**General Specifications**

### Electrical Capacity (Resistive Load)
- **Power Level (silver):** 6A @ 125V AC & 3A @ 250V AC or 3A @ 30V DC
- **Logic Level (gold):** 0.4VA maximum @ 28V AC/DC maximum (Applicable Range 0.1mA ~ 0.1A @ 20mV ~ 28V)
- **Logic/Power Level:** Combines silver & gold ratings

Note: Find additional explanation dual rating & operating range in Supplement section.

### Other Ratings
- **Contact Resistance:** 10 milliohms maximum for silver; 20 milliohms maximum for gold
- **Insulation Resistance:** 1,000 megohms minimum @ 500V DC
- **Dielectric Strength:** 1,000V AC minimum between contacts for 1 minute minimum; 1,500V AC minimum between contacts & case for 1 minute minimum
- **Mechanical Life:** 50,000 operations minimum for splashproof models; 100,000 for all other models
- **Electrical Life:** 25,000 operations minimum for silver; 50,000 operations minimum for gold
- **Nominal Operating Force:** Momentary Action: 1-pole 9.32N; 2-pole 16.18N; 4-pole 25.54N; Alternate Action: 1-pole 4.41N; 2-pole 7.06N; 4-pole 11.77N
- **Contact Timing:** Slow make, slow break

### Materials & Finishes
- **Plunger:** Brass w/nickel plating; polyacetal w/B1 bushing
- **Frame:** Stainless steel
- **Bushing:** Brass with nickel plating
- **Case:** Diallyl phthalate resin (UL94V-0)
- **Movable Contactor:** Phosphor bronze with silver or gold plating
- **Movable Contacts:** Silver alloy (code W); copper with gold plating (code G); or silver alloy with gold plating (code A)
- **Stationary Contacts:** Silver with silver plating (code W); copper or brass with gold plating (code G); or silver with gold plating (code A)
- **Terminals:** Copper or brass with silver plating; copper or brass with gold plating

### Environmental Data
- **Operating Temp Range:** -30°C through +85°C (–22°F through +185°F)
- **Humidity:** 90 ~ 95% humidity for 96 hours @ 40°C (104°F)
- **Vibration:** 10 ~ 55Hz with peak-to-peak amplitude of 1.5mm traversing the frequency range & returning in 1 minute; 3 right angled directions for 2 hours
- **Shock:** 50G (490m/s²) acceleration (tested in 6 right angled directions, with 5 shocks in each direction)
- **Sealing:** B3 & D3 bushing options equivalent to IP67

### Installation
- **Mounting Torque:** 1.5Nm (13.0 lb•in) for double nut; 0.7Nm (6.0 lb•in) for single nut
- **Cap Installation Force:** 80.0N (18.0 lbf) maximum downward force on actuator
- **Soldering Time & Temp:** Wave Soldering (PC version): See Profile A in Supplement section.
- **Manual Soldering:** See Profile A in Supplement section.
- **Process Seal:** These devices are not process sealed. Hand clean locally using alcohol based solution.

### Standards & Certifications
- **Flammability Standards:** UL94V-0 case
- **UL:** File No. E44145 - Recognized only when ordered with marking on switch.
  Add “/U” or “/CUL” before dash in part number to order UL recognized switch.
  All models recognized at 6A @ 125V AC or 3A @ 250V AC or 0.4VA max. @ 28V DC max.
- **CSA:** File No. 023535_0_000 - Certified only when ordered with marking on switch.
  Add “/C” before dash in part number to order CSA certified switch.
  All models certified at 6A @ 125V AC or 3A @ 250V AC or 0.4VA max. @ 28V max.
Distinctive Characteristics

Guide interlocked with actuator block prevents window locking and maintains correct plunger alignment to assure contact stability.

Employs an over-center actuator mechanism, which diminishes sparking and increases operating life in AC circuits.

High torque bushing construction prevents rotation or separation from frame during installation.

