Since its founding, Carling Technologies has continually forged a tradition of leadership in quality and product innovation. There are few products that Carling Technologies hasn’t turned “ON” and fewer industries that haven’t turned to Carling for solutions. With ISO and TS registered manufacturing facilities and technical sales offices worldwide, Carling ranks among the world’s largest manufacturers of circuit breakers, switches, power distribution units, digital switching systems and electronic controls.

**SWITCHES & CONTROLS**
- rocker
- toggle
- pushbutton
- rotary

**CIRCUIT PROTECTION**
- hydraulic-magnetic
- thermal
- GFCI / ELCI

**CUSTOM SOLUTIONS**
- PDU’s
- Keypads
- Control Modules

**MULTIPLEXED POWER SYSTEMS**
- HMI Devices & I/O Modules
- Programmable Displays
- Data Communication Interfaces
- Electrical Systems Monitoring

**STRATEGIC MARKETS SERVED:**
- On/Off Highway
- Marine
- Telecom/Datacom
- Military
- Renewable Energy

**GLOBAL LOCATIONS:**
- Carling Technologies
  World Headquarters
  Norwich, CT, USA
  ISO9001:2008
  ISO/TS16949:2009
- Carling Technologies
  Bramwell, TX, USA
  ISO14001:2004
  ISO9001:2008
  ISO/TS16949:2009
- Maretron
  Phoenix, AZ, USA
- Carling Technologies
  Mackinac, Mexico
  ISO14001:2004
  ISO9001:2008
  ISO/TS16949:2009
- Carling Technologies
  Jupiter, FL, USA
- Carling Technologies
  European Headquarters
  Exeter, UK
  ISO9001:2008
  ISO/TS16949:2009
- Carling Technologies
  Kunshan, Hong Kong
  ISO9001:2008
  ISO/TS16949:2009
- Carling Technologies
  Zhongshan, China
  ISO14001:2004
  ISO9001:2008
  ISO/TS16949:2009

**COMPETITIVE ADVANTAGES**
- Innovative & Eco-Friendly Products
- Excellent Quality & Customer Service
- Reliable & On-Time Delivery
- Vertical Integration

**OTHER SERVED INDUSTRIES:**
- Medical
- Industrial Control
- Audio / Visual
- Commercial Food
- HVAC
- Floor Care
- Generators
- Small Appliances
- Security Systems
- Test & Measurement

**WORLDWIDE NUMBERS:**
- 2400+ Employees
- 150+ Engineers
- 70+ Distributors
- 50+ Rep Firms
Carling’s miniature and subminiature sealed & non-sealed switches come in 1-4 pole configurations with ratings from 0.4VA to 6 amps. The miniature and subminiature switch lines include rocker, paddle, toggle, push button, and slide switches with PC, PCB, snap-in, and surface mount options. Certifications include UL, CSA, and cUL.

Available Online are tools such as a part configurator, product selectors and stock checks. Please visit www.carlingtech.com for the latest information on all our products.

Application Solution Engineers are readily available to assist you in selecting the appropriate product for your application. For further assistance, please email us at team2@carlingtech.com

Custom Design Solutions can be tailor-made for most any application using our extensive engineering resources.

Other Products such as switches & controls, hydraulic-magnetic, thermal and ground fault circuit breakers are also available.
<table>
<thead>
<tr>
<th>Series</th>
<th>Sub-Miniature</th>
<th>Miniature</th>
<th>Sealed</th>
<th>Surface Mount</th>
<th>Approvals</th>
<th>IP Rating</th>
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<tbody>
<tr>
<td>ROCKER</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1S1</td>
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<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>N/A</td>
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<tr>
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<td>–</td>
<td>–</td>
<td>N/A</td>
</tr>
<tr>
<td>1SM</td>
<td>✓</td>
<td>–</td>
<td>✓</td>
<td>✓</td>
<td>N/A</td>
<td>IP67</td>
</tr>
<tr>
<td>1M1</td>
<td>–</td>
<td>✓</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>N/A</td>
</tr>
<tr>
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<td>–</td>
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<td>✓</td>
<td>–</td>
<td>–</td>
<td>IP67</td>
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<tr>
<td>TOGGLE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>2S1</td>
<td>✓</td>
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<td>–</td>
<td>–</td>
<td>–</td>
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<tr>
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<td>✓</td>
<td>✓</td>
<td>N/A</td>
<td>IP67</td>
</tr>
<tr>
<td>2SS</td>
<td>✓</td>
<td>–</td>
<td>✓</td>
<td>–</td>
<td>N/A</td>
<td>IP67</td>
</tr>
<tr>
<td>2M1</td>
<td>–</td>
<td>✓</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>N/A</td>
</tr>
<tr>
<td>2M1H</td>
<td>–</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>–</td>
<td>IP67</td>
</tr>
<tr>
<td>2MS</td>
<td>–</td>
<td>✓</td>
<td>✓</td>
<td>–</td>
<td>–</td>
<td>IP67</td>
</tr>
<tr>
<td>PUSHBUTTON</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3S1</td>
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<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>N/A</td>
</tr>
<tr>
<td>3SS</td>
<td>✓</td>
<td>–</td>
<td>✓</td>
<td>–</td>
<td>N/A</td>
<td>IP67</td>
</tr>
<tr>
<td>3SM</td>
<td>✓</td>
<td>–</td>
<td>✓</td>
<td>✓</td>
<td>N/A</td>
<td>IP67</td>
</tr>
<tr>
<td>3MN</td>
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<td>✓</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>N/A</td>
</tr>
<tr>
<td>3MS</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>–</td>
<td>IP68</td>
</tr>
<tr>
<td>3MA</td>
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<td>–</td>
<td>–</td>
<td>–</td>
<td>N/A</td>
</tr>
<tr>
<td>3MNH</td>
<td>–</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>–</td>
<td>IP67</td>
</tr>
<tr>
<td>SLIDE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4S1</td>
<td>✓</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>N/A</td>
</tr>
<tr>
<td>4M1</td>
<td>–</td>
<td>✓</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>N/A</td>
</tr>
</tbody>
</table>

*Manufacturer reserves the right to change product information without prior notice*
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:**

*Download 3D CAD Files*

[IGS](#)  [STP](#)
1S-Series - General Specifications, 1SS Ordering Scheme

**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
- **100mA for both silver & gold plated contacts**
- **Insulation Resistance**: 1000 MΩ min.
- **Dielectric Strength**: 1500 Volts RMS @ sea level

**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°
- **Rocker**
  - **1S1-Series**: Nylon (UL 94V-0)
  - **1SS & 1SM-Series**: Nylon, black standard, internal o-ring sealed

**Material**
- **Case**: all UL94 V-0
  - **1S1-Series**: Dially phthalate (DAP)
  - **1SS-Series**: Glass filled nylon 6/6, flame retardant, heat stabilized
  - **1SM-Series**: Glass filled nylon 6/6, flame retardant, heat stabilized
- **Rocker**
  - **1S1-Series**: Nylon (UL 94V-0)
  - **1SS & 1SM-Series**: Nylon, black standard, internal o-ring sealed
- **Bushing**
  - **1S1-Series**: Brass, nickel plated
  - **1SS-Series**: Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0)
  - **1SM-Series**: Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0)
- **Housing**
  - **1S1-Series**: Stainless Steel
  - **1SS-Series**: Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0)
  - **1SM-Series**: Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0)
- **Switch Support**
  - **1S1 & 1SM-Series**: Brass, tin plated Epoxy

*Manufacturer reserves the right to change product specification without prior notice.*

---

1S-SS - WMSP 1 - R2 / 2 M2 G E

<table>
<thead>
<tr>
<th>1 SERIES</th>
<th>1S</th>
<th>Sealed Sub-Miniature Rocker Switch</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 POLES</td>
<td>WMSP</td>
<td>Single pole - uses terminals 1, 2 &amp; 3</td>
</tr>
<tr>
<td>M2DP</td>
<td>Double pole - uses terminals 1, 2, 3, 4, 5 &amp; 6</td>
<td></td>
</tr>
<tr>
<td>3 CIRCUIT</td>
<td>( ) - momentary</td>
<td></td>
</tr>
<tr>
<td>Position</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>ON</td>
<td>NONE</td>
</tr>
<tr>
<td>2</td>
<td>ON</td>
<td>NONE</td>
</tr>
<tr>
<td>3</td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>4</td>
<td>(ON)</td>
<td>OFF</td>
</tr>
<tr>
<td>5</td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>4 ACTUATOR STYLE</td>
<td>R1</td>
<td>Small Rocker</td>
</tr>
<tr>
<td>R2</td>
<td>Narrow Black Rocker</td>
<td></td>
</tr>
<tr>
<td>5 ACTUATOR COLOR</td>
<td>1</td>
<td>White</td>
</tr>
<tr>
<td>2</td>
<td>Black</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Red</td>
<td></td>
</tr>
</tbody>
</table>

Other colors available, consult factory.
### 1S-Series - 1S1 Ordering Scheme, 1SM Ordering Scheme

#### 1S1 - MSP 1 - R2 / 2 M6 Q E

<table>
<thead>
<tr>
<th>1 Series</th>
<th>2 Poles</th>
<th>3 Circuit</th>
<th>4 Actuator Style</th>
<th>5 Actuator Color</th>
<th>6 Termination</th>
<th>7 Contacts</th>
<th>8 Seal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1S1</td>
<td>MSP</td>
<td>R2</td>
<td>M6</td>
<td>Q</td>
<td>E</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**1 SERIES**
- 1S1: 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
    - 2-3, 5-6: Connected Terminals
    - 1: ON, NONE, (ON)
    - 2: ON, NONE, (ON)
    - 3: ON, OFF, (ON)
    - 4: (ON), OFF, (ON)
    - 5: ON, OFF, (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**

<table>
<thead>
<tr>
<th>Contact Material</th>
<th>Terminal Plating</th>
<th>Rating</th>
<th>Approvals</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>silver</td>
<td>3A 125VAC or 28VDC, 1.5A 250VAC</td>
<td>IP67</td>
</tr>
<tr>
<td>K</td>
<td>gold</td>
<td>0.4VA max 20V max (AC/DC)</td>
<td>N/A</td>
</tr>
<tr>
<td>P</td>
<td>silver</td>
<td>3A 125VAC or 28VDC, 1.5A 250VAC</td>
<td>IP67</td>
</tr>
<tr>
<td>Q</td>
<td>silver</td>
<td>3A 125VAC or 28VDC, 1.5A 250VAC</td>
<td>IP67</td>
</tr>
<tr>
<td>R</td>
<td>gold</td>
<td>0.4VA max 20V max (AC/DC)</td>
<td>N/A</td>
</tr>
</tbody>
</table>

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

**8 EPOXY SEAL**
- E: Epoxy Seal
  - 0: without Epoxy Seal

**9 PACKAGING**
- T/R: tape reel - 500 pieces per reel

Switches are bulk packed, unless T/R is specified at the end of the part number.

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

---

### 1SM - WMSP 1 - R2 - M2 G E

<table>
<thead>
<tr>
<th>1 Series</th>
<th>2 Poles</th>
<th>3 Circuit</th>
<th>4 Actuator Style</th>
<th>5 Termination</th>
<th>6 Seal</th>
<th>7 Packaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>1SM</td>
<td>WMSP</td>
<td>R2</td>
<td>M2</td>
<td>G</td>
<td>E</td>
<td></td>
</tr>
</tbody>
</table>

**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
    - 2-3: Connected Terminals
    - 1: ON, NONE, (ON)
    - 2: ON, NONE, (ON)
    - 3: ON, OFF, (ON)
    - 4: (ON), OFF, (ON)
    - 5: ON, OFF, (ON)

**4 ACTUATOR STYLE**
- R2: Narrow Black Rocker

**5 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.
**1SS-Series Dimensional Specifications: in. [mm]**

### Single Pole

- **R1**
  - R1: 2.259 (57.30) 2.591 (65.83)
  - R1: 2.259 (57.30) 2.591 (65.83)
- **R2**
  - R2: 2.259 (57.30) 2.591 (65.83)
  - R2: 2.259 (57.30) 2.591 (65.83)

### Double Pole

- **R1**
  - R1: 2.591 (65.83) 2.259 (57.30)
  - R1: 2.591 (65.83) 2.259 (57.30)
- **R2**
  - R2: 2.591 (65.83) 2.259 (57.30)
  - R2: 2.591 (65.83) 2.259 (57.30)

### Actuator Options

- **M1 STD. Solder Lug**
  - SP: EPOXY SEAL 0.061 (1.55) 0.100 (2.54)
  - DP: EPOXY SEAL 0.061 (1.55) 0.100 (2.54)
- **M2 PC Thru-Hole**
  - SP: EPOXY SEAL 0.043 (1.09) 0.100 (2.54)
  - DP: EPOXY SEAL 0.043 (1.09) 0.100 (2.54)

### Termination Options

- **M6 Single Pole**
  - EPOXY SEAL 0.061 (1.55) 0.100 (2.54)
  - THK: THK 0.020 (0.50)
- **M6 Double Pole**
  - EPOXY SEAL 0.061 (1.55) 0.100 (2.54)
  - THK: THK 0.020 (0.50)

### P.C. Mounting

- EPOXY SEAL 0.061 (1.55) 0.100 (2.54)
- THK: THK 0.020 (0.50)
1SS-Series Dimensional Specifications: in. [mm]

Termination Options

M7 Single Pole

M7 Double Pole

VS2 Single Pole

VS2 Double Pole

P.C. MOUNTING

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]

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

P.C. MOUNTING

M6 Double Pole

P.C. MOUNTING
1S1-Series Dimensional Specifications: in. [mm]

M7 Single Pole

Termination Options

M7 Double Pole

P.C. MOUNTING

VS2-VS3 Single Pole

P.C. MOUNTING

VS2-VS3 Double Pole

Snap-In Termination Options

M61

M71

VS21

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

1M-Series
MINIATURE ROCKERS & PADDLES

The 1M family of miniature rocker & paddle switches is composed of two switch series; the 1M1-Series miniature rocker and paddle switch, and the 1MS-Series sealed miniature rocker and paddle switch. Both products feature PC mounting and offer a variety of ratings, circuits, contact materials, terminal platings, rocker and paddle actuator styles and colors.

