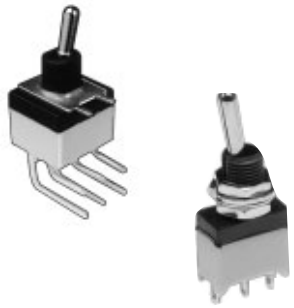
# S and SF series

## Washable miniature toggle switches

*Distinctive features and specifications*



### ❑ Sealed
- Secure assembly of the two case parts
- Internally sealed bushing
- Epoxy sealed terminals

### ❑ Process compatible (S series)
- Wave solderable
- Washable

### ❑ Optional ESD protection

A

**ELECTRICAL SPECIFICATIONS**

- Max. current/voltage rating with resistive load :
  - silver contacts (A or 1) : 2A 250VAC - 5A 125VAC - 4A 30VDC
  - gold plated brass contacts (CD or 0) : 0,4VA 20VAC or DC
  - gold plated silver contacts (AD or 2) : 2A 250VAC - 5A 125VAC - 4A 30VDC (300mA 30VDC for gold plating)
- Initial contact resistance : 10 mΩ max.
- Insulation resistance : 1.000 MΩ min.
- Dielectric strength : 1.000 Vrms 50 Hz min.
- Electrical life at full load :

| Contacts | Number of cycles | |
|---|---|---|
| | 2 positions | 3 positions |
| A or 1 | 40.000 | 40.000 |
| CD or 0 | 100.000 | 50.000 |
| AD or 2 | 40.000 | 40.000 |

**MATERIALS**

- Case and cover : UL94-VO, polyamide, glass filled or PES
- Actuator : brass, chrome plated
- Contacts
  **CD** or **0** : brass, gold plated
  **A** or **1** : silver
  **AD** or **2** : silver, gold plated
- Terminal seal : epoxy

**GENERAL SPECIFICATIONS**

- Mechanical strength :
  Terminals are strengthened by a bracket or a ground plate ensuring the rigidity of the switch on the board.
  Actuator strength is 10N max.
- Operating temperature : -20°C to +85°C
- Storage temperature : -40°C to +85°C
- Moisture :
  The insulating materials employed and the complete seal permit the switches to withstand a 56 days moisture test (IEC 68-2-3).
- Soldering - thermal shock (S series only) :
  The switches are especially designed for flow soldering at 260°C during 5 seconds owing to high temperature polymer parts.
- Iron soldering (SF series) : 300°C 5 sec. max.
- Solderability : The switches are tested at 235°C according to IEC 68-2-20 after accelerated aging.

**AGENCY APPROVALS**

CECC 96201-006

**Availability** : consult factory for details of approved models.

**Marking** : to order switches marked UL or CECC, complete appropriate box of ordering format.

# S series

## Washable toggle switches - plain bushing

*Overview*



MODEL STRUCTURE

S [ ] [ ] [ ] [ ] [ ]

**SERIES**

**Terminals**

| | |
|---|---|
| **W** | Right angle, horizontal mounting |
| **WW** | Right angle, vertical mounting |
| **Y** | Bracket mounting |

**Bushing and terminals**

| | |
|---|---|
| **2** | Terminal spacing 4,7 (.185) or 3,81 (.150) |
| **0** | Terminal spacing 5,08 (.200) (SY and SW switches) |

All models with plain bushing.

**Number of poles**

| | |
|---|---|
| **3** | Single pole |
| **4** | Double pole |

**Electrical functions**

| | | | |
|---|---|---|---|
| **6** | ON | - | ON |
| **9** | ON | OFF | ON |
| **7** | MOM | OFF | MOM |
| **8** | ON | OFF | MOM |
| **2** | ON | - | MOM |
| **4TH** | ON | ON | ON |

OPTIONS [ ] [ ] [ ] [ ] [ ]

**Contact materials**

| | |
|---|---|
| **A** | Silver |
| **AD** | Silver, gold plated |
| **CD** | Brass, gold plated |

**Levers**

| | |
|---|---|
| **-7** | Short |
| | Standard |
| **-13** | Long |

**Insulated levers**

| | |
|---|---|
| **-11** | Long |
| **-8** | Short |

**Approvals**

**UL**
**CECC**

Availability : Consult factory for details of approved models.