Splashproof option (D3 and B3 bushing codes) features an o-ring within the bushing and one under the face nut to protect from splashed, sprayed, or spilled liquids.

High insulating barriers, formed in the molded diallyl phthalate case, increase isolation of circuits in multipole devices.

Prominent external insulating barriers increase insulation resistance and dielectric strength.

Epoxy sealed terminals prevent entry of solder flux and other contaminants.

Clinching of the frame to the case well above the base and terminals provides 1,500V dielectric strength.
## TYPICAL SWITCH ORDERING EXAMPLE

<table>
<thead>
<tr>
<th>MB</th>
<th>2011</th>
<th>S</th>
<th>S1</th>
<th>W</th>
<th>01</th>
<th>C</th>
<th>A</th>
</tr>
</thead>
</table>

### Poles & Circuits
- 2011 SPDT ON (ON)
- 2065 SPDT ON ON
- 2061 DPDT ON (ON)
- 2085 DPDT ON ON
- 2181 4PDT ON (ON)
- 2185 4PDT ON ON

( ) = Momentary

### Contact Materials & Ratings
- **W**: Silver
  - Rated 6A @ 125V AC & 3A @ 250V AC
- **G**: Gold
  - Rated 0.4VA max @ 28V AC/DC max
  - Gold over Silver
    - Rated 6A @ 125V AC & 0.4VA max @ 28V AC/DC max

### Caps
- **B**: .315” (8.0mm) Diameter
- **C**: .394” (10.0mm) Diameter

### Cap Colors
- **A**: Black
- **B**: White
- **C**: Red
- **E**: Yellow
- **F**: Green
- **G**: Blue
- **H**: Gray

### Bushings
- **S1**: .335” (8.5mm) Threaded with Keyway
- **S2**: .335” (8.5mm) Smooth with Keyway
- **S4**: .335” (8.5mm) Metric Threaded with Keyway
- **D1**: .335” (8.5mm) Threaded with D-Flat
- **D3**: .335” (8.5mm) Threaded Splashproof without Keyway

### Plunger Types
- **S**: Plunger for Screw-on Caps
- **L**: Plunger for Snap-on Caps

### Terminals
- **01**: Solder Lug
- **02**: Quick Connect
- **03**: .250” (6.35mm) Straight PC
- **05**: .425” (10.8mm) Wirewrap
- **06**: .750” (19.05mm) Wirewrap
- **07**: .964” (24.5mm) Wirewrap
- **08**: 1.062” (27.0mm) Wirewrap

### IMPORTANT:

Switches are supplied without UL, cULus & CSA marking unless specified. UL, cULus & CSA recognized only when ordered with marking on the switch. Specific models, ratings, & ordering instructions are noted on the General Specifications page.

**DESCRIPTION FOR TYPICAL ORDERING EXAMPLE**

**MB2011SS1W01-CA**

- Black .394” (10.0mm) Diameter Cap
- Plunger for Screw-on Caps
- SPDT ON-(ON) Circuit
- Silver Contacts with 6-Amp Rating
- .335” (8.5mm) Threaded Bushing with Keyway
- Solder Lug Terminals
## POLES & CIRCUITS

<table>
<thead>
<tr>
<th>Pole</th>
<th>Model</th>
<th>Normal Keyway</th>
<th>Down Keyway</th>
<th>Connected Terminals</th>
<th>Throw &amp; Switch Schematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP</td>
<td>MB2011</td>
<td>ON</td>
<td>(ON)</td>
<td>2-3</td>
<td>SPDT</td>
</tr>
<tr>
<td></td>
<td>MB2065</td>
<td>ON</td>
<td>ON</td>
<td>2-1</td>
<td></td>
</tr>
<tr>
<td>DP</td>
<td>MB2061</td>
<td>ON</td>
<td>(ON)</td>
<td>2-3 5-6</td>
<td>DPDT</td>
</tr>
<tr>
<td></td>
<td>MB2085</td>
<td>ON</td>
<td>ON</td>
<td>2-1 5-4</td>
<td></td>
</tr>
<tr>
<td>4P</td>
<td>MB2181</td>
<td>ON</td>
<td>(ON)</td>
<td>2-3 5-6 8-9 11-12</td>
<td>4PDT</td>
</tr>
<tr>
<td></td>
<td>MB2185</td>
<td>ON</td>
<td>ON</td>
<td>2-1 5-4 8-7 11-10</td>
<td></td>
</tr>
</tbody>
</table>