Product Highlights:
- IP67 Sealing
- 9 Circuit Options
- Over 20 Termination Styles
- UL, CSA & cUL Approvals

Typical Applications:
- Instrumentation
- Test Equipment
- Telecommunications
- Networking
- Handheld Appliance

Resources:
Download 3D CAD Files
- IGS
- STP
1M-Series - General Specifications

**Electrical**

<table>
<thead>
<tr>
<th>Specification</th>
<th>1MS-Series</th>
<th>1M1-Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Rating</td>
<td>refer to ordering scheme</td>
<td>30,000 make &amp; break cycles @ full load</td>
</tr>
<tr>
<td></td>
<td>1MS-Series: 30,000 make &amp; break cycles @ full load</td>
<td>50,000 make &amp; break cycles @ full load</td>
</tr>
<tr>
<td>Electrical Life</td>
<td>1MS-Series: 30,000 make &amp; break cycles @ full load</td>
<td>50,000 make &amp; break cycles @ full load</td>
</tr>
<tr>
<td>Contact Resistance</td>
<td>10 mΩ max. initial @ 2-4 VDC 100mA for both silver &amp; gold plated contacts</td>
<td>10 mΩ max. initial @ 2-4 VDC 100mA for both silver &amp; gold plated contacts</td>
</tr>
<tr>
<td>Insulation Resistance</td>
<td>1000 MΩ min.</td>
<td>1000 MΩ min.</td>
</tr>
<tr>
<td>Dielectric Strength</td>
<td>1500 Volts RMS @ sea level</td>
<td>1500 Volts RMS @ sea level</td>
</tr>
</tbody>
</table>

**Physical**

<table>
<thead>
<tr>
<th>Specification</th>
<th>1MS-Series</th>
<th>1M1-Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temperature</td>
<td>-30°C to +85°C</td>
<td>-30°C to +85°C</td>
</tr>
<tr>
<td>Index of Protection</td>
<td>1MS-Series: IP67</td>
<td>1MS-Series: IP67</td>
</tr>
<tr>
<td>Actuator Travel</td>
<td>25°</td>
<td>25°</td>
</tr>
</tbody>
</table>

**Material**

<table>
<thead>
<tr>
<th>Specification</th>
<th>1MS-Series</th>
<th>1M1-Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case</td>
<td>Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0)</td>
<td>Dially phthalate (DAP) (UL 94V-0)</td>
</tr>
<tr>
<td></td>
<td>1MS-Series: Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0)</td>
<td>1M1-Series: Dially phthalate (DAP) (UL 94V-0)</td>
</tr>
<tr>
<td>Rocker/Paddle</td>
<td>Nylon, black standard, internal o-ring sealed</td>
<td>Nylon (UL 94V-0)</td>
</tr>
<tr>
<td></td>
<td>1MS-Series: Nylon, black standard, internal o-ring sealed</td>
<td>1M1-Series: Nylon (UL 94V-0)</td>
</tr>
<tr>
<td>Bushing</td>
<td>Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0)</td>
<td>Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0)</td>
</tr>
<tr>
<td></td>
<td>1MS-Series: Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0)</td>
<td>1M1-Series: Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0)</td>
</tr>
<tr>
<td>Housing</td>
<td>Stainless Steel</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td></td>
<td>1MS-Series: Stainless Steel</td>
<td>1M1-Series: Stainless Steel</td>
</tr>
<tr>
<td>Actuator Pivot &amp; Mounting</td>
<td>Nylon (UL 94V-0)</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td></td>
<td>1MS-Series: Nylon (UL 94V-0)</td>
<td>1M1-Series: Stainless Steel</td>
</tr>
<tr>
<td>Bracket</td>
<td>Stainless Steel</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td></td>
<td>1MS-Series: Stainless Steel</td>
<td>1M1-Series: Stainless Steel</td>
</tr>
<tr>
<td>Actuator Pivot Retainer</td>
<td>Brass, tin plated</td>
<td>Brass, tin plated</td>
</tr>
<tr>
<td>Switch Support</td>
<td>Epoxy</td>
<td>Epoxy</td>
</tr>
<tr>
<td>Terminal Seal</td>
<td>Epoxy</td>
<td>Epoxy</td>
</tr>
</tbody>
</table>

*Manufacturer reserves the right to change product specification without prior notice.*
### 1M-Series - 1M Ordering Scheme

#### 1M1 - SP 1 - R8 / 2 - M6 Q E

<table>
<thead>
<tr>
<th>1 SERIES</th>
<th>2 POLES</th>
<th>3 CIRCUIT</th>
<th>4 ACTUATOR STYLE</th>
<th>5 ACTUATOR COLOR / 6 FRAME COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1M1</td>
<td>SP</td>
<td>3-Pole</td>
<td>R5 Large Paddle</td>
<td>0 Black</td>
</tr>
<tr>
<td></td>
<td>DP</td>
<td>3-Pole</td>
<td>R6 Rocker &amp; frame</td>
<td>No Frame*</td>
</tr>
<tr>
<td></td>
<td>3P</td>
<td>3-Pole</td>
<td>R7 Paddle &amp; frame</td>
<td>1 White</td>
</tr>
<tr>
<td></td>
<td>4P</td>
<td>3-Pole</td>
<td>R8 Rocker without frame</td>
<td>2 Black</td>
</tr>
</tbody>
</table>

**Notes:**
- *Actuator style R8 or R9 only.
- Color: Black is standard. Other colors available, consult factory.

---

### 1MS - SP 1 - R6 / 2 - M6 G E

<table>
<thead>
<tr>
<th>1 SERIES</th>
<th>2 POLES</th>
<th>3 CIRCUIT</th>
<th>4 ACTUATOR STYLE</th>
<th>5 ACTUATOR COLOR / 6 FRAME COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1MS</td>
<td>SP</td>
<td>Medium</td>
<td>R4 Large Rocker</td>
<td>5 Red</td>
</tr>
<tr>
<td></td>
<td>DP</td>
<td>Paddle</td>
<td>R6 Small Rocker</td>
<td>3 Silver (1,6,8), 5A 125VAC or 28VDC, 0.4VA max 20V max (AC/DC) IP67</td>
</tr>
<tr>
<td></td>
<td>3P</td>
<td>Paddle</td>
<td>R7 Medium Paddle</td>
<td>2 Silver (3,8), 5A 125VAC or 28VDC, 0.4VA max 20V max (AC/DC) IP67</td>
</tr>
<tr>
<td></td>
<td>4P</td>
<td>Paddle</td>
<td>R8 Rocker without frame</td>
<td>3 Silver (3,8), 5A 125VAC or 28VDC, 0.4VA max 20V max (AC/DC) IP67</td>
</tr>
</tbody>
</table>

**Notes:**
- Color: Black is standard. Other colors available, consult factory.

---

### 1M-Series - 1MS Ordering Scheme

#### 1MS - 1M1 Ordering Scheme

<table>
<thead>
<tr>
<th>1 SERIES</th>
<th>2 POLES</th>
<th>3 CIRCUIT</th>
<th>4 ACTUATOR STYLE</th>
<th>5 ACTUATOR COLOR / 6 FRAME COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1M-Series</td>
<td>1M1</td>
<td>1 Series</td>
<td>R4 Large Rocker</td>
<td>5 Red</td>
</tr>
<tr>
<td>1M1</td>
<td>SP</td>
<td>1 Series</td>
<td>R5 Rocker &amp; frame</td>
<td>No Frame*</td>
</tr>
<tr>
<td></td>
<td>DP</td>
<td>1 Series</td>
<td>R6 Paddle &amp; frame</td>
<td>1 White</td>
</tr>
<tr>
<td></td>
<td>3P</td>
<td>1 Series</td>
<td>R7 Paddle without frame</td>
<td>2 Black</td>
</tr>
</tbody>
</table>

**Notes:**
- *Actuator style R8 or R9 only.
- Color: Black is standard. Other colors available, consult factory.

---

### 6 TERMINATION

<table>
<thead>
<tr>
<th>Rating</th>
<th>Approvals</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>0.4VA max 20V max (AC/DC), IP67</td>
</tr>
<tr>
<td>P</td>
<td>0.4VA max 20V max (AC/DC), IP67</td>
</tr>
</tbody>
</table>

**Notes:**
- Tin option not available with M1 and M3 terminals.
- 1 Movable contact terminal platings: silver over copper alloy
- 2 Movable contact terminal platings: gold over nickel over copper alloy
- 4 Terminal contact platings: gold over nickel over copper alloy
- 5 Terminal contact platings: gold over nickel alloy
- 6 Terminal contact platings: silver over nickel alloy
- 7 Terminal contact platings: tin over copper alloy
- 8 Terminal contact platings: silver over nickel alloy

---

### 7 CONTACTS / TERMINALS

<table>
<thead>
<tr>
<th>Contact Material</th>
<th>Terminal Plating</th>
<th>Rating</th>
<th>Approvals</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>silver 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>gold 2.5</td>
<td>0.4VA max 20V max (AC/DC), IP67</td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>silver 1.6</td>
<td>0.4VA max 20V max (AC/DC), IP67</td>
<td></td>
</tr>
<tr>
<td>R</td>
<td>gold 2</td>
<td>0.4VA max 20V max (AC/DC), IP67</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
- See page 16-18 for dimensional specifications.
1M-Series - 1MS-Series Dimensional Specifications

1MS-Series Dimensional Specifications: in. [mm]

Single Pole

Double Pole

Three Pole

Actuator Options for Panel Rear Mount

R1

R2

R3
1MS-Series Dimensional Specifications: in. [mm]
1M-Series - 1MS-Series Dimensional Specifications

1MS-Series Dimensional Specifications: in. [mm]

Actuator Options for PC Mount

Termination Options

M1 Standard Solder Lug

M2 PC Thru-Hole

M3 Quick Connect

M5 Wire Wrap

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>DIM: A</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS-1</td>
<td>.711   [18.05]</td>
</tr>
<tr>
<td>MS-2</td>
<td>.524   [13.32]</td>
</tr>
<tr>
<td>MS-3</td>
<td>.286   [7.26]</td>
</tr>
<tr>
<td>MS-4</td>
<td>1.622  [41.25]</td>
</tr>
</tbody>
</table>

M6 Single Pole

M6 Double Pole

M6 Three Pole

M7 Single Pole

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

**Termination Options**

**M7 Double Pole**

- **Height:** 0.155 (3.94)
- **Width:** 0.550 (13.97)
- **Depth:** 0.393 (9.97)

**M7 Three Pole**

- **Height:** 0.155 (3.94)
- **Width:** 0.550 (13.97)
- **Depth:** 0.393 (9.97)

**VS2-VS3 Single Pole**

- **Height:** 0.155 (3.94)
- **Width:** 0.550 (13.97)
- **Depth:** 0.393 (9.97)

**VS2-VS3 Double Pole**

- **Height:** 0.155 (3.94)
- **Width:** 0.550 (13.97)
- **Depth:** 0.393 (9.97)

**U2-VS3 Three Pole**

- **Height:** 0.155 (3.94)
- **Width:** 0.550 (13.97)
- **Depth:** 0.393 (9.97)

**P.C. MOUNTING**

- **Height:** 0.125 (3.18)
- **Width:** 0.550 (13.97)
- **Depth:** 0.393 (9.97)
1MS-Series Dimensional Specifications: in. [mm]

VS4-VS5 Single Pole

Termination Options

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>DIM. A'</th>
</tr>
</thead>
<tbody>
<tr>
<td>VS4</td>
<td>0.481</td>
</tr>
<tr>
<td>VS5</td>
<td>0.630</td>
</tr>
</tbody>
</table>

P.C. MOUNTING

VS4-VS5 Double Pole

Termination Options

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>DIM. A'</th>
</tr>
</thead>
<tbody>
<tr>
<td>VS4</td>
<td>0.481</td>
</tr>
<tr>
<td>VS5</td>
<td>0.630</td>
</tr>
</tbody>
</table>

P.C. MOUNTING

U4-VS5 Three Pole

Termination Options

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>DIM. A'</th>
</tr>
</thead>
<tbody>
<tr>
<td>U4</td>
<td>0.551</td>
</tr>
<tr>
<td>VS5</td>
<td>0.630</td>
</tr>
</tbody>
</table>

P.C. MOUNTING

Snap-In Termination Options

M61

VS21, VS31

VS41, VS51

* PC Mounting for M61, M71, VS21, VS31, VS41, VS51 refer to M6, M7, VS2, VS3, VS4, VS5 respectively.
1M1-Series Dimensional Specifications: in. [mm]
1M1-Series Dimensional Specifications: in. [mm]

**Actuator Options for Panel Rear Mount**

<table>
<thead>
<tr>
<th>Actuator Option</th>
<th>Dimension (in)</th>
<th>Dimension (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R5</td>
<td>1.876</td>
<td>47.63</td>
</tr>
<tr>
<td></td>
<td>1.676</td>
<td>42.53</td>
</tr>
<tr>
<td></td>
<td>1.946</td>
<td>49.53</td>
</tr>
<tr>
<td></td>
<td>0.794</td>
<td>20.19</td>
</tr>
<tr>
<td></td>
<td>0.244</td>
<td>6.20</td>
</tr>
<tr>
<td></td>
<td>1.500</td>
<td>38.00</td>
</tr>
</tbody>
</table>

**Actuator Options for Snap-In Mount**

<table>
<thead>
<tr>
<th>Actuator Option</th>
<th>Dimension (in)</th>
<th>Dimension (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R6</td>
<td>0.760</td>
<td>19.30</td>
</tr>
<tr>
<td></td>
<td>0.724</td>
<td>18.40</td>
</tr>
<tr>
<td></td>
<td>0.477</td>
<td>12.12</td>
</tr>
<tr>
<td></td>
<td>0.118</td>
<td>2.99</td>
</tr>
<tr>
<td></td>
<td>0.955</td>
<td>24.20</td>
</tr>
<tr>
<td></td>
<td>0.295</td>
<td>7.50</td>
</tr>
<tr>
<td></td>
<td>0.747</td>
<td>19.00</td>
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<tr>
<td></td>
<td>0.129</td>
<td>3.29</td>
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<tr>
<td></td>
<td>0.453</td>
<td>11.50</td>
</tr>
<tr>
<td></td>
<td>3.05</td>
<td>77.50</td>
</tr>
</tbody>
</table>