**Special options**

| | |
|---|---|
| **X601** | Silver plated brass contacts |
| **F** | Tin dipped terminals |
| **X696** | Higher bushing (for insulated levers) |

**Insulating caps**

| | |
|---|---|
| **U270** | For lever 13 |
| **U1710** | For lever 7 |

**ABOUT THIS SERIES**
On the following pages, you will find successively :
- model structure of switches
- options in the same order as above

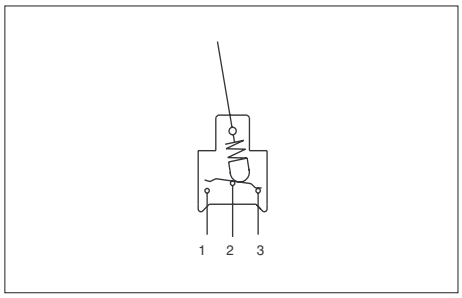
**Dimensions** : first dimensions are in mm while inches are shown as bracketted numbers.

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

**Packaging unit** : 50 or 25 pieces depending on model.

# S series

## Washable toggle switches - plain bushing




- Straight PC or right angle terminals
- Terminal spacing 4,7 (.185) or 5,08 (.200) on SW switches
- 1 and 2 pole configurations



**MODEL STRUCTURE**

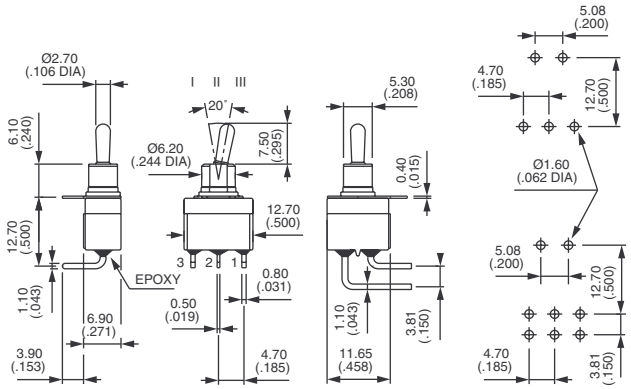


Shown with lever (-7)

### Right angle terminals - horizontal - spacing 4,7 (.185)



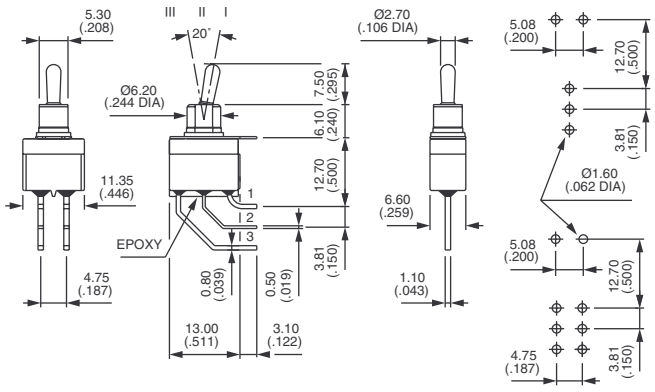
| Single pole | Double pole | III 2-3 5-6 | II | I 2-1 4-5 |
|---|---|---|---|---|
| **SW236** | **SW246** | ON | - | ON |
| **SW239** | **SW249** | ON | OFF | ON |
| **SW237** | **SW247** | MOM | OFF | MOM |
| **SW238** | **SW248** | ON | OFF | MOM |
| **SW232** | **SW242** | ON | - | MOM |
| | **SW244TH*** | ON | ON | ON |




### Right angle terminals - vertical



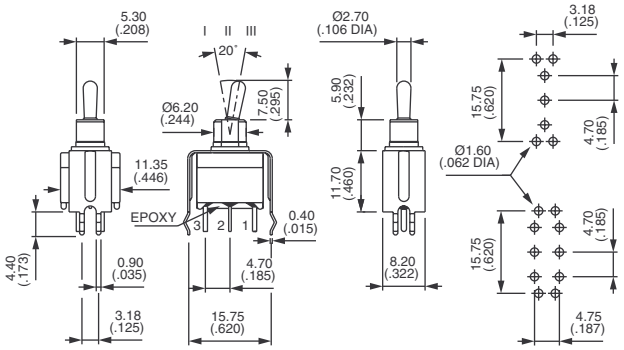
| Single pole | Double pole | I 2-3 5-6 | II | III 2-1 4-5 |
|---|---|---|---|---|
| **SWW236** | **SWW246** | ON | - | ON |
| **SWW239** | **SWW249** | ON | OFF | ON |
| **SWW237** | **SWW247** | MOM | OFF | MOM |
| **SWW238** | **SWW248**** | ON | OFF | MOM |
| **SWW232** | **SWW242**** | ON | - | MOM |
| | **SWW244TH*** | ON | ON | ON |




