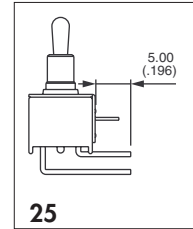
## SUBMINIATURE WASHABLE TOGGLE SWITCHES

OPTIONS

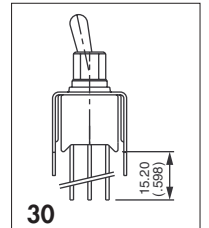


### SPECIAL OPTIONS (continued)

**25**      **Trimmed terminals** - length 5 mm (.196) for all models, except TL..WW



**30**      **Wire-wrap terminals** on models with mounting **bracket**



**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.