**Actuator Options for PC Mount**

<table>
<thead>
<tr>
<th>Actuator Option</th>
<th>Dimension (in)</th>
<th>Dimension (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>0.370</td>
<td>9.40</td>
</tr>
<tr>
<td></td>
<td>0.561</td>
<td>14.20</td>
</tr>
<tr>
<td></td>
<td>0.163</td>
<td>4.15</td>
</tr>
<tr>
<td>R2</td>
<td>0.366</td>
<td>9.30</td>
</tr>
<tr>
<td></td>
<td>0.333</td>
<td>8.48</td>
</tr>
<tr>
<td></td>
<td>0.163</td>
<td>4.15</td>
</tr>
<tr>
<td>R3</td>
<td>0.630</td>
<td>16.00</td>
</tr>
<tr>
<td></td>
<td>0.219</td>
<td>5.56</td>
</tr>
<tr>
<td></td>
<td>0.140</td>
<td>3.55</td>
</tr>
<tr>
<td>R4</td>
<td>0.999</td>
<td>25.30</td>
</tr>
<tr>
<td></td>
<td>0.994</td>
<td>25.20</td>
</tr>
<tr>
<td></td>
<td>0.784</td>
<td>19.90</td>
</tr>
<tr>
<td></td>
<td>0.163</td>
<td>4.15</td>
</tr>
</tbody>
</table>
1M1-Series Dimensional Specifications: in. [mm]

**Termination Options**

**M7 Double Pole**

**M7 Three Pole**

**M7 Four Pole**

**VS2-VS3 Single Pole**

**VS2-VS3 Double Pole**

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>DIM A' [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>VS2</td>
<td>4.61</td>
</tr>
<tr>
<td>VS3</td>
<td>6.90</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>DIM A' [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>VS2</td>
<td>4.61</td>
</tr>
<tr>
<td>VS3</td>
<td>6.90</td>
</tr>
</tbody>
</table>
1M1-Series Dimensional Specifications: in. [mm]

### VS4-VS5 Single Pole

- **OPTION CODE**
  - VS4: 0.481 [11.70]
  - VS5: 0.830 [21.00]

### VS4-VS5 Double Pole

- **OPTION CODE**
  - VS4: 0.481 [11.70]
  - VS5: 0.830 [21.00]

### U4-VS5 Three Pole

- **OPTION CODE**
  - U4: 0.551 [14.00]

### Snap-In Termination Options

#### M61

- 0.51 (1.30)

#### VS21, VS31

- 0.650 (16.50)

#### VS41, VS51

- 0.43 (1.10)

* PC Mounting for M61, VS21, VS31, VS41, VS51 refer to M6, VS2, VS3, VS4, VS5 respectively.
The 2S family of sub-miniature toggle switches is composed of three switch series; the 2S1-Series toggle switch, the 2SS-Series sealed toggle switch, and the 2SM-Series surface mount sealed sub-miniature toggle switch. All of these series offer a variety of ratings, circuits, contact materials, terminal platings, and actuator types.

**Product Highlights:**
- IP67 Sealing
- 6 Actuator Options
- Surface, Thru Hole or Snap-in Mounting
- Dry-Circuit thru 3A 125VAC Ratings
- UL, CSA Approvals

**Typical Applications:**
- Telecommunications
- Instrumentation
- Networking
- Medical Equipment

**Resources:**
*Download 3D CAD Files*

[IGS ➤]  [STP ➤]
# 2S-Series - General Specifications, 2SS Ordering Scheme

## Electrical Specifications
- **Contact Rating**: refer to ordering scheme
- **Electrical Life**: 30,000 make & break cycles @ full load
- **Contact Resistance**: 20 mΩ max. initial @ 2-4 VDC, 100mA for both silver & gold plated contacts
- **Insulation Resistance**: 1000 MΩ min.
- **Dielectric Strength**: 1500 Volts RMS @ sea level

## Physical Specifications
- **Operating Temperature**: -30°C to +85°C
- **Index of Protection**: 2SS & 2SM-Series: IP67
- **Solder Heat Resistance**: MIL-STD-202, Method 210
- **Actuator Travel**: 25°

## Material Specifications
- **Case**: all UL94 V-0
  - 2S1-Series: Dially phthalate (DAP)
  - 2SS-Series: Glass filled nylon 6/6, flame retardant, heat stabilized
  - 2SM-Series: Glass filled nylon 4/6, flame retardant, heat stabilized
- **Rocker**: Brass, chrome plated.
  - 2SS & 2SM-Series: Brass, chrome plated or nylon, internal o-ring sealed
- **Bushing**: Brass, nickel plated
  - 2SS-Series: Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0)
  - 2SM-Series: Glass filled nylon 4/6, flame retardant, heat stabilized (UL 94V-0)
- **Housing**: Stainless Steel
- **Switch Support**: Brass, tin plated
- **Terminal Seal**: Epoxy

## 2SS - MSP 1 - T1 - B4 - M6 G E

### 1 Series
- **2SS**: Sealed Sub-Miniature Toggle 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: ON, 2: NONE, 3: ON
    - 4: ON, 5: OFF
    - 6: ON, 7: OFF

### 4 Actuator Style / Length
- **T1**: Round toggle .421" [10.70 mm]
- **T2**: Round toggle .340" [8.10 mm]
- **T3**: Round toggle .342" [8.70 mm]
- **T4**: Round toggle .551" [14.00 mm]
- **P1**: ESD resistant toggle .425" [10.80 mm]
- **P2**: ESD resistant toggle .268" [6.80 mm]
- **P3**: ESD resistant toggle .244" [6.20 mm]
- **P4**: ESD resistant toggle .291" [7.40 mm]

### 5 Bushing
- **B1**: Threaded
- **B4**: Unthreaded

### 6 Termination
- **M1**: Solder Lug
- **M2**: PCB
- **M6**: PC Mount, 90° horizontal
- **M61**: Snap-In, U bracket, 90° horizontal
- **M7**: PC Mount, 90° vertical
- **M71**: Snap-In, U bracket, 90° horizontal
- **VS2**: PC Mount, U bracket
- **VS21**: Snap-In, U bracket

### 7 Contacts / Terminals
- **Contact Material**: silver, gold, tin, silver, gold
- **Terminal Plating**: gold over silver, tin, silver, gold
- **Rating**: 3A 125VAC or 28VDC, 0.4VA max 20V max (AC/DC)
- **Approvals**: IP67

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

---

*Manufacturer reserves the right to change product specification without prior notice.*

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www.carlingtech.com
2S-Series - 2S1 Ordering Scheme, 2SM Ordering Scheme

1 SERIES
2S1 Sub-Miniature Toggle 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 ON NONE 2-3, 5-6 Connected Terminals
2 ON NONE (ON)
3 ON OFF ON
4 (ON) OFF (ON)
5 ON OFF (ON)

4 ACTUATOR STYLE / LENGTH
T1 Round toggle .374" [9.50 mm]
T2 Round toggle .236" [6.00 mm]
T3 Round toggle .311" [7.90 mm]
T4 Round toggle .449" [11.40 mm]

5 BUSHING
B1 Threaded Standard, keyway
B2 Non-Threaded Standard, keyway
B3 Threaded Short, keyway
B4 Non-Threaded Short, keyway
B5 High Torque, flat, .276"
B6 High Torque, keyway, .276"
B7 Long threaded
B8 Non threaded Long, keyway

6 TERMINATION
M1 Solder Lug
M71 Right Angle PC Thru Hole, vertical
M2 PCB
V52 PC Mount, U bracket
M6 PC Mount, 90° horizontal
V51 Snap-In, U bracket
M61 Snap-In, Right Angle
M7 PC Mount, 90° vertical

See page 29-30 for dimensional specifications.

7 CONTACTS / TERMINALS
Contact Material Terminal Plating Rating Approvals
G silver 2 gold over silver 3A 125VAC or 28VDC, 1.5A 250VAC
K gold 3 tin 5 0.4VA max 20V max (AC/DC) N/A
P silver 2 tin 4 3A 125VAC or 28VDC, 1.5A 250VAC
Q silver 2 silver 2 3A 125VAC or 28VDC, 1.5A 250VAC
R gold 3 gold 4 0.4VA max 20V max (AC/DC) N/A

8 EPOXY SEAL
E Epoxy Seal 0 without Epoxy Seal

Notes:
- Tin option available with PC type terminations only.
- All switches come with standard nut, washer and locking ring shipped bulk. B6 & B7 bushing styles use small locking ring. See page 76-77.
- Movable contact and terminal platings: silver over copper alloy
- Movable contact and terminal platings: gold over nickel over copper alloy
- Terminal platings: gold over nickel over copper alloy
- Terminal platings: tin over copper alloy
- Terminal contact platings: gold over nickel over copper alloy
- Terminal contact platings: tin over copper alloy
- Terminal contact platings: silver over nickel alloy
- Not available with M1 terminal
- Lengths shown are with B1 - B4 bushings. For B5 & B6 subtract .108", for B7 & B8 subtract .043"

6 TERMINATION
K6 Surface Mount, .433" [11.00 mm]
L6 Surface Mount, .354" [9.00 mm]
M6 Surface Mount, 90° flat, .286" [7.26 mm]
M7 Surface Mount, 90° vertical
S6 Surface Mount, 90°, .353" [8.96 mm]

See page 31 for dimensional specifications.

7 EPOXY SEAL
E Epoxy Seal 0 without Epoxy Seal

8 PACKAGING
T/R tape reel - 500 pieces per reel

Switches are bulk packed, unless T/R is specified at the end of the part number.

Notes:
- Tin option available with PC type terminations only.
- Bushing is unthreaded .177" [4.50 mm] height
- Movable contact & terminal platings: silver over copper alloy
- Movable contact & terminal platings: gold over nickel over copper alloy
- Terminal platings: tin over nickel over copper alloy
- Terminal contact platings: gold over nickel over copper alloy
- Terminal contact platings: tin over nickel over copper alloy
- Terminal contact platings: silver over nickel alloy
- Not available with M1 terminal
- Lengths shown are with B1 - B4 bushings. For B5 & B6 subtract .108", for B7 & B8 subtract .043"

Notes:
- Tin option available with PC type terminations only.
- Movable contact and terminal platings: silver over copper alloy
- Movable contact and terminal platings: gold over nickel over copper alloy
- Terminal platings: gold over nickel over copper alloy
- Terminal platings: tin over copper alloy
- Terminal contact platings: silver over nickel alloy
- Not available with M1 terminal
- Lengths shown are with B1 - B4 bushings. For B5 & B6 subtract .108", for B7 & B8 subtract .043"
2SS-Series Dimensional Specifications: in. [mm]

**Actuator Options**

- **P1 Plastic Toggle**
  - 0.098 DIA (2.50)
  - 0.453 (11.5)
  - 0.200 (5.08)
- **P2 Plastic Toggle**
  - 0.098 DIA (2.50)
  - 0.200 (5.08)
  - 0.035 (0.89)
  - 0.034 (0.87)
- **P3 Plastic Toggle**
  - 0.094 DIA (2.60)
  - 0.020 (0.51)
  - 0.444 (11.27)
  - 0.300 (7.62)
- **P4 Plastic Toggle**
  - 0.094 DIA (2.40)
  - 0.039 (1.00)
  - 0.043 (1.09)
  - 0.039 (1.00)

**Bushing Options**

- **B1**
  - 0.177 (4.50)
- **B4**
  - 0.177 DIA (4.50)

**Termination Options**

- **M1 STD. Solder Lug**
  - SP
  - DP
  - THK.020 (0.50)
- **M2 PC Thru-Hole**
  - SP
  - DP
  - P.C.MOUNTING
  - THK.020 (0.50)
- **M6 Single Pole**
  - 0.177 DIA (4.50)
  - 0.098 DIA (2.50)
  - 0.200 (5.08)
  - 0.039 (1.00)
  - 0.034 (0.87)
  - 0.020 (0.51)
  - 0.043 (1.09)
  - 0.039 (1.00)
  - 0.098 DIA (2.50)
  - 0.120 (3.05)
  - 0.025 (0.64)

* B4 bushing shown. Subtract 2.56mm from toggle length for B1 bushing.

* Subtract 2.55mm from toggle length for B1 bushing.
2SS-Series Dimensional Specifications: in. [mm]

M6 Double Pole

P.C.MOUNTING

M7 Single Pole

P.C.MOUNTING

M7 Double Pole

P.C.MOUNTING

VS2 Single Pole

P.C.MOUNTING

VS2 Double Pole

P.C.MOUNTING

Snap-In Termination Options

M61

M71

VS21

* PC Mounting for M61,M71,VS21 refer to M6,M7,VS2 respectively.
2S1-Series Dimensional Specifications: in. [mm]

**Single Pole**
- THK.020 (0.50)

**Double Pole**
- THK.029 (0.50)

**Actuator Options**
- T1
- T2
- T3
- T4

**Bushing Options**
- B1 Threaded
- B2 Non-Threaded
- B3 Threaded
- B4 Non-Threaded
- B5 Threaded
- B6 Non-Threaded
- B7 Threaded
- B8 Non-Threaded

**Panel Mounting**
- 10-48 INCH BUSHING
- WITHOUT LOCKING RING
- WITH STD. LOCKING RING

- 1/4 INCH BUSHING
- WITHOUT LOCKING RING
- WITH STD. LOCKING RING

**Termination Options**
- Single Pole
- M1 Standard Solder Lug
- M2 PC Thru-Hole
- THK.020 (0.50)
- THK.029 (0.50)

- Double Pole
- M1 Standard Solder Lug
- M2 PC Thru-Hole
- THK.029 (0.50)

- M6 Single Pole
- P.C. MOUNTING
# 2S1-Series Dimensional Specifications: in. [mm]

## M6 Double Pole

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>236 DIA</td>
<td>6.00</td>
</tr>
<tr>
<td>199 DIA</td>
<td>4.90</td>
</tr>
<tr>
<td>200</td>
<td>5.00</td>
</tr>
<tr>
<td>319</td>
<td>8.00</td>
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</table>

## M7 Single Pole

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>236 DIA</td>
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<tr>
<td>199 DIA</td>
<td>4.90</td>
</tr>
<tr>
<td>200</td>
<td>5.00</td>
</tr>
<tr>
<td>319</td>
<td>8.00</td>
</tr>
</tbody>
</table>

## M7 Double Pole

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
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<tbody>
<tr>
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<tr>
<td>200</td>
<td>5.00</td>
</tr>
<tr>
<td>319</td>
<td>8.00</td>
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## VS2-VS3 Single Pole

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
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<tbody>
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<tr>
<td>200</td>
<td>5.00</td>
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## VS2-VS3 Double Pole

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
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<td>199 DIA</td>
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<tr>
<td>200</td>
<td>5.00</td>
</tr>
<tr>
<td>319</td>
<td>8.00</td>
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</tbody>
</table>