### Bracket mounting



| Single pole | Double pole | III 2-3 5-6 | II | I 2-1 4-5 |
|---|---|---|---|---|
| **SY236** | **SY246** | ON | - | ON |
| **SY239** | **SY249** | ON | OFF | ON |
| **SY237** | **SY247** | MOM | OFF | MOM |
| **SY238** | **SY248** | ON | OFF | MOM |
| **SY232** | **SY242** | ON | - | MOM |
| | **SY244TH*** | ON | ON | ON |




* Function 4 : SP in DP case - TH connection, see end of catalogue.
** Functions 2 and 8 : reversed connection available. Consult factory.

# S series

## Washable toggle switches - plain bushing

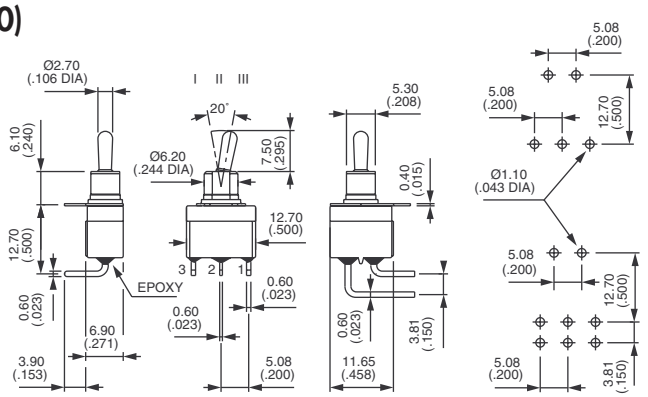
MODEL STRUCTURE

A

### Right angle terminals - horizontal - spacing 5,08 (.200)

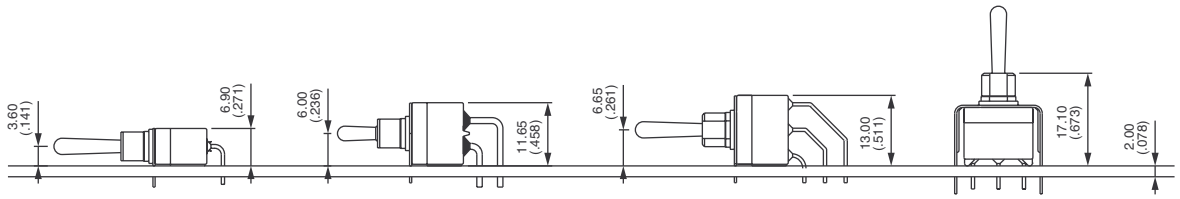


| Single pole | Double pole | III | II | I |
|---|---|---|---|---|
| | | 2-3 | | 2-1 |
| | | 5-6 | | 4-5 |
| **SW036** | **SW046** | ON | - | ON |
| **SW039** | **SW049** | ON | OFF | ON |
| **SW037** | **SW047** | MOM | OFF | MOM |
| **SW038** | **SW048** | ON | OFF | MOM |
| **SW032** | **SW042** | ON | - | MOM |
| | **SW044TH*** | ON | ON | ON |



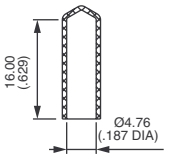

* Function 4 : SP in DP case, see end of catalogue.

