3S-Series
SUB-MINIATURE PUSHBUTTONS

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:
Configure a Complete Part
Download CAD & Sales Drawing

Carling Technologies, Inc.
60 Johnson Avenue, Plainville, CT 06062
Email: sales@carlingtech.com
Application Support: team2@carlingtech.com
Phone: 860.793.9281  Fax: 860.793.9231
www.carlingtech.com
**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
- 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

**Material**
- Case: all UL94 V-0
- 3S-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
- 3S1-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 (UL 94V-0)
- Housing: Stainless Steel
- Switch Support: Brass, tin plated
- Terminal Seal: Epoxy

**3S-Series - General Specifications, 3SS Ordering Scheme**

### Table: 3S-3SS-3SM-Series

<table>
<thead>
<tr>
<th>Series</th>
<th>Poles</th>
<th>Circuit</th>
<th>Termination</th>
<th>Contacts</th>
<th>Seal</th>
</tr>
</thead>
<tbody>
<tr>
<td>3SS</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>3S1</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>3SM</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

**3S-3SS-3SM-Series**

<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>M6</td>
</tr>
<tr>
<td>Sealed Sub-Miniature Pushbutton Switch</td>
<td>Single pole - uses terminals 1, 2, 3</td>
<td>Momentary</td>
</tr>
</tbody>
</table>

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

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

**3S-3SS-3SM-Series**

<table>
<thead>
<tr>
<th>1 SERIES</th>
<th>2 POLES</th>
<th>3 CIRCUIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>3SS</td>
<td>WDP</td>
<td>VS2</td>
</tr>
<tr>
<td>Sealed Sub-Miniature Pushbutton Switch</td>
<td>Double pole - uses terminals 1, 2, 3, 4, 5 &amp; 6</td>
<td>Surface Mount</td>
</tr>
</tbody>
</table>

Notes: Movable contact & terminal platings: silver over copper alloy
Movable contact & terminal platings: gold over nickel over copper alloy
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>G</td>
<td>silver</td>
<td>gold</td>
<td>1A 125VAC or 28VDC IP67</td>
</tr>
<tr>
<td>K</td>
<td>gold</td>
<td>tin</td>
<td>0.4VA max 20V max (AC/DC) IP67</td>
</tr>
<tr>
<td>P</td>
<td>silver</td>
<td>tin</td>
<td>1A 125VAC or 28VDC IP67</td>
</tr>
<tr>
<td>R</td>
<td>gold</td>
<td>gold</td>
<td>0.4VA max 20V max (AC/DC) IP67</td>
</tr>
</tbody>
</table>

**6 EPOXY SEAL**

<table>
<thead>
<tr>
<th>Epoxy Seal</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>without Epoxy Seal</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: In over nickel over copper alloy
4. Tin option available with PC terminations only.

*Manufacturer reserves the right to change product specification without prior notice.*
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-ASSEMBLED. To order accessories in bulk, specify the Series, followed by the accessory. Ex: 3S1-C13.

Optional Cap

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

2 TOGGLE CAP SIZE
C1 .158" [4.01 mm] height  C2 .138" [35.05 mm] height

Email: sales@carlingtech.com     Application Support: team2@carlingtech.com
Phone: (860) 793–9281     Fax: (860) 793–9231     www.carlingtech.com
### 3SS-Series Dimensional Specifications: in. [mm]

**Single Pole**

- **M6**
  - DIA: 0.007 (0.177) & 0.017 (0.445)
  - 24.4 (0.620)
  - 50.0 (1.340)
  - 0.20 (0.510)
  - 0.030 (0.762)
  - **EPOXY SEAL**

- **M7**
  - DIA: 0.007 (0.177) & 0.017 (0.445)
  - 24.4 (0.620)
  - 50.0 (1.340)
  - 0.20 (0.510)
  - 0.030 (0.762)
  - **EPOXY SEAL**

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

**Double Pole**

- **M6**
  - DIA: 0.007 (0.177) & 0.017 (0.445)
  - 21.7 (0.550)
  - 52.0 (1.330)
  - 0.20 (0.510)
  - 0.030 (0.762)
  - **EPOXY SEAL**