## Snap-In Termination Options

<table>
<thead>
<tr>
<th>Model</th>
<th>Diagram</th>
</tr>
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<tbody>
<tr>
<td>M61</td>
<td><img src="m61.png" alt="Diagram" /></td>
</tr>
<tr>
<td>M71</td>
<td><img src="m71.png" alt="Diagram" /></td>
</tr>
<tr>
<td>VS21</td>
<td><img src="vs21.png" alt="Diagram" /></td>
</tr>
</tbody>
</table>

* PC Mounting for M61, M71, VS21 refer to M6, M7, VS2 respectively.
### 2SM-Series Dimensional Specifications: in. [mm]

#### K6 Single Pole

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Specimen</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.016</td>
<td>0.416</td>
<td>mm</td>
</tr>
<tr>
<td>0.279</td>
<td>7.16</td>
<td>mm</td>
</tr>
<tr>
<td>0.310</td>
<td>8.15</td>
<td>mm</td>
</tr>
<tr>
<td>0.316</td>
<td>8.03</td>
<td>mm</td>
</tr>
<tr>
<td>0.716</td>
<td>18.70</td>
<td>mm</td>
</tr>
<tr>
<td>0.998</td>
<td>25.30</td>
<td>mm</td>
</tr>
<tr>
<td>1.61</td>
<td>41.00</td>
<td>mm</td>
</tr>
<tr>
<td>2.10</td>
<td>53.00</td>
<td>mm</td>
</tr>
</tbody>
</table>

#### L6 Single Pole

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Specimen</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.041</td>
<td>1.05</td>
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</tr>
<tr>
<td>0.179</td>
<td>4.56</td>
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<tr>
<td>0.319</td>
<td>8.10</td>
<td>mm</td>
</tr>
<tr>
<td>0.998</td>
<td>25.30</td>
<td>mm</td>
</tr>
<tr>
<td>1.61</td>
<td>41.00</td>
<td>mm</td>
</tr>
<tr>
<td>2.10</td>
<td>53.00</td>
<td>mm</td>
</tr>
</tbody>
</table>

#### M6 Single Pole

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Specimen</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.016</td>
<td>0.416</td>
<td>mm</td>
</tr>
<tr>
<td>0.279</td>
<td>7.16</td>
<td>mm</td>
</tr>
<tr>
<td>0.310</td>
<td>8.15</td>
<td>mm</td>
</tr>
<tr>
<td>0.316</td>
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<td>mm</td>
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<td>mm</td>
</tr>
<tr>
<td>0.998</td>
<td>25.30</td>
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</tr>
<tr>
<td>1.61</td>
<td>41.00</td>
<td>mm</td>
</tr>
<tr>
<td>2.10</td>
<td>53.00</td>
<td>mm</td>
</tr>
</tbody>
</table>

#### M7 Single Pole

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Specimen</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.016</td>
<td>0.416</td>
<td>mm</td>
</tr>
<tr>
<td>0.279</td>
<td>7.16</td>
<td>mm</td>
</tr>
<tr>
<td>0.310</td>
<td>8.15</td>
<td>mm</td>
</tr>
<tr>
<td>0.316</td>
<td>8.03</td>
<td>mm</td>
</tr>
<tr>
<td>0.716</td>
<td>18.70</td>
<td>mm</td>
</tr>
<tr>
<td>0.998</td>
<td>25.30</td>
<td>mm</td>
</tr>
<tr>
<td>1.61</td>
<td>41.00</td>
<td>mm</td>
</tr>
<tr>
<td>2.10</td>
<td>53.00</td>
<td>mm</td>
</tr>
</tbody>
</table>

#### S6 Single Pole

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Specimen</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.016</td>
<td>0.416</td>
<td>mm</td>
</tr>
<tr>
<td>0.279</td>
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<td>mm</td>
</tr>
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</tr>
<tr>
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<td>41.00</td>
<td>mm</td>
</tr>
<tr>
<td>2.10</td>
<td>53.00</td>
<td>mm</td>
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</tbody>
</table>

### Actuator Options

#### T1

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Specimen</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.352</td>
<td>8.94</td>
<td>mm</td>
</tr>
<tr>
<td>0.425</td>
<td>10.80</td>
<td>mm</td>
</tr>
</tbody>
</table>

#### T2

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Specimen</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
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<td>mm</td>
</tr>
<tr>
<td>0.440</td>
<td>11.10</td>
<td>mm</td>
</tr>
</tbody>
</table>

#### P1 Plastic Toggle

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Specimen</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
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<td>mm</td>
</tr>
<tr>
<td>0.425</td>
<td>10.80</td>
<td>mm</td>
</tr>
</tbody>
</table>

#### P2 Plastic Toggle

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Specimen</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
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<td>mm</td>
</tr>
<tr>
<td>0.425</td>
<td>10.80</td>
<td>mm</td>
</tr>
</tbody>
</table>

#### P3 Plastic Toggle

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Specimen</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.352</td>
<td>8.94</td>
<td>mm</td>
</tr>
<tr>
<td>0.425</td>
<td>10.80</td>
<td>mm</td>
</tr>
</tbody>
</table>

#### P4 Plastic Toggle

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Specimen</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.352</td>
<td>8.94</td>
<td>mm</td>
</tr>
<tr>
<td>0.425</td>
<td>10.80</td>
<td>mm</td>
</tr>
</tbody>
</table>

* Available with L6, S6, K6, M7 terminals only.
The 2M family of miniature toggle switches is composed of three switch series; the 2M1-Series miniature toggle switch, the 2MS-Series sealed miniature toggle switch, and the 2M1H-Series premium sealed miniature toggle switch. These series all feature PC mounting and offer a variety of ratings, circuits, contact materials, terminal platings, toggle styles and lengths, and optional color caps.

**Product Highlights:**
- IP67 Sealing
- 8 Single and Double Pole Circuits
- Long, Short and Flatted Bushing Options
- Large Variety of Termination Options
- Available Gold, Silver and Tin Platings
- UL Approved
- Sleek Black Finish

**Typical Applications:**
- Telecommunications
- Instrumentation
- Networking
- Medical Equipment
- Military Communications

**Resources:**
*Download 3D CAD Files*

[IGS] [STP]
### Electrical Specifications

**Contact Rating**
- Refer to ordering scheme

**Electrical Life**
- 50,000 make & break cycles @ full load

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

**Insulation Resistance**
- 1000 MΩ min.

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

### Physical Specifications

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

**Index of Protection**
- 2M1H-Series: IP67
- 2MS-Series: IP67

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

**Actuator Travel**
- 25°

### Material Specifications

**Case**
- 2M1H-Series & 2M1-Series: Dially phthalate (DAP) (UL 94V-0)
- 2MS-Series: Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0)

**Toggle**
- 2M1H-Series: Brass, black finish with o-ring seal
- 2MS-Series: Brass, chrome plated, internal o-ring sealed
- 2M1-Series: Brass, chrome plated

**Bushing**
- 2M1H-Series: Brass, black finish
- 2MS-Series: Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0)
- 2M1-Series: Brass, nickel plated

**Housing**
- 2MS-Series: Stainless Steel

**Bracket**
- 2MS-Series: Nylon (UL 94V-0)
- 2M1-Series: Stainless Steel

**Actuator Pivot Retainer**
- 2MS-Series: Stainless Steel

**Switch Support**
- Brass, tin plated

**Terminal Seal**
- Epoxy

---

2M1H-Series
**Premium Sealed**
Miniature Toggle Switch

2MS-Series
**Sealed**
Miniature Toggle Switch

2M1-Series
**Miniature**
Toggle Switch

---

### 2M1H - DP1 - TJ - BJ - M2 - R - E

1 **Series**
2 **Pole / Circuit**
3 **Actuator Style**
4 **Bushing**
5 **Termination**
6 **Contacts**
7 **Seal**

<table>
<thead>
<tr>
<th>1 SERIES</th>
<th>2 POLE / CIRCUIT</th>
<th>3 ACTUATOR STYLE</th>
<th>4 BUSHING</th>
</tr>
</thead>
<tbody>
<tr>
<td>2M1H</td>
<td>2-3, 5-6</td>
<td>TJ .709&quot; [18 mm]</td>
<td>BJ .429&quot; [10.90 mm] threaded, length</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1 SERIES</th>
<th>2 POLE / CIRCUIT</th>
<th>3 ACTUATOR STYLE</th>
<th>4 BUSHING</th>
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<td>BJ .429&quot; [10.90 mm] threaded, length</td>
</tr>
</tbody>
</table>

*Manufacturer reserves the right to change product specification without prior notice.*
2M-Series - 2MS Ordering Scheme, 2M1 Ordering Scheme

1 SERIES
2MS Sealed Miniature Toggle Switch

2 POLES
WSP Single pole - uses terminals 1, 2 & 3
WDP Double pole - uses terminals 1, 2, 3, 4, 5 & 6
W3P Three pole - uses terminals 1, 2, 3, 4, 5, 6, 7, 8 & 9

3 CIRCUIT
Position: 1 2 3
1 ON ON OFF
2 ON OFF ON
3 ON OFF OFF

4 ACTUATOR STYLE
T1 Round Bat T9 Long Plastic .492” length
T2 Round Short Bat P1 Plastic Anti-Static .496” length

5 BUSHING
B1 Threaded, Keyway B4 Unthreaded, Short, Keyway, Flat

Notes:
1. B1 Bushing switches supplied with (2) 2M1-HDW2 nuts, (1) 2M1-HDW11 washer and (1) 2M1-HDW6 locking ring. See page 76-77.
2. Movable contact & terminal platings: silver over copper alloy
3. Movable contact & terminal platings: gold over nickel over copper alloy
4. Terminal platings: tin over nickel over copper alloy
5. Tin option not available with M1 terminal

6 TERMINATION
M1 Solder Lug
M2 PCB
M3 Quick Connect

7 CONTACTS / TERMINALS
Contact Material Terminal Plating Rating Approvals
G silver 1 gold over silver 5A 125VAC or 28VDC, VS1 Vertical, Snap-In, .460” IP67
K gold 2 tin 3, 4 0.4VA max 20V max (AC/DC) IP67
P silver 1 tin 3, 4 5A 125VAC or 28VDC, VS3 Vertical, Snap-In, .630” [16mm] IP67
R gold 2 gold 2 0.4VA max 20V max (AC/DC) IP67

8 EPOXY SEAL
E Epoxy Seal 0 without Epoxy Seal

---

2M1 - SP 1 - T1 - B1 - M1 Q E

1 SERIES
2M1 Miniature Toggle Switch

2 POLES
SP Single pole - uses terminals 1, 2 & 3
DP Double pole - uses terminals 1, 2, 3, 4, 5 & 6
3P Three pole - uses terminals 1, 2, 3, 4, 5, 6, 7, 8 & 9
4P Three pole - uses terminals 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 & 12

3 CIRCUIT
Position: 1 2 3
1 ON ON OFF
2 ON OFF ON
3 ON OFF OFF

4 ACTUATOR STYLE
T1 Round Bat T7 Large Bat (60 bushing)
T2 Round Short Bat T8 X-Large Bat (60 bushing)
T3 Paddle T9 Black Plastic
T4 Medium Paddle T0 Rectangular
T5 Long Paddle TA Locking Lever
T6 Flat (B1,B2,B5,BA,BB,BE) TL Locking Lever

5 BUSHING
B1 Threaded Standard, keyway B8 Metric
B2 Non-Threaded Standard, keyway B9 Snapproof
B3 Threaded Short, keyway B0 15/32” Threaded (Standard
B4 Non-Threaded Short, keyway for T7 & T8 actuator styles)
B5 High Torque, 7.5mm, flat BA Threaded for T6
B6 High Torque, 8.0mm, keyway BE Threaded Hi Torque for T6
B7 Long threaded BL Threaded, Locking

6 TERMINATION
M1 Solder Lug
M2 PCB
M3 Quick Connect
M51 Wire Wrap, .750” [19.05mm]
M52 Wire Wrap, 964” [24.48mm]
M53 Wire Wrap, 425” [10.80mm]
M54 Wire Wrap, 1.062” [25.97mm]
M6 Right Angle, PC Thru-Hole
M61 Right Angle, Snap-In
M7 Vertical, Right Angle, PC Thru-Hole
M71 Vertical, Right Angle, Snap-In
M77 Vertical, Right Angle, Snap-In

7 CONTACTS / TERMINALS
Contact Material Terminal Plating Rating Approvals
G silver 1 gold over silver 5A 125VAC or 28VDC, VS1 Vertical, Snap-In, .460” IP67
K gold 2 tin 3, 4 0.4VA max 20V max (AC/DC) IP67
P silver 1 tin 3, 4 5A 125VAC or 28VDC, VS3 Vertical, Snap-In, .630” [16mm] IP67
Q silver 1 gold over silver 5A 125VAC or 28VDC, VS4 Vertical, Snap-In, .461” [11.70mm] IP67
R gold 2 gold 2 0.4VA max 20V max (AC/DC) IP67

8 EPOXY SEAL
E Epoxy Seal 0 without Epoxy Seal

Notes:
1. B1 Bushing switches supplied with (2) 2M1-HDW2 nuts, (1) 2M1-HDW11 washer and (1) 2M1-HDW6 locking ring. See page 76-77.
2. Movable contact & terminal platings: silver over copper alloy
3. Movable contact & terminal platings: gold over nickel over copper alloy
4. Terminal platings: tin over nickel over copper alloy
5. Tin option not available with M1 terminal
2M-Series Accessories

To order accessories assembled on a switch, specify the switch number followed by the accessory part number and the word “assembled”. Ex: 2M1-SP1-T1-B1-M1QE-T12 ASSEMBLED. To order accessories in bulk, specify the Series, followed by the accessory. Ex: 2M1-T12. See page 76 for dimensional specifications.