### PCB MOUNTING



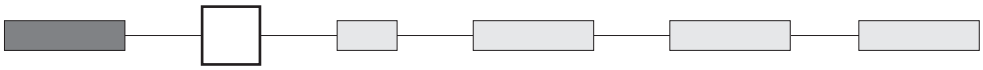

### CAP FOR PCB PROCESSING

Provide additional protection during PCB processing.
Supplied mounted on the switch or separately.
Material : vinyl




**U3012**

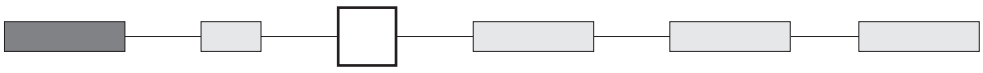
## CONTACT MATERIALS



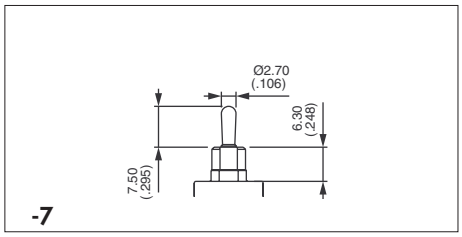
**A** Silver
**AD** Silver, gold plated
**CD** Brass, gold plated



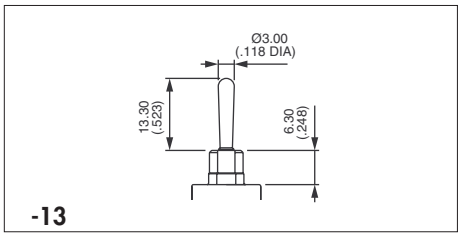
## LEVERS



Dash compulsory before lever code.




**-7**
Standard

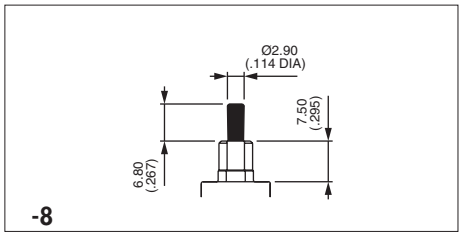



**-13**
Long

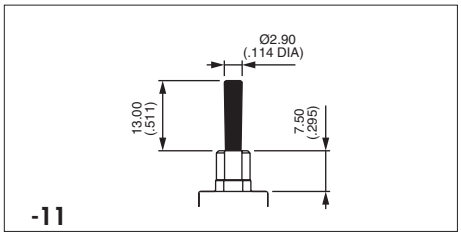
If actuator not specified, we supply former default option -13.

### Insulated levers

Protected against electrostatic discharges (ESD) up to 12 KV. Black colour.



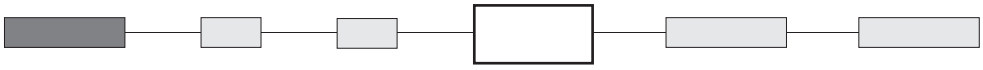

**-8**
Short




**-11**
Long

To combine with option X696.

## SPECIAL OPTIONS



**X601** Silver plated brass contacts
Lower rating - Minimum quantity : 5.000 pieces per model and shipment.

**X696** Higher bushing 7,50 (.295). Compulsory for insulated levers 11 and 8.

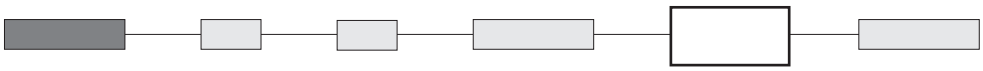
**F** Tin dipped terminals
For models with gold plated contacts only.

# S series

## Washable toggle switches - plain bushing

OPTIONS

### AGENCY APPROVALS

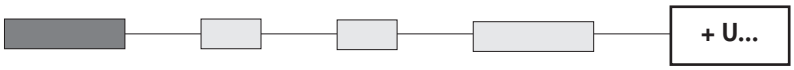


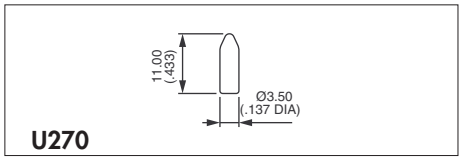
**UL**
**CECC**

**Availability** : consult factory for details of approved models.

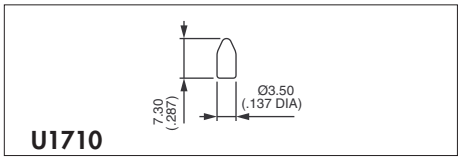
**Marking** : to order switches marked UL or CECC, please complete above box with desired approvals.
Blank : no agency approval required.