- **M7**
  - DIA: 0.007 (0.177) & 0.017 (0.445)
  - 21.7 (0.550)
  - 52.0 (1.330)
  - 0.20 (0.510)
  - 0.030 (0.762)
  - **EPOXY SEAL**

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

### Termination Options

**M6 Single Pole**

- DIA: 0.007 (0.177) & 0.017 (0.445)
- 0.032 (0.813)
- 0.20 (0.508)

**M6 Double Pole**

- DIA: 0.007 (0.177) & 0.017 (0.445)
- 0.032 (0.813)
- 0.20 (0.508)

**M7 Single Pole**

- DIA: 0.007 (0.177) & 0.017 (0.445)
- 0.030 (0.762)

**M7 Double Pole**

- DIA: 0.007 (0.177) & 0.017 (0.445)
- 0.030 (0.762)

**P.C.MOUNTING**

- 0.543 (1.380)
- 0.543 (1.380)
- 0.20 (0.508)
- 0.20 (0.508)

- 0.543 (1.380)
- 0.543 (1.380)
- 0.20 (0.508)
- 0.20 (0.508)

- 0.543 (1.380)
- 0.543 (1.380)
- 0.20 (0.508)
- 0.20 (0.508)

* *Double Throw shown. Single Throw uses two outer terminals only.*
3SS-Series Dimensional Specifications: in. [mm]

**Termination Options**

**VS2 Single Pole**

- EPOXY SEAL
- P.C.MOUNTING

**VS2 Double Pole**

- EPOXY SEAL
- P.C.MOUNTING

**Snap-In Termination Options**

- M61
- M71
- VS21

* PC Mounting for M61, M71, VS21 refer to M6, M7, VS2 respectively.

* Double Throw shown. Single Throw uses outer terminals only.
### 3S1-Series Dimensional Specifications: in. [mm]

#### Single Pole

<table>
<thead>
<tr>
<th>OP1 Without Frame</th>
<th>Panel Mounting</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Diagram" /></td>
<td><img src="image2" alt="Diagram" /></td>
</tr>
</tbody>
</table>


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

<table>
<thead>
<tr>
<th>OP1</th>
<th>Panel Mounting</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3" alt="Diagram" /></td>
<td><img src="image4" alt="Diagram" /></td>
</tr>
</tbody>
</table>

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

#### Termination Options

<table>
<thead>
<tr>
<th>M1</th>
<th>M2</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image5" alt="Diagram" /></td>
<td><img src="image6" alt="Diagram" /></td>
</tr>
</tbody>
</table>


#### Bushing Options

<table>
<thead>
<tr>
<th>B5</th>
<th>B6</th>
<th>B7</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image7" alt="Diagram" /></td>
<td><img src="image8" alt="Diagram" /></td>
<td><img src="image9" alt="Diagram" /></td>
</tr>
</tbody>
</table>

- **B5**
  - .189 Dia [4.80]
  - .098 Dia [2.50]
  - .294 [7.40]

- **B6**
  - .189 Dia [4.80]
  - .098 Dia [2.50]
  - .294 [7.40]

- **B7**
  - .189 Dia [4.80]
  - .098 Dia [2.50]
  - .294 [7.40]
3S1-Series Dimensional Specifications: in. [mm]

### Termination Options

#### M6 Single Pole

- **FLAT**
  - 0.235 (6.00)
  - 0.204 (5.20)
  - 0.319 (8.10)

- **P.C.MOUNTING**
  - 0.207 (5.23)
  - 0.201 (5.10)
  - 0.100 (2.54)

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

#### M7 Single Pole

- **FLAT**
  - 0.173 (4.39)
  - 0.030 (0.76)

- **P.C.MOUNTING**
  - 0.207 (5.23)
  - 0.201 (5.10)
  - 0.100 (2.54)

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

#### VS2 Single Pole

- **FLAT**
  - 0.330 (8.40)
  - 0.173 (4.40)

- **P.C.MOUNTING**
  - 0.207 (5.23)
  - 0.201 (5.10)
  - 0.100 (2.54)

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

### Snap-In Termination Options

#### M61

- 0.016 (0.40)
- 0.039 (1.00)

#### M71

- 0.016 (0.40)
- 0.039 (1.00)

