1S-Series
SUB-MINIATURE ROCKERS

The 1S family of sub-miniature rocker switches is composed of three switch series; the 1S1-Series sub-miniature rocker switch, the 1SS-Series sealed sub-miniature rocker switch, and the 1SM-Series surface mount sealed sub-miniature rocker switch. All of these series offer a variety of ratings, circuits, contact materials, terminal platings, and actuator colors.

**Product Highlights:**
- IP67 Sealing
- 5 Circuit Configurations
- 3 Rocker Styles to choose from
- Dry-Circuit thru 3A 125VAC Rating
- Snap-in, Solder Lug or PC Terminations

**Typical Applications:**
- Instrumentation
- Test Equipment
- Telecommunications
- Networking
- Handheld Appliances

**Resources:**
- Configure a Complete Part
- Download CAD & Sales Drawing

Carling Technologies

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### Electrical

**Contact Rating**
- refer to ordering scheme

**Electrical Life**
- 1S1-Series: 30,000 make & break cycles @ full load
- 1SS & 1SM-Series: 50,000 make & break cycles @ full load

**Contact Resistance**
- 20 mΩ max. initial @ 2-4 VDC
- 100 mΩ for both silver & gold plated contacts

**Insulation Resistance**
- 1000 MΩ min.

**Dielectric Strength**
- 1500 Volts RMS @ sea level

### Material

**Case**
- all UL94 V-0

**Rocker**
- 1S1-Series: Dially phthalate (DAP)
- 1SS-Series: Glass filled nylon 6/6, flame retardant, heat stabilized
- 1SM-Series: Glass filled nylon 4/6, flame retardant, heat stabilized
- 1S1-Series: Nylon (UL 94V-0)
- 1SS & 1SM-Series: Nylon, black standard, internal o-ring sealed
- 1S1-Series: Brass, nickel plated
- 1SS-Series: Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0)
- 1SM-Series: Glass filled nylon 4/6, flame retardant, heat stabilized (UL 94V-0)

**Bushing**
- 1S1-Series: Stainless Steel
- 1S1 & 1SM-Series: Brass, tin plated

**Epoxy**
- See page 6-7 for dimensional specifications.

### Physical

**Operating Temperature**
- -30°C to +85°C

**Index of Protection**
- 1SS & 1SM-Series: IP67

**Solder Heat Resistance**
- MIL-STD-202, Method 210

**Actuator Travel**
- 25°

### 1S1-Series - General Specifications, 1SS Ordering Scheme

#### 1S1-Series
- Sub-Miniature Rocker Switch

#### 1SS-Series
- Sealed Sub-Miniature Rocker Switch

#### 1SM-Series
- Sealed Surface Mount Sub-Miniature Rocker Switch

<table>
<thead>
<tr>
<th>Solder Heat Resistance</th>
<th>MIL-STD-202, Method 210</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Actuator Style</th>
<th>M1</th>
<th>M2</th>
<th>M6</th>
<th>M7</th>
<th>VS2</th>
<th>VS21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solder Lug</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PC Mount, 90° horizontal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PC Mount, 90° vertical</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contact Support</th>
<th>M61</th>
<th>M71</th>
<th>VS21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snap-In, U bracket</td>
<td>90° horizontal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Snap-In, U bracket</td>
<td></td>
<td>90° horizontal</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Terminal Seal</th>
<th>Epoxy Seal</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snap-In, U bracket</td>
<td>without Epoxy Seal</td>
<td></td>
</tr>
</tbody>
</table>

### 1S1-Series
- Sealed Sub-Miniature Rocker Switch

### 1SS-Series
- Sealed Sub-Miniature Rocker Switch

### 1SM-Series
- Sealed Surface Mount Sub-Miniature Rocker Switch

### 1 Series
- 1SS

### 2 Poles
- WMSP Single pole - uses terminals 1, 2 & 3
- WMDP Double pole - uses terminals 1, 2, 3, 4, 5 & 6

### 3 Circuits
- ( ) - momentary
- Position: 1 - Connected Terminals
- Position: 2 - Connected Terminals
- Position: 3 - Connected Terminals
- Position: 4 - Connected Terminals
- Position: 5 - Connected Terminals

### 4 Actuator Style
- R1 Small Rocker
- R2 Narrow Black Rocker

### 5 Actuator Color
- 1 White
- 2 Black
- 3 Red

Other colors available, consult factory.

*Manufacturer reserves the right to change product specification without prior notice.*
# 1S-Series - 1S1 Ordering Scheme, 1SM Ordering Scheme

## 1S1 - MSP 1 - R2 / 2 M6QE

### 1 Series
- **1S** Sub-Miniature Rocker Switch

### 2 Poles
- **MSP** Single pole - uses terminals 1, 2 & 3
- **MDP** Double pole - uses terminals 1, 2, 3, 4, 5 & 6

### 3 Circuit
- **( )** - momentary
  - **Position:** 1 - 2 - 3
  - **1:** 2-3, 5-6 Connected Terminals
  - **2:** 1-2, 3-4
  - **3:** ON NONE ON

### 4 Actuator Style
- **R1** Small Rocker
- **R2** Narrow Black Rocker
- **R3** Medium Rocker

### 5 Actuator Color
- **1** White
- **2** Black
- **3** Red
- Other colors available, consult factory.

### 6 Termination
- **M1** Solder Lug
- **M2** PCB
- **M6** PC Mount, 90° horizontal
- **M7** PC Mount, 90° vertical
- **VS2** PC Mount, U bracket
- **VS3** PC Mount, U bracket
- See page 8-9 for dimensional specifications.