### INSULATING CAPS




**U270**
For lever 13




**U1710**
For lever 7

| Cap colours | |
|---|---|
| Replace "0" by number | |
| **1** | blue |
| **1/4** | dark blue |
| **2** | black |
| **3** | green |
| **4** | grey |
| **5** | yellow |
| **6** | red |
| **7/1** | white |
| **9** | orange |

# SF series

## Washable toggle switches - insulated threaded bushing

*Overview*



MODEL STRUCTURE

SF

**SERIES**

**Number of poles**

| | |
|---|---|
| **3** | Single pole |

**Electrical functions**

| | | | |
|---|---|---|---|
| **6** | ON | - | ON |
| **9** | ON | OFF | ON |
| **7** | MOM | OFF | MOM |
| **8** | ON | OFF | MOM |
| **2** | ON | - | MOM |

**Terminals**

| | |
|---|---|
| **S0** | Solder lug terminals |
| **P0** | Straight PC terminals |

OPTIONS

**Contact and terminal materials**

| | |
|---|---|
| **0** | Brass, gold plated |
| **1** | Silver |
| **2** | Silver, gold plated |
| **5** | Special contact, lower rating |
| **8** | Contact brass, gold plated + tin plated terminals (for PC terminals only) |

**Levers**

| | |
|---|---|
| **00** | Long |
| **01** | Short |
| **Insulated levers** | |
| **08** | Short |
| **11** | Long |

**Model**

| | |
|---|---|
| **00** | Standard |

**Insulating cap**

| | |
|---|---|
| **10** | P/N U270<br>For lever 00 only |

**ABOUT THIS SERIES**

On the following pages, you will find successively :
- model structure of switches
- options in the same order as above

Specifications are at the beginning of the S series.

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

**Mounting accessories** : 2 hex nuts 8 mm (.314) across flats, 1 locking ring and 1 lockwasher
Standard and special hardware available are presented in section I.

**Packaging unit** : 50 to 25 pieces depending on model.

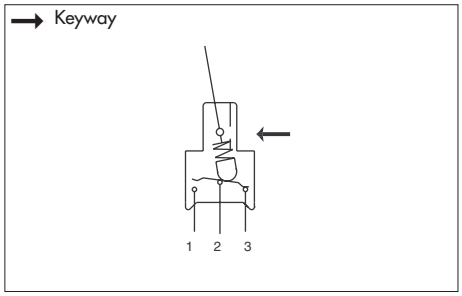
# SF series

## Washable toggle switches - insulated threaded bushing

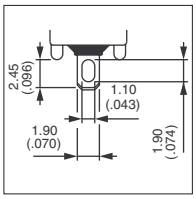
*Solder lug or straight PC terminals*

MODEL STRUCTURE

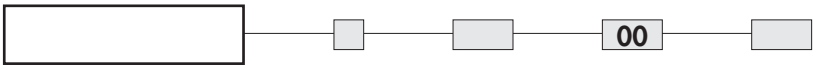
A




- Single pole configurations
- Max. torque : 0,25 Nm (.184 Ft.lb)
- Iron soldering : 300°C max. 5 sec. max.
- Max. panel thickness :
  2,5 mm (.098) with 2 nuts
  4 mm (.157) with 1 nut




**MODEL STRUCTURE**



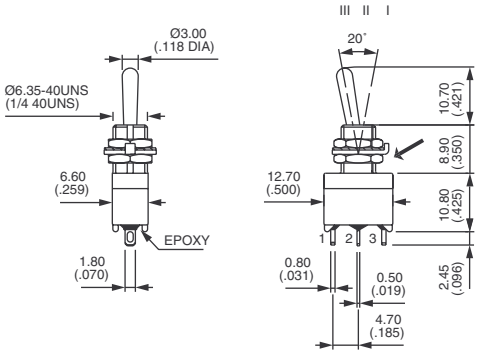

Shown with standard lever 00

### Solder lugs : SF..S0



| | III | II | I |
|---|---|---|---|
| | 2-3 | | 1-2 |
| **SF36S0** | ON | - | ON |
| **SF39S0** | ON | OFF | ON |
| **SF37S0** | MOM | OFF | MOM |
| **SF38S0** | ON | OFF | MOM |
| **SF32S0** | ON | - | MOM |