Optional Toggle Cap

<table>
<thead>
<tr>
<th>1 SERIES</th>
<th>2M1</th>
<th>Fits 2M1H, 2MS or 2M1</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 TOGGLE CAP SIZE</td>
<td>T1</td>
<td>10.6 mm</td>
</tr>
</tbody>
</table>

Optional Dress and Knurled Nuts

<table>
<thead>
<tr>
<th>1 SERIES</th>
<th>2M1</th>
<th>Fits 2M1H, 2MS or 2M1</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 NUT</td>
<td>HDW3</td>
<td>Dress nut for 1/4&quot; bushing</td>
</tr>
<tr>
<td>HDW5</td>
<td>Knurled nut for 15/32&quot; bushing (2M1-Series only)</td>
<td></td>
</tr>
</tbody>
</table>

Optional Rubber Seals

<table>
<thead>
<tr>
<th>1 SERIES</th>
<th>2M1</th>
<th>Fits 2M1H, 2MS or 2M1</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 RUBBER BOOT SEAL</td>
<td>E1A</td>
<td>1/4 - 40&quot; UNS bushing (Not available for B0 bushing option)</td>
</tr>
<tr>
<td></td>
<td>K1</td>
<td>Metric M6 bushing (B8 bushing only)</td>
</tr>
<tr>
<td></td>
<td>YE1D</td>
<td>15/32 - 32&quot; UNS bushing (TJ, TK and B0 bushings only)</td>
</tr>
<tr>
<td></td>
<td>YE1E</td>
<td>15/32 - 32&quot; UNS bushing 1/2 boot (T7, T8, TJ, TK and B0 bushings only)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1 SERIES</th>
<th>3MNH</th>
<th>Fits 3MNH or 2M1H</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 RUBBER O-RING</td>
<td>WCP-0872</td>
<td>For 15/32 bushing option</td>
</tr>
</tbody>
</table>
2M1H-Series Dimensional Specifications: in. [mm]

**Single Pole**

**Double Pole**

---

**Actuator Options**

**Bushing Options & Mounting**

---

**Termination Options**

**M1 Standard Solder Lug**

**M2 PC Thru-Hole**

**M3 Quick Connect**

**M5 Wire Wrap**
2MS-Series Dimensional Specifications: in. [mm]

Single Pole

Double Pole

Three Pole

Actuator Options

T1

T2

T9 with Plastic Cap

P1 Plastic Toggle

P2 Plastic Toggle

* Shown with B4 bushing. Subtract .075" (1.90 mm) from actuator height for B1 bushing.
2M-Series Dimensional Specifications

Bushing Options

Termination Options

M1 Standard Solder Lug

M2 PC Thru-Hole

M3 Quick Connect

M5 Wire Wrap

M6 Single Pole

M6 Double Pole

M6 Three Pole

M7 Single Pole

P.C. MOUNTING

DIM/A
M5-1 0.790 (19.05)
M5-2 0.944 (24.00)
M5-3 1.092 (27.70)
M5-4 1.189 (30.20)

THK .030 (0.75)

THK .030 (0.75)

THK .030 (0.75)

THK .030 (0.75)
2MS-Series Dimensional Specifications: in. [mm]

### M7 Double Pole

Termination Options

### M7 Three Pole

Termination Options

### VS2-VS3 Single Pole

Termination Options

### VS2-VS3 Double Pole

Termination Options

### U2-VS3 Three Pole

Termination Options
2M-Series Dimensional Specifications: in. [mm]

Termination Options

VS4-VS5 Single Pole

VS4-VS5 Double Pole

U4-VS5 Three Pole

P.C. MOUNTING

OPTION CODE | DIM. 'A'
-------------|----------
VS4          | .461     [11.70]  
VS5          | .630     [16.00]  

P.C. MOUNTING

OPTION CODE | DIM. 'A'
-------------|----------
VS4          | .461     [11.70]  
VS5          | .630     [16.00]  

P.C. MOUNTING

OPTION CODE | DIM. 'A'
-------------|----------
U4           | .561     [14.20]  
VS5          | .630     [16.00]  

Snap-In Termination Options

M61

VS21, VS31

M71

VS41, VS51

* PC Mounting for M61, M71, VS21, VS31, VS41, VS51 refer to M6, M7, VS2, VS3, VS4, VS5 respectively.
2M1-Series Dimensional Specifications: in. [mm]

**Single Pole**

**Double Pole**

**Three Pole**

**Four Pole**

*Actuator Options for Panel Rear Mount*

- **T1**
  - 0.098 DIA (2.49)
  - 0.102 (2.59)
- **T2**
  - 0.102 DIA (2.59)
  - 0.102 (2.59)
  - 0.113 DIA (2.87)
- **T3**
  - 0.134 DIA (3.40)
- **T4**
  - 0.130 DIA (3.30)
- **T5**
  - 0.132 DIA (3.35)
  - 0.132 (3.35)
- **T6**
  - 0.197 DIA (5.00)
  - 0.202 (5.13)
- **T7**
  - 0.236 DIA (6.00)
  - 0.236 (6.00)
  - 0.236 (6.00)
  - 0.236 (6.00)
- **T8**
  - 0.256 DIA (6.50)
  - 0.256 (6.50)
  - 0.256 (6.50)
  - 0.256 (6.50)
- **T9**
  - 0.407 DIA (10.35)
  - 0.407 (10.35)
- **T0**
  - 0.290 DIA (7.37)
  - 0.290 (7.37)
  - 0.290 (7.37)
  - 0.290 (7.37)

*Actuator length shown for T1 – T5, T9 and T0 is with B1 bushing. T7, P7, P8 & P9 does not require a bushing code.*

**Locking Lever**

- **TA**
  - 0.579 (14.70)
  - 0.614 (15.60)
  - 0.579 (14.70)
  - 0.614 (15.60)
- **TL**
  - 0.573 (14.56)
  - 0.573 (14.56)
  - 0.573 (14.56)
  - 0.573 (14.56)
- **Tl**
  - 0.579 (14.70)
  - 0.614 (15.60)
  - 0.579 (14.70)
  - 0.614 (15.60)

**Bushing Options**

- **B1 Threaded**
  - 0.039 (0.99)
  - 0.049 (1.25)
  - 0.039 (0.99)
  - 0.049 (1.25)
  - 0.039 (0.99)
  - 0.049 (1.25)
- **B3 Threaded**
  - 0.059 (1.50)
  - 0.069 (1.75)
  - 0.059 (1.50)
  - 0.069 (1.75)
  - 0.059 (1.50)
  - 0.069 (1.75)
- **B5 High Torque**
  - 0.215 (5.46)
  - 0.244 (6.20)
  - 0.215 (5.46)
  - 0.244 (6.20)
  - 0.215 (5.46)
  - 0.244 (6.20)
- **B6 High Torque**
  - 0.315 (8.00)
  - 0.366 (9.30)
  - 0.315 (8.00)
  - 0.366 (9.30)
  - 0.315 (8.00)
  - 0.366 (9.30)

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2M1-Series Dimensional Specifications: in. [mm]

**Bushing Options**

**B7 Long**

**B8 Metric**

**B9 Splash-Proof**

**BL Locking Lever**

**BA Threaded for T6**

**BB Non-Threaded for T6**

**BB High Torque for T6**

**Panel Mounting**

**1/4 INCH BUSHING**

**15/32 INCH BUSHING**

**Termination Options**

**M1 Standard Solder Lug**

**M2 PC Thru-Hole**

**M3 Quick Connect**

**M5 Wire Wrap**

**M6 Single Pole**

**M6 Double Pole**

**P.C. MOUNTING**

www.carlingtech.com
2M1-Series Dimensional Specifications: in. [mm]
2M1-Series Dimensional Specifications: in. [mm]

Termination Options

VS2-VS3 Double Pole

Option Code | Dim. A'
---|---
VS2 | 0.461 [11.70]
VS3 | 0.300 [7.62]

P.C. MOUNTING

VS2

VS3


VS4-VS5 Single Pole

Option Code | Dim. A'
---|---
VS4 | 0.461 [11.70]
VS5 | 0.300 [7.62]

P.C. MOUNTING

VS4

VS5


VS4-VS5 Double Pole

Option Code | Dim. A'
---|---
VS4 | 0.461 [11.70]
VS5 | 0.300 [7.62]

P.C. MOUNTING

VS4

VS5

Snap-In Termination Options

M61 (available with SP & DP)

VS21, VS31

M71 (available with SP & DP)

VS41, VS51

* PC Mounting for M61, M71, VS21, VS31, VS41, VS51 refer to M6, M7, VS2, VS3, VS4, VS5 respectively.
The 3S family of sub-miniature pushbutton switches is composed of three switch series; the 3S1-Series sub-miniature pushbutton switch, the 3SS-Series sealed sub-miniature pushbutton switch, and the 3SM-Series surface mount sealed sub-miniature pushbutton switch. All switches are available with a variety of rating, termination and actuator choices, and will withstand temperatures from -30°C to +85°C.

Product Highlights:
- IP67 Sealing
- AC or Low Voltage DC Rated
- Snap-in, PC or Surface Mounting
- Bulk Packed or Tape Reel

Typical Applications:
- Telecommunications
- Performance Audio
- Networking
- Computers
- Instrumentation
- Low Power On/Off Designs

Resources:
Download 3D CAD Files
- IGS
- STP
### Electrical

**Contact Rating**
Refer to ordering scheme

**Electrical Life**
50,000 make & break cycles @ full load

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

**Insulation Resistance**
1000 MΩ min.

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

### Physical

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

**Index of Protection**
3SS & 3SM-Series: IP67

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

### Material

**Case**
- 3S1-Series: Dially phthalate (DAP)
- 3SS-Series: Glass filled nylon 6/6, flame retardant, heat stabilized
- 3SM-Series: Glass filled nylon 4/6, flame retardant, heat stabilized

**Plunger**
- 31-Series: Thermoplastic polyester, black
- 3SS-Series: Thermoplastic polyester (UL 94V-0), with internal o-ring
- 3SM-Series: Glass filled nylon 4/6, flame retardant, heat stabilized

**Bushing**
- 3S1-Series: Brass, nickel plated
- 3SM-Series: Glass filled nylon 6/6, flame retardant, heat stabilized (UL 94V-0)

**Housing**
- Stainless Steel

**Switch Support**
- Brass, tin plated

**Terminal Seal**
- Epoxy

---

![3SS-Series](image)

**3SS-Series**
- Sealed
- Sub-Miniature Pushbutton Switch

![3S1-Series](image)

**3S1-Series**
- Sub-Miniature Pushbutton Switch

![3SM-Series](image)

**3SM-Series**
- Sealed Surface Mount
- Sub-Miniature Pushbutton Switch

---

### Order Code

<table>
<thead>
<tr>
<th>1 SERIES</th>
<th>2 POLES</th>
<th>3 CIRCUIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>3SS</td>
<td>WSP</td>
<td>1 - Series</td>
</tr>
<tr>
<td>3SS</td>
<td>WDP</td>
<td>2 - Poles</td>
</tr>
<tr>
<td>3SS</td>
<td></td>
<td>3 - Circuit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4 - Termination</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5 - Contacts</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6 - Seal</td>
</tr>
</tbody>
</table>

#### 3SS - WSP 9 - M6 R E

**1 SERIES**
- 3SS: Sealed Sub-Miniature Pushbutton Switch

**2 POLES**
- WSP: Single pole - uses terminals 1, 2 & 3
- WDP: Double pole - uses terminals 1, 2, 3, 4, 5 & 6

**3 CIRCUIT**
- | Switching Position: 1 2 |
  | 2-3, 5-6 | 2-1, 5-4 |
  | 8 | ON (ON) |
  | 9 | OFF (ON) |

Note: Plunger at rest in Position 1. Plunger depressed in Position 2.

---

### 5 CONTACTS / TERMINALS

<table>
<thead>
<tr>
<th>Contact Material</th>
<th>Terminal Plating</th>
<th>Rating</th>
<th>Approvals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>G</strong></td>
<td>silver 1</td>
<td>gold over silver</td>
<td>0.4VA max 20V max (AC/DC)</td>
</tr>
<tr>
<td><strong>K</strong></td>
<td>gold 2</td>
<td>tin 3 4</td>
<td>1A 125VAC or 28VDC</td>
</tr>
<tr>
<td><strong>P</strong></td>
<td>silver 1</td>
<td>tin 3 4</td>
<td>1A 125VAC or 28VDC</td>
</tr>
<tr>
<td><strong>R</strong></td>
<td>gold 2</td>
<td>0.4VA max 20V max (AC/DC)</td>
<td>IP67</td>
</tr>
</tbody>
</table>

#### Notes:
1. Movable contact & terminal platings: silver over copper alloy
2. Movable contact & terminal platings: gold over nickel over copper alloy
3. Terminal platings: tin over nickel over copper alloy
4. Tin option available with PC terminations only.

---

### 6 EPOXY SEAL

| E | Epoxy Seal | 0 | without Epoxy Seal |

---

*Manufacturer reserves the right to change product specification without prior notice.*
### 3S-Series - 3S1 Ordering Scheme, 3SM Ordering Scheme, 3S Accessories

#### 3S-Series Accessories
To order accessories assembled on a switch, specify the switch number followed by the accessory part number and the word “assembled”. Ex: 3S1-SP9-B6-M7-RE-C23 ASSEMBLED. To order accessories in bulk, specify the Series, followed by the accessory. Ex: 3S1-C13.

#### Optional Cap

<table>
<thead>
<tr>
<th>1 SERIES</th>
<th>2 TOGGLE CAP SIZE</th>
<th>3 Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>3S1</td>
<td>.158” [4.01 mm] height</td>
<td>C1</td>
</tr>
<tr>
<td></td>
<td>.138” [35.05 mm] height</td>
<td>C2</td>
</tr>
</tbody>
</table>

### 3S1 - SP 9 - B6 - M7 - RE

#### 1 SERIES
3S1 Sub-Miniature Pushbutton Switch

#### 2 POLES
SP Single pole - uses terminals 1, 2 & 3

#### 3 CIRCUIT
( ) - momentary

<table>
<thead>
<tr>
<th>Switching Position</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>ON</td>
<td>(ON)</td>
</tr>
<tr>
<td>9</td>
<td>OFF</td>
<td>(ON)</td>
</tr>
</tbody>
</table>

Note: Plunger at rest in Position 1. Plunger depressed in Position 2.

#### 4 BUSHING

<table>
<thead>
<tr>
<th></th>
<th>B5</th>
<th>B6</th>
<th>B7</th>
<th>B8</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-48 Threaded</td>
<td></td>
<td>Unthreaded “D”</td>
<td>Unthreaded</td>
<td>1/4-40 Threaded “D”</td>
</tr>
</tbody>
</table>

#### 5 TERMINATION

<table>
<thead>
<tr>
<th></th>
<th>M1</th>
<th>M2</th>
<th>M6</th>
<th>M61</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solder Lug</td>
<td></td>
<td>PCB</td>
<td>PC Mount, 90° horizontal</td>
<td>Snap-In, 90° horizontal</td>
</tr>
<tr>
<td>Snap-In, 90° vertical</td>
<td>VS21</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

See page 50-51 for dimensional specifications.