### 7 Contacts / Terminals
- **Contact Material**
- **Terminal Plating**
- **Rating**
- **Approvals**

<table>
<thead>
<tr>
<th>Contact</th>
<th>Terminal Plating</th>
<th>Rating</th>
<th>Approvals</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>gold over silver</td>
<td>3A 125VAC or 28VDC, 1.5A 250VAC</td>
<td>UL, CSA</td>
</tr>
<tr>
<td>K</td>
<td>gold 2</td>
<td>0.4VA max 20V max (AC/DC)</td>
<td>N/A</td>
</tr>
<tr>
<td>P</td>
<td>silver 1</td>
<td>3A 125VAC or 28VDC, 1.5A 250VAC</td>
<td>UL, CSA</td>
</tr>
<tr>
<td>Q</td>
<td>silver 1</td>
<td>0.4VA max 20V max (AC/DC)</td>
<td>N/A</td>
</tr>
<tr>
<td>R</td>
<td>gold 2</td>
<td>0.4VA max 20V max (AC/DC)</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### 8 Epoxy Seal
- **E** Epoxy Seal

### 9 Packaging
- **T/R** tape reel - 500 pieces per reel

---

## 1SM - WMSP 1 - R2 - M2GE

### 1 Series
- **1SM** Sealed Surface Mount Sub-Miniature Rocker Switch

### 2 Poles
- **WMSP** Single pole - uses terminals 1, 2 & 3

### 3 Circuit
- **( )** - momentary
  - **Position:** 1 - 2 - 3
  - **1:** 2-3 Connected Terminals
  - **2:** 1-2, 3-4
  - **3:** ON NONE ON

### 4 Actuator Style
- **R2** Narrow Black Rocker

### 5 Actuator Color
- **1** White
- **2** Black
- **3** Red
- Other colors available, consult factory.

### 6 Termination
- **M6** Surface Mount, 90° flat - horizontal / side
- **S6** Surface Mount, 90° horizontal / back
- **S7** Surface Mount, 90° vertical
- See page 10 for dimensional specifications.

### 7 Epoxy Seal
- **E** Epoxy Seal

### 8 Packaging
- **T/R** tape reel - 500 pieces per reel

---

Notes:
- Tin option available with M1 termination.
- Movable contact and terminal platings: silver over copper alloy
- Terminal platings: tin over nickel over copper alloy

---

Notes:
- Tin option not available with M1 termination.
- Movable contact platings: gold over nickel over copper alloy
- Terminal platings: gold over nickel alloy

---

Notes:
- Tin option available with M1 termination.
- Movable contact and terminal platings: silver over copper alloy
- Movable contact platings: gold over nickel over copper alloy
- Terminal platings: tin over nickel over copper alloy

---

Notes:
- Tin option not available with M1 termination.
- Movable contact platings: gold over nickel alloy
- Terminal platings: gold over nickel alloy

---

T/R tape reel - 500 pieces per reel

Switches are bulk packed, unless T/R is specified at the end of the part number.
1SS-Series Dimensional Specifications: in. [mm]

**Single Pole**

**Actuator Options**

**R1**

**Termination Options**

**M1 STD. Solder Lug**

**SP**

**DP**

**M2 PC Thru-Hole**

**SP**

**DP**

**M6 Single Pole**

**P.C.MOUNTING**

**M6 Double Pole**

**P.C.MOUNTING**
1SS-Series Dimensional Specifications: in. [mm]

Termination Options

M7 Single Pole

M7 Double Pole

VS2 Single Pole

VS2 Double Pole

Snap-In Termination Options

M61

M71

VS21

* PC Mounting for M61, M71, VS21 refer to M6, M7, VS2 respectively.
1S1-Series Dimensional Specifications: in. [mm]

**Single Pole**

- **Actuator Options**
  - R1
  - R2
  - R3

- **Termination Options**
  - M1 STD. Solder Lug
    - Single Pole
    - Double Pole
  - M2 PC Thru-Hole
    - Single Pole
    - Double Pole
  - M6
    - Single Pole
    - Double Pole

**Double Pole**

- **Actuator Options**
  - M1 STD. Solder Lug
  - M2 PC Thru-Hole
  - M6

**P.C. MOUNTING**

[Diagram showing dimensional specifications for Single Pole and Double Pole configurations]
1S1-Series Dimensional Specifications: in. [mm]

**Termination Options**

### M7 Single Pole

<table>
<thead>
<tr>
<th>Part</th>
<th>Dimension</th>
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<tbody>
<tr>
<td>1</td>
<td>0.020 (0.508)</td>
</tr>
<tr>
<td>2</td>
<td>0.030 (0.762)</td>
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<td>0.030 (0.762)</td>
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<tr>
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### VS2-VS3 Single Pole

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### VS2-VS3 Double Pole

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</table>

### Snap-In Termination Options

- **M61**
  - 0.015 (0.381)
  - 0.030 (0.762)

- **M71**
  - 0.015 (0.381)
  - 0.030 (0.762)

- **VS21**
  - 0.015 (0.381)
  - 0.030 (0.762)

* PC Mounting for M61, M71, VS21 refer to M6, M7, VS2 respectively.
1SM-Series Dimensional Specifications:  in. [mm]

M6 Single Pole

S6 Single Pole

S7 Single Pole

Termination Options

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