Keyway

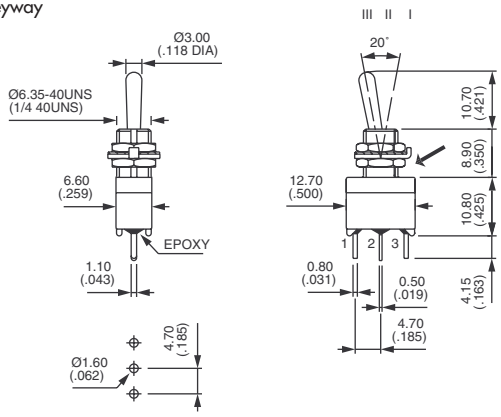



### Straight PC terminals : SF..P0

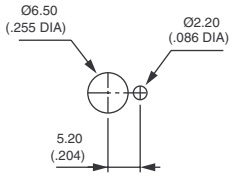


| | III | II | I |
|---|---|---|---|
| | 2-3 | | 1-2 |
| **SF36P0** | ON | - | ON |
| **SF39P0** | ON | OFF | ON |
| **SF37P0** | MOM | OFF | MOM |
| **SF38P0** | ON | OFF | MOM |
| **SF32P0** | ON | - | MOM |

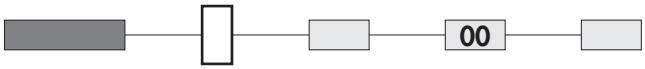
Keyway




### PANEL CUT-OUT



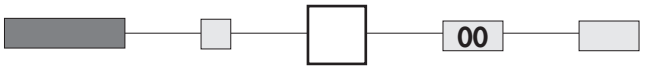
## CONTACT AND TERMINAL MATERIALS

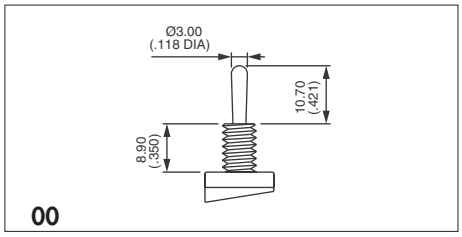



**0** Brass, gold plated (standard)
**1** Silver
**2** Silver, gold plated
**5** Special contact, lower rating, minimum quantity : consult factory.
**8** Contact brass, gold plated + tin plated terminals (for PC terminals only)

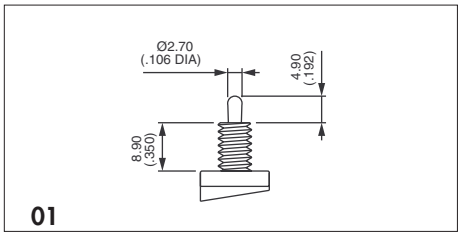


## LEVERS



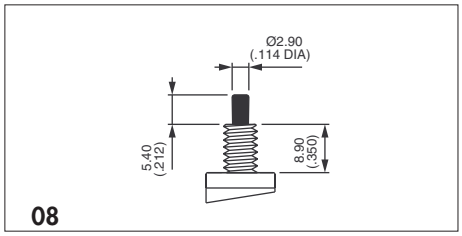




Standard

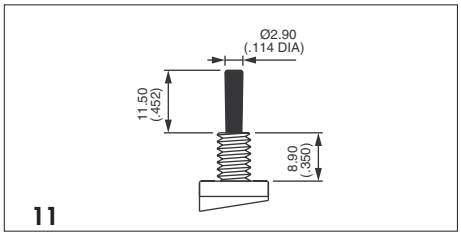



### Insulated levers

Protected against electrostatic discharges (ESD) up to 12KV. Black colour.

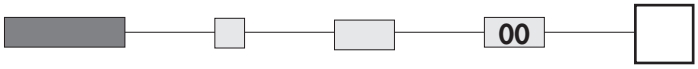



Short

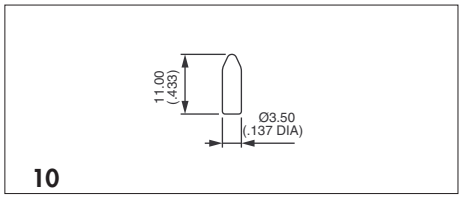



Long

## INSULATING CAP




**Blank** Without cap




P/N U270 - For lever 00

To order cap separately, use its part number (U270).

| Cap colours | |
|---|---|
| Replace "0" by number | |
| **1** | blue |
| **1/4** | dark blue |
| **2** | black |
| **3** | green |
| **4** | grey |
| **5** | yellow |
| **6** | red |
| **7/1** | white |
| **9** | orange |

# Mouser Electronics

Authorized Distributor

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Apem:
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