#### 6 CONTACTS / TERMINALS

<table>
<thead>
<tr>
<th>Contact Material</th>
<th>Terminal Plating</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>gold over silver</td>
<td>1A @ 125VAC or 28VDC</td>
</tr>
<tr>
<td>K</td>
<td>gold 4</td>
<td>0.4VA max @ 20V max (AC/DC)</td>
</tr>
<tr>
<td>P</td>
<td>silver 3,8</td>
<td>1A @ 125VAC or 28VDC</td>
</tr>
<tr>
<td>O</td>
<td>silver 3</td>
<td>0.4VA max @ 20V max (AC/DC)</td>
</tr>
<tr>
<td>R</td>
<td>gold 4</td>
<td>1A @ 125VAC or 28VDC</td>
</tr>
</tbody>
</table>

#### 7 EPOXY SEAL

| Epoxy Seal | 0 without Epoxy Seal |

#### 3SM - SP 9 - M6 - RE

#### 1 SERIES
3SM Sealed Surface Mount Sub-Miniature Pushbutton Switch

#### 2 POLES
SP Single pole - uses terminals 1, 2 & 3

#### 3 CIRCUIT
( ) - momentary

<table>
<thead>
<tr>
<th>Switching Position</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>ON</td>
<td>(ON)</td>
</tr>
<tr>
<td>9</td>
<td>OFF</td>
<td>(ON)</td>
</tr>
</tbody>
</table>

Note: Plunger at rest in Position 1. Plunger depressed in Position 2.

#### 4 TERMINATION

<table>
<thead>
<tr>
<th></th>
<th>M5</th>
<th>M6</th>
<th>M7</th>
<th>M61</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Mount, horizontal .433 [11.00 mm]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface Mount, 90° flat .286 [7.26 mm]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface Mount, 90° right angle</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surface Mount, 90° horizontal .353 [8.97 mm]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 5 CONTACTS / TERMINALS

<table>
<thead>
<tr>
<th>Contact Material</th>
<th>Terminal Plating</th>
<th>Rating</th>
<th>Approvals</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>gold over silver</td>
<td>1A @ 125VAC or 28VDC</td>
<td>IP67</td>
</tr>
<tr>
<td>K</td>
<td>gold 4</td>
<td>0.4VA max @ 20V max (AC/DC)</td>
<td>IP67</td>
</tr>
<tr>
<td>P</td>
<td>silver 3,8</td>
<td>1A @ 125VAC or 28VDC</td>
<td>IP67</td>
</tr>
<tr>
<td>O</td>
<td>silver 3</td>
<td>0.4VA max @ 20V max (AC/DC)</td>
<td>IP67</td>
</tr>
<tr>
<td>R</td>
<td>gold 4</td>
<td>1A @ 125VAC or 28VDC</td>
<td>IP67</td>
</tr>
</tbody>
</table>

#### 6 EPOXY SEAL

| Epoxy Seal | 0 without Epoxy Seal |

#### 7 PACKAGING

| T/R | tape reel - 500 pieces per reel |

Switches are bulk packed, unless T/R is specified at the end of the part number.

Notes:
1. Movable contact and terminals platings: silver over copper alloy
2. Terminal platings: gold over nickel over copper alloy
3. Terminal contact platings: gold over nickel alloy

### 3S1 - C1 3

#### 1 SERIES
3S1 Fits 3SS, 3S1 or 3MS

#### 2 TOGGLE CAP SIZE

<table>
<thead>
<tr>
<th></th>
<th>C1</th>
<th>C2</th>
</tr>
</thead>
<tbody>
<tr>
<td>.158” [4.01 mm] height</td>
<td>.138” [35.05 mm] height</td>
<td></td>
</tr>
</tbody>
</table>
### 3SS-Series Dimensional Specifications: in. [mm]

#### Single Pole

<table>
<thead>
<tr>
<th>Dimension</th>
<th>M6 Single Pole</th>
<th>M7 Single Pole</th>
</tr>
</thead>
<tbody>
<tr>
<td>...</td>
<td>![M6 Single Pole Diagram]</td>
<td>![M7 Single Pole Diagram]</td>
</tr>
</tbody>
</table>

#### Double Pole

<table>
<thead>
<tr>
<th>Dimension</th>
<th>M6 Double Pole</th>
<th>M7 Double Pole</th>
</tr>
</thead>
<tbody>
<tr>
<td>...</td>
<td>![M6 Double Pole Diagram]</td>
<td>![M7 Double Pole Diagram]</td>
</tr>
</tbody>
</table>

**Termination Options**

- **P.C.MOUNTING**
  - ![P.C.MOUNTING Diagram]

*Double Throw shown. Single Throw uses two outer terminals only.*

---

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3SS-Series Dimensional Specifications: in. [mm]

VS2 Single Pole

Termination Options

P.C. MOUNTING

* Double Throw shown. Single Throw uses outer terminals only.

VS2 Double Pole

P.C. MOUNTING

Snap-In Termination Options

M61

M71

VS21

* PC Mounting for M61, M71, VS21 refer to M6, M7, VS2 respectively.
3S1-Series Dimensional Specifications: in. [mm]

**Actuator Options for Snap-In Front Mount**

**PANEL MOUNTING**

- **OP1**
  - PANEL THICKNESS: 0.047" (1.19 mm)
  - MAX. TYP.: 0.905" (23.04 mm)

- **OP1 Without Frame**
  - PANEL THICKNESS: 0.047" (1.19 mm)
  - MAX. TYP.: 0.905" (23.04 mm)

**Bushing Options**

- **B5**
  - DIA: 0.189" (4.80 mm)
  - MAX. TYP.: 0.098" (2.50 mm)

- **B6**
  - DIA: 0.189" (4.80 mm)
  - MAX. TYP.: 0.098" (2.50 mm)

- **B7**
  - DIA: 0.189" (4.80 mm)
  - MAX. TYP.: 0.098" (2.50 mm)

- **B8**
  - DIA: 0.189" (4.80 mm)
  - MAX. TYP.: 0.098" (2.50 mm)

- **B9**
  - DIA: 0.189" (4.80 mm)
  - MAX. TYP.: 0.098" (2.50 mm)

**Termination Options**

- **M1**
  - MAX. TYP.: 0.039" (1.00 mm)
  - MAX. THK: 0.039" (1.00 mm)

- **M2**
  - MAX. TYP.: 0.039" (1.00 mm)
  - MAX. THK: 0.039" (1.00 mm)
3S1-Series Dimensional Specifications: in. [mm]
3SM-Series - 3S-Series Dimensional Specifications

3SM-Series Dimensional Specifications: in. [mm]

* Double Throw shown. Single Throw uses two outer terminals only.

<table>
<thead>
<tr>
<th>C1</th>
<th>C2</th>
<th>CAP COLORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>189 (4.80)</td>
<td>283 (7.20)</td>
<td>1</td>
</tr>
<tr>
<td>159 (4.00)</td>
<td>128 (3.20)</td>
<td>2</td>
</tr>
<tr>
<td>157 (3.90)</td>
<td>129 (3.25)</td>
<td>3</td>
</tr>
<tr>
<td>182 (4.60)</td>
<td>286 (7.26)</td>
<td>4</td>
</tr>
<tr>
<td>157 (3.90)</td>
<td>129 (3.25)</td>
<td>5</td>
</tr>
</tbody>
</table>

* MATERIAL: ABS.
3M-Series

MINIATURE PUSHBUTTONS

The 3M family of miniature pushbutton switches is composed of four switch series; the 3MNH-Series premium sealed snap-action pushbutton, the 3MN-Series snap-action pushbutton, the 3MS-Series sealed snap-action pushbutton, and the 3MA-Series alternate-action pushbutton. These PC mount pushbutton switches offer a variety of ratings, circuits, contact materials, terminal platings, pushbutton styles, and optional color caps.

Product Highlights:
- IP67 Sealing
- Snap Action Contact Mechanism
- Variety of Plunger and Bushing Lengths
- Up to 14 Termination Choices
- UL and cUL Approvals
- Sleek Black Finish

Typical Applications:
- Telecommunications
- Performance Audio
- Networking
- Computers
- Instrumentation
- Low Power On/Off Designs

Resources:
Download 3D CAD Files

www.carlingtech.com
### Electrical Specifications

- **Contact Rating**: refer to ordering scheme
- **Electrical Life**: 50,000 make & break cycles @ full load
- **Contact Resistance**:
  - **3MS-Series**: 50 mΩ max. initial @ 2-4 VDC 100mA for both silver & gold plated contacts.
  - **3MN, 3MA & 3NMH-Series**: 10 mΩ max. initial @ 2-4 VDC 100mA for both silver & gold plated contacts.
- **Insulation Resistance**: 1000 MΩ min.
- **Dielectric Strength**: 1500 Volts RMS @ sea level

### Physical Specifications

- **Operating Temperature**: -30°C to +85°C
- **Index of Protection**:
  - **3MS-Series**: IP68
  - **3MNH-Series**: IP67
- **Cap Installation Support**:
- **Solder Heat Resistance**: MIL-STD-202, Method 210

### Material Specifications

- **Case**:
  - **3MS-Series**: Glass filled nylon 6/6, flame retardant, heat stabilized (UL94V-0)
  - **3MN, 3MA & 3NMH-Series**: Dially phthalate (DAP) (UL 94V-0)
- **Plunger**:
  - **3MS & 3MA-Series**: Glass filled nylon or glass filled polyester (UL94V-0)
- **Bushing**:
  - **3MN-Series**: Brass, black finish with o-ring seal
  - **3MA-Series**: Zinc, nickel plated
- **Housing**:
  - **3MN & 3MA-Series**: Stainless Steel
- **Switch Support Retainer**:
- **Terminal Seal**:
  - **3MS-Series**: Epoxy

*Manufacturer reserves the right to change product specification without prior notice.*

---

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### 3M-Series - 3MNH Ordering Scheme, 3MS Ordering Scheme

#### 3MNH - DP 1 - PJ - BJ - M2 - Q E

1. **Series**
   - 3MNH: Premium Sealed Miniature Pushbutton Switch

2. **Pole**
   - DP: Single pole - uses terminals 1, 2 & 3
   - WSP: Single pole - uses terminals 1, 2 & 3

3. **Circuit**
   - 1: ON - momentary
   - 2: OFF - momentary

4. **Plunger**
   - PJ: .325 height [8.25 mm]
   - PA: .157 height [4.00 mm]
   - PB: .354 height [9.00 mm]

5. **Bushing**
   - BJ: Threaded 15/32, flat, .553 height [14.05 mm]
   - BL: Threaded 15/32, flat, .295 height [7.49 mm]

6. **Termination**
   - M1: Solder Lug
   - M2: PC thru-hole
   - M51: Wire wrap, .711” [18.05 mm]
   - M52: Wire wrap, .924” [23.48 mm]
   - M53: Wire wrap, .386” [9.80 mm]

7. **Contacts / Terminals**
   - Contact Material: silver 5, gold over silver
   - Terminal Plating: gold over silver
   - Rating: 1A, 120VAC or 38VDC
   - Approvals: IP68

8. **Epoxy Seal**
   - E: Epoxy Seal

### 3MS - WSP E P1 B1 M6 Q E

1. **Series**
   - 3MS: Sealed Snap-Action Miniature Pushbutton Switch

2. **Pole**
   - WSP: Single pole - uses terminals 1, 2 & 3
   - P1: Standard Plunger
   - B1: Long Plunger
   - M6: Short Plunger

3. **Circuit**
   - 1: ON - momentary
   - 2: OFF - momentary
   - 3: ON - momentary

4. **Actuator Style**
   - P1: Standard Plunger
   - B1: Long Plunger
   - M6: Short Plunger

5. **Bushing**
   - B1: Threaded, with keyway, .350 height [8.89 mm]
   - B4: Unthreaded, flat, .250 height [6.35 mm]

6. **Termination**
   - M1: Solder Lug
   - M2: PCB
   - M6: PC Mount, 90° horizontal
   - M7: PC Mount, 90° vertical
   - M71: Snap-In, 90° vertical

7. **Contacts / Terminals**
   - Contact Material: silver 3, gold over silver
   - Terminal Plating: gold over silver
   - Rating: 1A, 120VAC or 38VDC
   - Approvals: IP68

8. **Epoxy Seal**
   - E: Epoxy Seal

---

**Notes:**
1. Hardware includes (2) 2M1-HDW2 nuts, (1) 2M1-HDW11 washer, and (1) 2M1-HDW15 locking ring
2. Movable contact and terminal platings: gold over nickel over copper alloy
3. Movable contact and terminal platings: silver over copper alloy
3MN-Series - 3MN Ordering Scheme

3MN-Series with Square Actuator

3MN - SP - 7 - AP2 / 3 2 - M6 Q E

1 SERIES
3MN  Snap-Action Miniature Pushbutton Switch

2 POLES
SP  Single pole - uses terminals 1, 2 & 3
DP  Double pole - uses terminals 1, 2, 3, 4, 5 & 6

3 CIRCUIT
( ) - momentary
Switching Position: 1 2
7  ON (ON)
Note: Plunger at rest in Position 1. Plunger depressed in Position 2.

4 ACTUATOR
Square Actuator (use with Color Options in Selection 5A & 5B)
AP1  Square with no frame
AP2  Square raised above frame
AP3  Square flush with frame

Plunger Actuator (use with Bushing Options in Selection 5)
P0  Flush Plunger
P1  Standard Plunger
P2  Short Plunger

5A ACTUATOR COLOR & 5B FRAME COLOR 3,4
1  White  4  Orange  7  Blue
2  Black  5  Yellow  8  Brown
3  Red  6  Green  9  Gray

OR

5 BUSHING
B6  Unthreaded (for terminations VS6- VS9 only)
B10 1  Threaded keyway
B11 2  Threaded with flat
B20  Unthreaded keyway
B21  Unthreaded with flat

3MN-Series with Plunger Actuator

3MN - SP - 7 - P2 - B6 - M6 Q E

1 SERIES
3MN  Snap-Action Miniature Pushbutton Switch

2 POLES
SP  Single pole - uses terminals 1, 2 & 3
DP  Double pole - uses terminals 1, 2, 3, 4, 5 & 6

3 CIRCUIT
( ) - momentary
Switching Position: 1 2
7  ON (ON)
Note: Plunger at rest in Position 1. Plunger depressed in Position 2.