Note: Terminal numbers are not actually on the switch.

## PLUNGER TYPES

On alternate action models, after transferring circuit, the plunger returns to its original position and does not latch down.

### Plunger for Screw-on Caps

<table>
<thead>
<tr>
<th>Plunger Length</th>
<th>Cap Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Momentary</td>
<td>Momentary</td>
</tr>
<tr>
<td>Alternate</td>
<td>Alternate</td>
</tr>
</tbody>
</table>

### Plunger for Snap-on Caps

<table>
<thead>
<tr>
<th>Plunger Length</th>
<th>Cap Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Momentary &amp; Alternate</td>
<td>Momentary &amp; Alternate</td>
</tr>
</tbody>
</table>

[Diagram showing plunger types and dimensions]
## Bushing Mount Miniature Pushbuttons

### Bushings

<table>
<thead>
<tr>
<th>S1</th>
<th>.335” (8.5mm) Threaded with Keyway</th>
</tr>
</thead>
<tbody>
<tr>
<td>S2</td>
<td>.335” (8.5mm) Smooth with Keyway</td>
</tr>
<tr>
<td>S4</td>
<td>.335” (8.5mm) Metric Threaded with Keyway</td>
</tr>
</tbody>
</table>

**Maximum Panel Thickness with Standard Hardware:** .154” (3.9mm)

<table>
<thead>
<tr>
<th>D1</th>
<th>.335” (8.5mm) Threaded with D Flat</th>
</tr>
</thead>
<tbody>
<tr>
<td>D3</td>
<td>.335” (8.5mm) Threaded Splashproof without Keyway</td>
</tr>
</tbody>
</table>

**Maximum Panel Thickness with Standard Hardware:** .154” (3.9mm)

### Panel Cutouts

- **For S1, S2, or S4 Bushing with Keyway**
- **For S1 or S4 Bushing with Optional Locking Ring**
- **For D1 Bushing with D Flat**
- **For D3 Bushing without Keyway**

Standard hardware for bushings S1, S4, & D1 includes 2 hex nuts & 1 lockwasher; D3 bushing has 1 hex nut & 1 o-ring. Standard & optional hardware are illustrated following the Typical Switch Dimension drawings.

### Contact Materials & Ratings

<table>
<thead>
<tr>
<th>W</th>
<th>Silver over Silver</th>
<th>Power Level</th>
<th>6A @ 125V AC &amp; 3A @ 250V AC</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>Gold over Brass or Copper</td>
<td>Logic Level</td>
<td>0.4VA maximum @ 28V AC/DC maximum</td>
</tr>
<tr>
<td>A</td>
<td>Gold over Silver</td>
<td>Power Level</td>
<td>6A @ 125V AC &amp; 3A @ 250V AC</td>
</tr>
</tbody>
</table>

**Note:** This dual rated option is suitable when two or more identical switches are used in logic and in power circuits within the same application. See Supplement section for complete explanation of dual rating and operating range.
Series MB2000

Bushing Mount Miniature Pushbuttons

TERMINALS

01 Solder Lug
02 .062” (1.57mm) Wide Quick Connect

03 .250” (6.35mm) Straight PC

If using as extended PC terminal, refer to the above footprints.
Dimension A = terminal lengths as shown beside the terminal codes at the left.