#### VS21

- 0.016 (0.40)
- 0.039 (1.00)

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

**K6 Single Pole**

- 319 (8.10)
- 177 DIA (4.50)
- 0.100 DIA (2.54)
- 2.844 (6.20)
- 1.161 (4.10)
- 0.438 (11.10)
- 0.432 (10.46)
- 0.266 (6.75)
- 0.128 (3.25)
- 0.216 (5.49)
- 0.286 (7.27)

**M6 Single Pole**

- 319 (8.10)
- 177 DIA (4.50)
- 0.100 DIA (2.54)
- 2.844 (6.20)
- 1.161 (4.10)
- 0.438 (11.10)
- 0.432 (10.46)
- 0.266 (6.75)
- 0.128 (3.25)
- 0.216 (5.49)
- 0.286 (7.27)

**M7 Single Pole**

- 118 (3.00)
- 177 DIA (4.50)
- 0.100 DIA (2.54)
- 2.844 (6.20)
- 1.161 (4.10)
- 0.438 (11.10)
- 0.432 (10.46)
- 0.266 (6.75)
- 0.128 (3.25)
- 0.216 (5.49)
- 0.286 (7.27)

**S6 Single Pole**

- 142 (3.62)
- 2.844 (6.20)
- 1.161 (4.10)
- 0.438 (11.10)
- 0.432 (10.46)
- 0.266 (6.75)
- 0.128 (3.25)
- 0.216 (5.49)
- 0.286 (7.27)

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

**Plunger Caps**

**C1**

- 189 (4.80)
- 118 (3.00)
- 0.100 (2.54)
- 0.158 (4.00)
- 0.157 (3.99)

**C2**

- 293 (7.40)
- 138 (3.45)
- 0.29 (7.36)
- 0.138 (3.46)

* MATERIAL: ABS.

**CAP COLORS**

<table>
<thead>
<tr>
<th>Color</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>1</td>
</tr>
<tr>
<td>Black</td>
<td>2</td>
</tr>
<tr>
<td>Red</td>
<td>3</td>
</tr>
<tr>
<td>Orange</td>
<td>4</td>
</tr>
<tr>
<td>Yellow</td>
<td>5</td>
</tr>
<tr>
<td>Green</td>
<td>6</td>
</tr>
<tr>
<td>Blue</td>
<td>7</td>
</tr>
<tr>
<td>Brown</td>
<td>8</td>
</tr>
<tr>
<td>Gray</td>
<td>9</td>
</tr>
</tbody>
</table>
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.

About Carling

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 ISO9001 and IATF16949 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.

To view all of Carling’s environmental, quality, health & safety certifications please visit www.carlingtech.com/environmental-certifications
Worldwide Headquarters
Carling Technologies, Inc.
60 Johnson Avenue, Plainville, CT 06062
Phone: 860.793.9281    Fax: 860.793.9231
Email: sales@carlingtech.com

Northern Region Sales Office: nrsm@carlingtech.com
Southeast Region Sales Office: sersm@carlingtech.com
Midwest Region Sales Office: mrsm@carlingtech.com
West Region Sales Office: wrsm@carlingtech.com
Latin America Sales Office: larlm@carlingtech.com

Asia-Pacific Headquarters
Carling Technologies, Asia-Pacific Ltd.,
Suite 1607, 16/F Tower 2, The Gateway,
Harbour City, 25 Canton Road,
Tsimshatsui, Kowloon, Hong Kong
Phone: Int + 852-2737-2277    Fax: Int + 852-2736-9332
Email: sales@carlingtech.com.hk

Shenzhen, China: shenzhen@carlingtech.com
Shanghai, China: shanghai@carlingtech.com
Pune, India: india@carlingtech.com
Kaohsiung, Taiwan: taiwan@carlingtech.com
Yokohama, Japan: japan@carlingtech.com

Europe | Middle East | Africa Headquarters
Carling Technologies LTD
4 Airport Business Park, Exeter Airport,
Clyst Honiton, Exeter, Devon, EX5 2UL, UK
Phone: Int + 44 1392.364422    Fax: Int + 44 1392.364477
Email: ltd.sales@carlingtech.com

Germany: gmbh@carlingtech.com
France: sas@carlingtech.com

Carling Technologies®