4 ACTUATOR
Square Actuator (use with Color Options in Selection 5A & 5B)
AP1  Square with no frame
AP2  Square raised above frame
AP3  Square flush with frame

Plunger Actuator (use with Bushing Options in Selection 5)
P0  Flush Plunger
P1  Standard Plunger
P2  Short Plunger

5A ACTUATOR COLOR & 5B FRAME COLOR 3,4
1  White  4  Orange  7  Blue
2  Black  5  Yellow  8  Brown
3  Red  6  Green  9  Gray

OR

5 BUSHING
B6  Unthreaded (for terminations VS6- VS9 only)
B10 1  Threaded keyway
B11 2  Threaded with flat
B20  Unthreaded keyway
B21  Unthreaded with flat

6 TERMINATION
M1  Solder Lug
M2  PCB
M51  Wire Wrap .750 [19.05]
M52  Wire Wrap .964 [24.40]
M53  Wire Wrap 1.025 [25.99]
M6  PC Mount, 90° horizontal
M7  PC Mount, 90° vertical
V52  PC Mount, U bracket, .620" mounting x .461" height
V53  PC Mount, U bracket, .620" mounting x .630" height
V54  PC Mount, U bracket, .750" mounting x .461" height
V55  PC Mount, U bracket, .750" mounting x .630" height
V56  PC Mount, U bracket, .461" height (for B6 bushing only)
V57  PC Mount, U bracket, .830" height (for B6 bushing only)
V58  PC Mount, U bracket, .461" height (for B6 bushing only)
V59  PC Mount, U bracket, .830" height (for B6 bushing only)

7 CONTACTS / TERMINALS

<table>
<thead>
<tr>
<th>Contact Material</th>
<th>Terminal Plating</th>
<th>Rating</th>
<th>Approvals</th>
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</thead>
<tbody>
<tr>
<td>G 5 silver 5</td>
<td>gold over silver</td>
<td>1A 125VAC or 28VDC</td>
<td>UL, CSA</td>
</tr>
<tr>
<td>Q 5 silver 5</td>
<td>silver 5</td>
<td>1A 125VAC or 28VDC</td>
<td>UL, CSA</td>
</tr>
<tr>
<td>R 6 gold 6</td>
<td>gold 6</td>
<td>0.4VA max 20V max (AC/DC)</td>
<td>UL, CSA</td>
</tr>
</tbody>
</table>

EPOXY SEAL
E  Epoxy Seal 0 without Epoxy Seal

Notes:
1. Hardware includes (2) 2M1-HDW2 nuts, (1) 2M1-HDW11 washer, and (1) 2M1-HDW15 locking ring
2. Hardware includes (2) 2M1-HDW2 nuts, (1) 2M1-HDW11 washer, and (1) 2M1-HDW16 locking ring
3. Tin option available with PC type terminations only.
4. Selection 5B is blank if actuator style is AP1 (no frame)
5. Black, white and red are standard. Other colors available, consult factory for details.
6. Movable contact & terminal platings: silver over copper alloy
7. Movable contact & terminal platings: gold over nickel over copper alloy
3M-Series - 3MA Ordering Scheme, 3M Accessories

### 3MA-Series with Square Actuator

**3MA** - **SP** - **1** - **AP2** / **3** - **2** - **M6** - **Q** - **E**

1. **Series**
2. **Poles**
3. **Circuit**
4. **Bushing**
5. **Actuator Color**
6. **Frame Color**
7. **Termination**
8. **Contacts**
9. **Seal**

### 3MA-Series with Plunger Actuator

**3MA** - **SP** - **1** - **PD** - **BD** - **M6** - **Q** - **E**

1. **Series**
2. **Poles**
3. **Circuit**
4. **Bushing**
5. **Actuator**
6. **Termination**
7. **Contacts**
8. **Seal**

### Optional Cap

**3MN** - **C1** - **3**

1. **Series**
2. **Toggle Cap Size**
3. **Color**

### 3M-Series Accessories

To order a cap assembled on a switch, specify the switch number followed by the cap part number and the word “assembled”. Ex: 3MN-SP-7-P2-B6-M6QE-C13ASSEMBLED. To order caps in bulk, specify the Series, followed by the cap. Ex: 3MN-C13

### Notes:
1. Hardware includes (2) 2M1-HDW2 nuts, (1) 2M1-HDW12 washer, and (1) 2M1-HDW17 locking ring.
2. Hardware includes (2) 2M1-HDW2 nuts, (1) 2M1-HDW11 washer, and (1) 2M1-HDW15 locking ring.
3. Tin option available with PC type terminations only.
4. Available with actuator style AP1 only.
5. Black, white and red are standard. Other colors available, consult factory for details.
6. Selection 5B is blank if actuator style is AP1 (no frame).
7. Movable contact & terminal platings: silver over copper alloy.
8. Movable contact & terminal platings: gold over nickel over copper alloy.
9. Terminal platings: tin over nickel over copper alloy, available for PC mount terminations only.

### Optional Cap

**3MN** - **C1** - **3**

1. **Series**
2. **Toggle Cap Size**
3. **Color**

### Notes:
1. For 3MA with PL Bushing
2. For 3MA with PD Bushing

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3MNH-Series Dimensional Specifications: in. [mm]

**Single Pole Maintained Circuit**

**Single Pole Momentary Circuit**

**Double Pole Maintained Circuit**

**Double Pole Momentary Circuit**

**Panel Mounting**

**Termination Options**

**M1 Standard Solder Lug**

**M2 PC Thru-Hole**

**M5 Wire Wrap**
3MS-Series Dimensional Specifications: in. [mm]

### Single Pole

- **Dimensions:**
  - 2.000 in. (50.80 mm)
  - 0.114 in. (2.90 mm)

### Double Pole

- **Dimensions:**
  - 2.000 in. (50.80 mm)
  - 0.114 in. (2.90 mm)

### M6 Single Pole

- **Dimensions:**
  - 0.260 in. (6.60 mm)
  - 0.134 in. (3.40 mm)

### M6 Double Pole

- **Dimensions:**
  - 0.260 in. (6.60 mm)
  - 0.134 in. (3.40 mm)

### P.C. MOUNTING

- **Dimensions:**
  - 0.500 in. (12.70 mm)
  - 0.050 in. (1.27 mm)

### Plunger Options

#### For B1 Bushing

- **Dimensions:**
  - 0.114 in. (2.90 mm)
  - DIM "A":
    - P1: 1.61 in. (40.90 mm)
    - P2: 2.20 in. (55.90 mm)
    - P3: 2.00 in. (50.80 mm)

#### For B4 Bushing

- **Dimensions:**
  - 0.114 in. (2.90 mm)
  - DIM "A":
    - P1: 2.50 in. (63.50 mm)
    - P2: 2.20 in. (55.90 mm)
    - P3: 1.50 in. (38.10 mm)

### Bushing Options

#### B1

- **Dimensions:**
  - 0.350 in. (8.90 mm)
  - 1/4-40 UNS

#### B4

- **Dimensions:**
  - 0.350 in. (8.90 mm)
  - 1/4-40 UNC
3MS-Series Dimensional Specifications: in. [mm]
3MS-Series Dimensional Specifications: in. [mm]

**Termination Options**

**VS4-VS5 Single Pole**

**VS4-VS5 Double Pole**

**P.C. MOUNTING**

**Option Code**

| D1M | 6 | .461 (11.70) |
| D6 | .600 (15.20) |

**Option Code**

| D1M | 6 | .461 (11.70) |
| D6 | .600 (15.20) |

**Snap-In Termination Options**

**M61**

**VS21, VS31**

**M71**

**VS41, VS51**

*PC Mounting for M61, M71, VS21, VS31, VS41, VS51 refer to M6, M7, VS2, VS3, VS4, VS5 respectively.*
3M-Series - 3MN-Series Dimensional Specifications

3MN-Series Dimensional Specifications: in. [mm]

For B1, B2, B3, B4 Bushing

Plunger Options

For B6 Bushing

Actuator Options for Snap-In Front Mount

AP1

AP2 with Frame

AP3 Flush CAP

Bushing Options

B1 Threaded Standard
B2 Non-Threaded

B3 Threaded Standard
B4 Non-Threaded

B6 Non-Threaded

(FOR TERMINATION OPTIONS VS6-VS9 ONLY)
### 3MN-Series Dimensional Specifications: in. [mm]

#### M1 Standard Solder Lug

<table>
<thead>
<tr>
<th>Dimension</th>
<th>in.</th>
<th>[mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>THK</td>
<td>.030</td>
<td>0.76</td>
</tr>
</tbody>
</table>

#### M2 PC Thru-Hole

<table>
<thead>
<tr>
<th>Dimension</th>
<th>in.</th>
<th>[mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>THK</td>
<td>.030</td>
<td>0.76</td>
</tr>
</tbody>
</table>

#### M3 Wire Wrap

<table>
<thead>
<tr>
<th>Option Code</th>
<th>DIM. “A”</th>
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</thead>
<tbody>
<tr>
<td>MS-1</td>
<td>0.55</td>
</tr>
<tr>
<td>MS-2</td>
<td>0.64</td>
</tr>
<tr>
<td>MS-3</td>
<td>0.42</td>
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#### M6 Single Pole

<table>
<thead>
<tr>
<th>Dimension</th>
<th>in.</th>
<th>[mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIA</td>
<td>.119</td>
<td>3.00</td>
</tr>
<tr>
<td>THK</td>
<td>.200</td>
<td>5.08</td>
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</table>

#### M6 Double Pole

<table>
<thead>
<tr>
<th>Dimension</th>
<th>in.</th>
<th>[mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIA</td>
<td>.140</td>
<td>3.60</td>
</tr>
<tr>
<td>THK</td>
<td>.200</td>
<td>5.08</td>
</tr>
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</table>

#### M7 Single Pole

<table>
<thead>
<tr>
<th>Dimension</th>
<th>in.</th>
<th>[mm]</th>
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</thead>
<tbody>
<tr>
<td>DIA</td>
<td>.165</td>
<td>4.19</td>
</tr>
<tr>
<td>THK</td>
<td>.200</td>
<td>5.08</td>
</tr>
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</table>

#### M7 Double Pole

<table>
<thead>
<tr>
<th>Dimension</th>
<th>in.</th>
<th>[mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIA</td>
<td>.180</td>
<td>4.57</td>
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<tr>
<td>THK</td>
<td>.200</td>
<td>5.08</td>
</tr>
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</table>

#### VS2-VS3 Single Pole

<table>
<thead>
<tr>
<th>Dimension</th>
<th>in.</th>
<th>[mm]</th>
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</thead>
<tbody>
<tr>
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<td>.110</td>
<td>2.80</td>
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<tr>
<td>THK</td>
<td>.200</td>
<td>5.08</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Option Code</th>
<th>DIM. “A”</th>
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</thead>
<tbody>
<tr>
<td>VS2</td>
<td>VS3</td>
</tr>
<tr>
<td>0.40</td>
<td>0.60</td>
</tr>
</tbody>
</table>

### P.C. Mounting

- M1, M2, M3, M6, M7, VS2, VS3

- Option Code
  - DIM. “A”
3MN-Series Dimensional Specifications: in. [mm]

**VS2- VS3 Double Pole**
- Option Code: 3MN (2.90)
- Dimensions:
  - Option: VS2, Dimension: .461 (11.70)
  - Option: VS3, Dimension: .630 (16.00)

**VS4-VS6 Single Pole**
- Option Code: 3MN (3.00)
- Dimensions:
  - Option: VS4, Dimension: .461 (11.70)
  - Option: VS6, Dimension: .630 (16.00)

**VS4-VS5 Double Pole**
- Option Code: 3MN (2.90)
- Dimensions:
  - Option: VS4, Dimension: .461 (11.70)
  - Option: VS5, Dimension: .630 (16.00)

**VS6-VS7 Single Pole**
(FOR B6 BUSHING ONLY)
- Option Code: 3MN (3.00)
- Dimensions:
  - Option: VS6, Dimension: .461 (11.70)
  - Option: VS7, Dimension: .630 (16.00)
3MN-Series Dimensional Specifications: in. [mm]

**Termination Options**

**VS6-VS7 Double Pole**
(for B6 BUSHING ONLY)

**VS8-VS9 Single Pole**
(for B6 BUSHING ONLY)

**VS8-VS9 Double Pole**
(for B6 BUSHING ONLY)

**Snap-In Termination Options**

VS21, VS31

VS41, VS51

* PC Mounting for VS21, VS31, VS41, VS51 refer to VS2, VS3, VS4, VS5 respectively.
3MA-Series Dimensional Specifications: in. [mm]

**Single Pole**
- DIA: 0.244 (6.202)
- L: 0.313 (7.955)
- W: 0.156 (3.955)
- H: 0.380 (9.612)

**Double Pole**
- DIA: 0.244 (6.202)
- L: 0.393 (9.980)
- W: 0.156 (3.955)
- H: 0.449 (11.440)

**Three Pole**
- DIA: 0.244 (6.202)
- L: 0.303 (7.700)
- W: 0.156 (3.955)
- H: 0.455 (11.555)

**Four Pole**
- DIA: 0.244 (6.202)
- L: 0.303 (7.700)
- W: 0.156 (3.955)
- H: 0.455 (11.555)

**Actuator Options for Snap-In Front Mount**

**PANEL MOUNTING**
- R: 0.405 (10.292)
- MAX: 10.297
- PANEL THICKNESS: 0.047 (1.192)

**PA, PI**
- DIA: 0.128 (3.250)
- DIM A: [missing]
- DIM B: [missing]

**PL**
- DIA: 0.144 (3.600)
- L: 0.323 (8.200)
- DIM A: [missing]

**PC**
- DIA: 0.315 (8.000)
- L: [missing]

**PD**
- DIA: 0.242 (6.150)

**Plunger Options**
- Plunger material: Brass Nickel Plated
- Plunger material: Brass Chrome Plated
- PC, PD must configure with BU bushing
3MA-Series Dimensional Specifications: in. [mm]

**B10 Threaded Standard**
- B20 Non-Threaded

**Bushing Options**
- B21 Non-Threaded

**BD Threaded Standard**

**Termination Options**
- **M1 Standard Solder Lug**
- **M2 PC Thru-Hole**
- **M5 Wire Wrap**

**M6 Single Pole**

**M6 Double Pole**

**M7 Single Pole**

www.carlingtech.com
3MA-Series Dimensional Specifications: in. [mm]

**Termination Options**

**M7 Double Pole**

**M7 Three Pole**

**M7 Four Pole**

**VS2-VS3 Single Pole**

**VS2-VS3 Double Pole**

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>DIM. 'A'</th>
</tr>
</thead>
<tbody>
<tr>
<td>VS2</td>
<td>.401</td>
</tr>
<tr>
<td>VS3</td>
<td>.630</td>
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</table>