05 .425” (10.8mm) Wirewrap or Extended PC
06 .750” (19.05mm) Wirewrap or Extended PC
07 .964” (24.5mm) Wirewrap or Extended PC
08 1.062” (27.0mm) Wirewrap or Extended PC

CAPS & CAP COLORS

AT413 .315” (8.0mm) Diameter Screw-on Cap
AT443 .315” (8.0mm) Diameter Snap-on Cap
AT407 .394” (10.0mm) Diameter Screw-on Cap
AT442 .394” (10.0mm) Diameter Snap-on Cap

For use with Plunger Code S
For use with Plunger Code L
For use with Plunger Code S
For use with Plunger Code L

Cap Material: PBT
Cap Material: Polycarbonate
Cap Material: PBT
Cap Material: Polycarbonate

Finish: Glossy
Finish: Glossy
Finish: Glossy
Finish: Glossy

Cap Colors Available:
A Black  B White  C Red  E Yellow  F Green  G Blue  H Gray

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**Bushing Mount Miniature Pushbuttons**

**Series MB2000**

### STANDARD HARDWARE

**AT513H for Inch**  
**AT513M for Metric**  
Hexagon Nut

- 2 included with each switch  
  (1 with splashproof models)

**Material:**  
Brass with Nickel plating

**AT509**  
Lockwasher

- 1 included with each switch  
  (not with splashproof models)

**Material:**  
Steel with Zinc/Chromate

**AT516**  
O-ring for Splashproof Bushing

- 1 included with each splashproof model

**Material:**  
Nitrile butadiene rubber

### OPTIONAL HARDWARE

**AT517H for Inch**  
**AT517M for Metric**  
Locking Ring

**Material:**  
Steel with Zinc/Chromate

#### Optional Mounting Collars/Conical Nuts

**AT512H for Inch**  
**AT512M for Metric**  
Conical Nut

- Used with .315" (8.0mm) Diameter Cap (cap code B)  
  Material:  
  Brass with chrome plating

**AT512CH for Inch**  
**AT512CM for Metric**  
Conical Nut

- Used with .394" (10.0mm) Diameter Cap (cap code C)  
  Material:  
  Brass with chrome plating

**AT4042H for Inch**  
**AT4042M for Metric**  
Boot for Alternate

**Material:**  
Silicone rubber

#### Optional Splashproof Boots for S Plunger

**AT4041H for Inch**  
**AT4041M for Metric**  
Boot for Momentary

**Material:**  
Silicone rubber

**AT513H for Inch**  
**AT513M for Metric**  
Hexagon Nut

- 2 included with each switch  
  (1 with splashproof models)

**Material:**  
Brass with Nickel plating

**AT507H for Inch**  
**AT507M for Metric**  
Locking Ring

**Material:**  
Steel with Zinc/Chromate

**Dimension A = Cap Height**

- .091" (2.3mm) for Momentary with Plunger Code S  
- .157" (4.0mm) for Alternate with Plunger Code S  
- .142" (3.6mm) for Momentary & Alternate with Plunger Code L

Optional Conical Nuts fit with all 8.5mm bushing options except the D3 & S2 bushings.

**Operating Life**  
- 100,000

Boots for momentary devices are accompanied by a threaded adaptor which extends the length of the plunger.

**Operating Life**  
- 30,000

---

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TYPICAL SWITCH ORDERING EXAMPLE

**MB** 2011 S S2 G 13 — C A

**Caps**
- B .315” (8.0mm) Diameter
- C .394” (10.0mm) Diameter

**Cap Colors**
- A Black
- B White
- C Red
- E Yellow
- F Green
- G Blue
- H Gray

**Contact Materials & Ratings**
- W Silver
  - Rated 6A @ 125V AC & 3A @ 250V AC
- G Gold
  - Rated 0.4VA max @ 28V AC/DC max
- A Gold over Silver
  - Rated 6A @ 125V AC & 0.4VA max @ 28V AC/DC max