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>DIM. 'A'</th>
</tr>
</thead>
<tbody>
<tr>
<td>VS2</td>
<td>.401</td>
</tr>
<tr>
<td>VS3</td>
<td>.630</td>
</tr>
</tbody>
</table>

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www.carlingtech.com
3MA-Series Dimensional Specifications: in. [mm]

VS4-VS5 Single Pole

Termination Options

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>DIM 'A'</th>
<th>DIM 'A'</th>
</tr>
</thead>
<tbody>
<tr>
<td>VS4</td>
<td>.461 [11.70]</td>
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P.C. MOUNTING

<table>
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<tr>
<th>OPTION CODE</th>
<th>DIM 'A'</th>
<th>DIM 'A'</th>
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<tbody>
<tr>
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<td>.461 [11.70]</td>
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VS4-VS5 Double Pole

Panel Mounting

1/4 INCH BUSHING

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<th>DIM 'A'</th>
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<tbody>
<tr>
<td>B10</td>
<td>.033 [0.85]</td>
<td>.022 [0.56]</td>
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<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>DIM 'A'</th>
<th>DIM 'A'</th>
</tr>
</thead>
<tbody>
<tr>
<td>B10</td>
<td>.033 [0.85]</td>
<td>.022 [0.56]</td>
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</tbody>
</table>

15/32 INCH BUSHING

<table>
<thead>
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<th>OPTION CODE</th>
<th>DIM 'A'</th>
<th>DIM 'A'</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>.250 [6.35]</td>
<td>.250 [6.35]</td>
</tr>
<tr>
<td>C2</td>
<td>.356 [9.05]</td>
<td>.181 [4.60]</td>
</tr>
<tr>
<td>C5</td>
<td>.596 [15.15]</td>
<td>.596 [15.15]</td>
</tr>
<tr>
<td>C6</td>
<td>.315 [8.00]</td>
<td>.221 [5.60]</td>
</tr>
</tbody>
</table>

Plunger Caps

C1, C3, C5, C7: For PL plunger only

C6: For PD plunger only

Material: AISI 420 stainless steel

Color Code:

1. White
2. Black
3. Red
4. Orange
5. Yellow
6. Green
7. Blue
8. Brown
9. Gray

For PL plunger only
The 4S-Series sub-miniature slide switches feature maintained and momentary 2 or 3 position circuits, and offer a variety of ratings, contact materials, terminal platings, and mounting styles. These switches are able to withstand temperatures from -30°C to +85°C.

**Product Highlights:**
- Two or Three Position Circuitry
- Maintained or Momentary Action
- 125/250VAC or up to 28VDC
- Available in Silver, Gold or Tin Plating
- Supplied in Bulk or Tape Reel
- UL and CSA Approvals Available

**Typical Applications:**
- Consumer Electronics
- Instrumentation
- Computer Servers / Peripherals
- Test / Measurement

**Resources:**
*Download 3D CAD Files*

**Electrical**
- Contact Rating refer to ordering scheme
- Electrical Life 30,000 make & break cycles @ full load
- Contact Resistance 10 mΩ max. initial @ 2-4 VDC
- Insulation Resistance 100mΩ for both silver & gold plated contacts
- Dielectric Strength 1000 MΩ min.
- 1500 Volts RMS @ sea level

**Physical**
- Operating Temperature -30°C to +85°C
- Solder Heat Resistance MIL-STD-202, Method 210

**Material**
- Case Dially phthalate (DAP) (UL 94V-0)
- Slide Handle Nylon
- Housing Stainless Steel
- Terminal Seal Epoxy
4S1-Series - 4S1 Ordering Scheme, Dimensional Specifications

1 SERIES
4S1 Sub-Miniature Slide Switch

2 POLES
FSP Single Pole

3 CIRCUIT
- momentary
Position: 1 2 3
1 ON NONE ON
2 ON NONE (ON)
3 ON OFF ON

4 TERMINATION
M2 PCB
M6 PC Mount, horizontal, right angle
M7 PC Mount, vertical, right angle
M71 Snap-In, vertical, right angle

5 CONTACTS / TERMINALS
Contact Material | Terminal Plating | Rating
--- | --- | ---
G | silver 1 | gold over silver | 3A 125VAC or 26VDC; 1.5A 250VAC
K | gold 2,5 | tin 4,7 | 0.4VA max 20V max (AC/DC)
P | silver 1,6 | tin 4,7 | 3A 125VAC or 26VDC; 1.5A 250VAC
Q | silver 1 | silver 1 | 3A 125VAC or 26VDC; 1.5A 250VAC
R | gold 2 | gold 3 | 0.4VA max 20V max (AC/DC)

6 EPOXY SEAL
E Epoxy Seal 0 without Epoxy Seal

7 PACKAGING
T/R tape reel - 500 pieces per reel
Switches are bulk packed, unless T/R is specified at the end of the part number.

Notes:
1 Movable contact / terminal platings: silver over copper alloy
2 Movable contact platings: gold over nickel over copper alloy
3 Terminal platings: gold over nickel over copper alloy
4 Terminal platings: In over copper alloy, available with PC type terminations only
5 Terminal contact platings: gold over nickel alloy
6 Terminal contact platings: silver over nickel alloy
7 Tin option available with PC type terminations only

4S1-Series Dimensional Specifications: in. [mm]

M2 Single Pole

M6 Single Pole

M7 Single Pole
M71 Snap-In Termination Single Pole

P.C. MOUNTING

www.carlingtech.com

*Manufacturer reserves the right to change product specification without prior notice.
4M-Series
MINIATURE SLIDE SWITCHES

The 4M-Series miniature slide switches offer a variety of ratings, circuits, contact materials, and terminal plating options. With 14 termination choices and 8 actuator styles, this versatile switch adapts to a variety of applications, and is able to withstand temperatures from -30°C to +85°C.

Product Highlights:
- Two or Three Position Circuitry
- 125/250VAC or up to 28VDC
- Available in Silver, Gold or Tin Plating
- Supplied in Bulk or Tape Reel
- UL and CSA Approvals Available

Typical Applications:
- Consumer Electronics
- Instrumentation
- Computer Servers / Peripherals
- Test / Measurement

Resources:
Download 3D CAD Files

IGS ➔ STP ➔

Electrical
Contact Rating
Contact Resistance
Insulation Resistance
Dielectric Strength
- refer to ordering scheme
- 30,000 make & break cycles @ full load
- 10 mΩ max. initial @ 2-4 VDC
- 100mA for both silver & gold plated contacts
- 1000 MΩ min.
- 1500 Volts RMS @ sea level

Physical
Operating Temperature
Solder Heat Resistance
-30°C to +85°C
- MIL-STD-202, Method 210

Material
Case
Slide Handle
Housing
Terminal Seal
- Dially phthalate (DAP) (UL 94V-0)
- Nylon
- Stainless Steel
- Epoxy
**4M1-Series Dimensional Specifications: in. [mm]**

**Actuator Options**

*All actuator length shown is SPDT model with M1 and M2 terminals.*

- **S1**
  - 0.150 (3.81)
  - Add 0.40 (10.16) from actuator height for DPDT-M1 and M2 model.

- **S2**
  - 0.201 (5.10)
  - Add 0.20 (0.51) from actuator height for DPDT-M1 and M2 model.

- **S3**
  - 0.301 (7.62)
  - Add 0.30 (0.76) from actuator height for DPDT-M1 and M2 model.

- **S4**
  - 0.401 (10.20)
  - Add 0.40 (1.02) from actuator height for DPDT-M1 and M2 model.

- **S5**
  - 0.533 (13.58)
  - Add 0.70 (17.78) from actuator height for DPDT-M1 and M2 model.

- **S6**
  - 0.401 (10.20)
  - Add 0.40 (1.02) from actuator height for DPDT-M1 and M2 model.

- **S7**
  - 0.313 (8.00)
  - Add 0.30 (0.76) from actuator height for DPDT-M1 and M2 model.

- **T1** for DPDT only
  - 0.393 (10.00)
  - 0.397 (10.09)

**Notes:**
1. Movable contact & terminal platings: silver over copper alloy
2. Movable contact & terminal platings: gold over nickel over copper alloy
3. Terminals platings: tin over nickel over copper alloy, available with PC terminations only
4. Non-Black, white and red colors require a minimum order of 2500 pieces
5. Tin option available with PC type terminations only
### 4M1-Series Dimensional Specifications: in. [mm]

<table>
<thead>
<tr>
<th>Option</th>
<th>Dimension Code</th>
<th>Dimension (in)</th>
<th>Dimension (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>Standard Solder Lug</td>
<td>0.080 (2.02)</td>
<td>2.03</td>
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<tr>
<td></td>
<td>THK .030 (0.75)</td>
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<td></td>
</tr>
<tr>
<td>M2</td>
<td>PC Thru-Hole</td>
<td>0.250 (6.35)</td>
<td>6.35</td>
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<td>THK .030 (0.75)</td>
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<tr>
<td>M3</td>
<td>Quick Connect</td>
<td>0.262 (6.65)</td>
<td>6.65</td>
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<td></td>
<td>THK .030 (0.75)</td>
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<tr>
<td>M5</td>
<td>Wire Wrap</td>
<td>0.47 (1.20)</td>
<td>1.20</td>
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<tr>
<td></td>
<td>THK .030 (0.75)</td>
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<td></td>
</tr>
</tbody>
</table>

* Standard with Mounting Tabs.

### Termination Options

#### N1 Single Pole

#### N1 Double Pole

#### M6 Single Pole

#### M6 Double Pole

#### M7 Single Pole

### Termination Options without Mounting Tabs

#### N1 Single Pole

#### N1 Double Pole

#### M6 Single Pole

#### M6 Double Pole

#### M7 Single Pole

### P.C. MOUNTING
4M1-Series Dimensional Specifications: in. [mm]

**M7 Double Pole**

**VS2 Single Pole**

**VS2 Double Pole**

**VS3 Single Pole**

**VS3 Double Pole**
Dimensions: in. [mm]

1/4 Bushing

Panel Mounting

15/32 Bushing

NUTS

Locking Rings

Locking Washers

T1 Actuator Cap

T2 Actuator Cap

T9 Actuator Gloss Plastic

Plunger Caps

C1

C2

C3

C4

C5

C6

C7

CAP AND FRAME COLORS

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<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td>White</td>
<td>Black</td>
<td>Red</td>
<td>Orange</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

MATERIAL: ABS for C1-C5, C7
MATERIAL: Chrome plated brass for C6
Dimensions: in. [mm]

**2M1-E1A Rubber Boot**

![Image](image1)

- E1A with internal O-Ring seal
- K1-METRIC M6 THREADED (For S8 bushing only)

* FOR 2M1-SERIES, T1 ACTUATOR ONLY (not available with S8 bushing only)

**2M1-YE1E06 Rubber Boot**

![Image](image2)

- 19 [4.8]
- 17 [4.3]
- 14 [3.6]
- 46 [11.7]

* FOR 2M1-SERIES, T7 & T8 ACTUATORS and B0 BUSHING ONLY

**2M1-YE1A06 Rubber Boot**

![Image](image3)

- 18 [4.6]
- 17 [4.3]
- 27 [6.9]
- 46 [11.7]

* FOR 2M1-SERIES, T8 ACTUATOR and B0 BUSHING ONLY

**2M1-YE1D06 Rubber Boot**

![Image](image4)

- 18 [4.6]
- 17 [4.3]
- 27 [6.9]
- 46 [11.7]

* FOR 2M1-SERIES, T8 ACTUATOR and B0 BUSHING ONLY

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**Accessory Photos:**

<table>
<thead>
<tr>
<th>E1A</th>
<th>YE1A06</th>
<th>T9</th>
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<tbody>
<tr>
<td>![E1A Image]</td>
<td>![YE1A06 Image]</td>
<td>![T9 Image]</td>
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<table>
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<tr>
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<tr>
<td>![T1 Image]</td>
<td>![T2 Image]</td>
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<tr>
<td>Series</td>
<td>Bushing</td>
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<td>--------</td>
<td>---------</td>
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<tr>
<td>1S1</td>
<td>Rocker</td>
</tr>
<tr>
<td>1SS</td>
<td>Rocker</td>
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<tr>
<td>1MS</td>
<td>Rocker</td>
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<td>2S1</td>
<td>B1</td>
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<td>B2, B4, B6, B8</td>
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<td>B3</td>
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<td>B7</td>
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<tr>
<td>2SS</td>
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<tr>
<td>4PM</td>
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</tbody>
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Below is a list of useful product catalogs. Please scan the QR codes below or visit carlingtech.com/onthego for complete details.

**WEBSITE**
Product Selector, Resources, Configurit, Find Rep, Product Materials and Videos.

**SWITCHES AND CONTROLS**
Rocker, toggle, pushbutton, rotary, battery disconnects and controls.

**MINI & SUB-MINI SWITCHES**
Sealed and non-sealed rocker, toggle, pushbutton and slide options.

**HYDRAULIC-MAGNETIC CIRCUIT PROTECTION**
1-6 poles from .02 to 700A with CSA, VDE, TUV, UL489, UL489A, UL1500 approvals.

**THERMAL CIRCUIT PROTECTION**
1 pole from 3 to 60A with UL, cUL, CE, UL1500/ISO 8846 approvals.

**GFCI/ELCI CIRCUIT PROTECTION**
1-3 poles from 0.10 to 50A with CSA, UL489, UL1077, UL1053, UL1500 approvals.
Below is a list of useful market specific catalogs and brochures. Please scan the QR codes below or visit carlingtech.com/onthego for complete details.

**ON-OFF HIGHWAY**
Switches, Controls and Custom Solutions

**MARINE**
Circuit Protection and Switches

**RENEWABLE ENERGY**
Circuit Breakers and Disconnect products

**MILITARY**
COTS Switches and Circuits Breakers

**TELECOM/DATACOM**
Hydraulic-Magnetic Circuit Breakers

**INDUSTRIAL AUTOMATION**
Switches and Circuit Breakers
Authorized Sales Representatives and Distributors

Click on a region of the map below to find your local representatives and distributors or visit www.carlingtech.com/findarep.

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Founded in 1920, Carling Technologies is a leading manufacturer of electrical and electronic switches and assemblies, circuit breakers, electronic controls, power distribution units, and multiplexed power distribution systems. With four ISO registered manufacturing facilities and technical sales offices worldwide, Carling Technologies Sales, Service and Engineering teams do much more than manufacture electrical components, they engineer powerful solutions! To learn more about Carling please visit www.carlingtech.com/company-profile.

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