**Bushings**
- S2 .335” (8.5mm) Smooth with Keyway
- S1 .335” (8.5mm) Threaded with Keyway
- A2 .200” (5.08mm) Smooth with Keyway

**Terminals**
- 13 .250” (6.35mm) Straight PC with Bracket
- 40 .150” (3.81mm) Vertical PC
- 45 .100” (2.54mm) Vertical PC
- 30 Right Angle PC with .646” (16.4mm) Support to Terminals
  - Available in 1- & 2-pole only
- 31 Right Angle PC with .500” (12.7mm) Support to Terminals
  - Available in 1-pole only

**IMPORTANT:**
Switches are supplied without UL, cULus & CSA marking unless specified. UL, cULus & CSA recognized only when ordered with marking on the switch. Specific models, ratings, & ordering instructions are noted on the General Specifications page.

**DESCRIPTION FOR TYPICAL ORDERING EXAMPLE**

**MB2011SS2G13-CA**
- Black .394” (10.0mm) Diameter Cap
- .335” (8.5mm) Smooth Bushing with Keyway
- Gold Contacts with 0.4VA Rating

**Plunger for Screw-on Caps**

**SPDT ON-(ON) Circuit**

**.250” (6.35mm) Straight PC Terminals with Bracket**

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**POLES & CIRCUITS**

<table>
<thead>
<tr>
<th>Pole</th>
<th>Model</th>
<th>Normal Keyway</th>
<th>Down</th>
<th>Connected Terminals</th>
<th>Normal Keyway</th>
<th>Down</th>
<th>Throw &amp; Switch Schematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP</td>
<td>MB2011</td>
<td>ON</td>
<td>(ON)</td>
<td>2-3</td>
<td>2-1</td>
<td></td>
<td>SPDT</td>
</tr>
<tr>
<td></td>
<td>MB2065</td>
<td>ON</td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DP</td>
<td>MB2061</td>
<td>ON</td>
<td>(ON)</td>
<td>2-3 5-6</td>
<td>2-1 5-4</td>
<td></td>
<td>DPDT</td>
</tr>
<tr>
<td></td>
<td>MB2085</td>
<td>ON</td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4P</td>
<td>MB2181</td>
<td>ON</td>
<td>(ON)</td>
<td>2-3 5-6 8-9 11-12</td>
<td>2-1 5-4 8-7 11-10</td>
<td></td>
<td>4PDT</td>
</tr>
<tr>
<td></td>
<td>MB2185</td>
<td>ON</td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PLUNGER TYPE**

On alternate action models, after transferring circuit, the plunger returns to its original position and does not latch down.

**S**

Plunger for Screw-on Caps

Momentary Plunger Length

Momentary Cap Location

Alternate Plunger Length

Alternate Cap Location

**BUSHINGS**

**S2** .335” (8.5mm) Smooth with Keyway

**S1** .335” (8.5mm) Threaded with Keyway

**A2** .200” (5.08mm) Smooth with Keyway

Standard hardware: 2 hex nuts (AT513H) & 1 lockwasher (AT509)

Optional hardware: Locking ring (AT507)

Only available in part numbers MB2011SA2W31 & MB2011SA2G31

**Panel Cutouts**

For S2, S1, or A2 Bushing with Keyway

With Optional Locking Ring

Maximum Panel Thickness with Standard Hardware: .154” (3.9mm)
Series MB2000  Bracket PC Mount Miniature Pushbuttons

CONTACT MATERIALS & RATINGS

<table>
<thead>
<tr>
<th>Contact Material</th>
<th>Contact Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>W Silver over Silver</td>
<td>Power Level: 6A @ 125V AC &amp; 3A @ 250V AC</td>
</tr>
<tr>
<td>G Gold over Brass or Copper</td>
<td>Logic Level: 0.4VA maximum @ 28V AC/DC maximum</td>
</tr>
</tbody>
</table>

Note: This dual rated option is suitable when two or more identical switches are used in logic and in power circuits within the same application. See Supplement section for complete explanation of dual rating and operating range.

TERMINALS

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>.250” (6.35mm) Straight PC with Bracket</td>
</tr>
<tr>
<td>40</td>
<td>.150” (3.81mm) Vertical PC</td>
</tr>
<tr>
<td>45</td>
<td>.100” (2.54mm) Vertical PC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>Right Angle PC with .646” (16.4mm) Support to Terminal</td>
</tr>
<tr>
<td>31</td>
<td>Right Angle PC with .500” (12.7mm) Support to Terminal</td>
</tr>
</tbody>
</table>

Note: Full dimensioned drawings appear on the following pages.

CAPS & CAP COLORS

<table>
<thead>
<tr>
<th>Cap Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT413</td>
<td>.315” (8.0mm) Diameter Screw-on Cap</td>
</tr>
<tr>
<td>AT407</td>
<td>.394” (10.0mm) Diameter Screw-on Cap</td>
</tr>
</tbody>
</table>

Cap Material: PBT
Finish: Glossy
Series MB2000
Bracket PC Mount Miniature Pushbuttons

TYPICAL SWITCH DIMENSIONS

.150” (3.81mm) Vertical PC

Keyway

MB2011S2G40-CA

.150” (3.81mm) Vertical PC

Keyway

MB2061S2G40-CA

.150” (3.81mm) Vertical PC

Keyway

MB2181S2G40-CA
Bracket PC Mount Miniature Pushbuttons

Series MB2000

TYPICAL SWITCH DIMENSIONS

Single Pole  .100” (2.54mm) Vertical PC

Double Pole  .100” (2.54mm) Vertical PC

Four Pole  .100” (2.54mm) Vertical PC

MB2011SS2G45-CA

MB2061SS2G45-CA

MB2181SS2G45-CA

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Series MB2000
Bracket PC Mount Miniature Pushbuttons

TYPICAL SWITCH DIMENSIONS

Right Angle PC

Single Pole

MB2011SS2G30-CA

Right Angle PC

Double Pole

MB2061SS2G30-CA

Right Angle PC

with .500” (12.7mm) Support to Terminal

Single Pole

MB2011SA2G31-CA
**TYPICAL SWITCH ORDERING EXAMPLE**

**MB**  
**2011**  
**S**  
**B1**  
**W**  
**01**  
**D**  
**A**

<table>
<thead>
<tr>
<th>Poles &amp; Circuits</th>
<th>Contact Materials &amp; Ratings</th>
<th>Caps</th>
<th>Caps Colors</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011 SPDT ON (ON)</td>
<td>W Silver Rated 6A @ 125V AC &amp; 3A @ 250V AC</td>
<td>B .315” (8.0mm) Diameter</td>
<td>A Black</td>
</tr>
<tr>
<td>2065 SPDT ON ON</td>
<td></td>
<td>C .394” (10.0mm) Diameter</td>
<td>B White</td>
</tr>
<tr>
<td>2061 DPDT ON (ON)</td>
<td>G Gold Rated 0.4VA max @ 28V AC/DC max</td>
<td>D .520” (13.2mm) Diameter</td>
<td>C Red</td>
</tr>
<tr>
<td>2085 DPDT ON ON</td>
<td></td>
<td>E .748” (19.0mm) Diameter</td>
<td>D Amber</td>
</tr>
<tr>
<td>2181 4PDT ON (ON)</td>
<td></td>
<td></td>
<td>*E Yellow</td>
</tr>
<tr>
<td>2185 4PDT ON ON</td>
<td></td>
<td></td>
<td>F Green</td>
</tr>
<tr>
<td>( ) = Momentary</td>
<td></td>
<td></td>
<td>*G Blue</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Plunger Type</th>
<th>Bushings</th>
<th>Terminals</th>
<th>Terminals</th>
</tr>
</thead>
<tbody>
<tr>
<td>S Plunger for Screw-on Caps</td>
<td>B1 .472” (12.0mm) Threaded with Keyway</td>
<td>01 Solder Lug</td>
<td>07 .964” (24.5mm) Wirewrap</td>
</tr>
<tr>
<td></td>
<td>B3 .472” (12.0mm) Threaded w/Splashproof</td>
<td>02 Quick Connect</td>
<td>08 1.062” (27.0mm) Wirewrap</td>
</tr>
<tr>
<td></td>
<td></td>
<td>03 .250” (6.35mm) Straight PC</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>05 .425” (10.8mm) Wirewrap</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>06 .750” (19.05mm) Wirewrap</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>07 .964” (24.5mm) Wirewrap</td>
<td></td>
</tr>
</tbody>
</table>

**IMPORTANT:**

Switches are supplied without UL, cULus & CSA marking unless specified. UL, cULus & CSA recognized only when ordered with marking on the switch. Specific models, ratings, & ordering instructions are noted on the General Specifications page.

**DESCRIPTION FOR TYPICAL ORDERING EXAMPLE**

**MB2011SB1W01-DA**

- Black .520” (13.2mm) Diameter Cap
- Plunger for Screw-on Caps
- .472” (12.0mm) Diameter Threaded Bushing with Keyway
- Silver Contacts with 6-Amp Rating
- SPDT ON-(ON) Circuit
- Solder Lug Terminals
POLES & CIRCUITS

<table>
<thead>
<tr>
<th>Pole</th>
<th>Model</th>
<th>Normal Keyway</th>
<th>Normal Down</th>
<th>Connected Terminals</th>
<th>Throw &amp; Switch Schematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP</td>
<td>MB2011</td>
<td>ON</td>
<td>(ON)</td>
<td>2-3 2-1</td>
<td>SPDT</td>
</tr>
<tr>
<td></td>
<td>MB2065</td>
<td>ON</td>
<td>ON</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DP</td>
<td>MB2061</td>
<td>ON</td>
<td>(ON)</td>
<td>2-3 5-6 2-1 5-4</td>
<td>DPDT</td>
</tr>
<tr>
<td></td>
<td>MB2085</td>
<td>ON</td>
<td>ON</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4P</td>
<td>MB2181</td>
<td>ON</td>
<td>(ON)</td>
<td>2-3 5-6 8-9 11-12</td>
<td>4PDT</td>
</tr>
<tr>
<td></td>
<td>MB2185</td>
<td>ON</td>
<td>ON</td>
<td>2-1 5-4 8-7 11-10</td>
<td></td>
</tr>
</tbody>
</table>

Note: Terminal numbers are not actually on the switch.

PLUGGER TYPE

S Plunger for Screw-on Caps
- Plunger is plastic for B1 bushing.
- Plunger is metal for B3 bushing.

On alternate action models, after transferring circuit, the plunger returns to its original position, and does not latch down.

BUSHINGS

B1 .472” (12.0mm) Diameter Threaded with Keyway
- Maximum Panel Thickness with Standard Hardware: .217” (5.5mm)

B3 .472” (12.0mm) Diameter Threaded Splashproof
- Maximum Panel Thickness with Standard Hardware: .217” (5.5mm)

CONTACT MATERIALS & RATINGS

<table>
<thead>
<tr>
<th></th>
<th>Power Level</th>
<th>Logic Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>W</td>
<td>6A @ 125V AC &amp; 3A @ 250V AC</td>
<td>0.4VA maximum @ 28V AC/DC maximum</td>
</tr>
<tr>
<td>G</td>
<td>Gold over Brass or Copper</td>
<td></td>
</tr>
</tbody>
</table>

Note: Complete explanation of operating range in Supplement section.
**TERMINALS**

01 Solder Lug

02 .062” (1.57mm) Wide Quick Connect

03 .250” (6.35mm) Straight PC

04 .062” (1.57mm) Wide Quick Connect

05 .425” (10.8mm) Wirewrap or Extended PC

06 .750” (19.05mm) Wirewrap or Extended PC

07 .964” (24.5mm) Wirewrap or Extended PC

08 1.062” (27.0mm) Wirewrap or Extended PC

**CAPS & CAP COLORS**

B AT078 .315” (8.0mm) Diameter Screw-on Cap

C AT079 .394” (10.0mm) Diameter Screw-on Cap

D AT414 .520” (13.2mm) Diameter Screw-on Cap

E AT412 .748” (19.0mm) Diameter Screw-on Cap

Material: Polystyrene
Finish: Glossy

Colors Available: A B C E F G H

Material: PBT
Finish: Glossy

Colors Available: A B C E F G H

Material: Polystyrene
Finish: Glossy

Colors Available: A B C E F G H

Material: Polystyrene
Finish: Glossy

Colors Available: A B C F

Cap Color Codes: A Black B White C Red D Amber E Yellow F Green G Blue H Gray
Series MB2000

Large Bushing Miniature Pushbuttons

TYPICAL SWITCH DIMENSIONS

Solder Lug

MB2011SB1W01-DA

Single Pole

MB2061SB1W01-DA

Solder Lug

Double Pole

MB2181SB1W01-DA

Solder Lug

Four Pole

MB2181SB1W01-DA

TYPICAL SWITCH DIMENSIONS

Solder Lug

Single Pole

MB2011SB1W01-DA

Solder Lug

Double Pole

MB2061SB1W01-DA

Solder Lug

Four Pole

MB2181SB1W01-DA
Large Bushing Miniature Pushbuttons

Series MB2000

HARDWARE

Standard Hardware for B1 Bushing

<table>
<thead>
<tr>
<th>AT503M</th>
<th>AT508</th>
<th>AT527M</th>
<th>AT506M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex Face Nut</td>
<td>Lockwasher</td>
<td>Hex Nut</td>
<td>Locking Ring</td>
</tr>
</tbody>
</table>

Material:
- AT503M: Brass with Chrome plating
- AT508: Steel with Zinc/Chromate
- AT527M: Steel with Nickel plating
- AT506M: Steel with Zinc/Chromate

Option---

Standard Hardware for B3 Bushing

<table>
<thead>
<tr>
<th>AT503M</th>
<th>AT401P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex Face Nut</td>
<td>O-ring</td>
</tr>
</tbody>
</table>

Material:
- AT503M: Brass with Chrome plating
- AT401P: Nitrile butadiene rubber

Optional Splashproof Boot for B1 Bushing

<table>
<thead>
<tr>
<th>AT4043</th>
</tr>
</thead>
<tbody>
<tr>
<td>Splashproof Boot</td>
</tr>
</tbody>
</table>

Material: Silicone Rubber
Operating Life: 10,000 for momentary
30,000 for alternate action

When using a splashproof boot, no cap is required.
The MB2000 pushbutton series offers flexibility to accommodate a variety of applications. Using a basic large bushing model, different accessories can be assembled onto the switch to achieve the mounting variations shown on the following two pages.

These switches have:
- 12mm diameter threaded bushing with keyway
- Silver contacts
- 6-Amp rating
- Solder lug terminals

Other 12mm bushing options can be used; see details in preceding Large Bushing Ordering tables.

---

**MB2011**

**SB1W01**

**4**

**C**

**A**

**Poles & Circuits**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>SPDT</td>
<td>ON (ON)</td>
</tr>
<tr>
<td>2065</td>
<td>SPDT</td>
<td>ON ON</td>
</tr>
<tr>
<td>2061</td>
<td>DPDT</td>
<td>ON (ON)</td>
</tr>
<tr>
<td>2085</td>
<td>DPDT</td>
<td>ON ON</td>
</tr>
</tbody>
</table>

4-pole available 

( ) = Momentary

**Mounter Shapes For Shroud**

- 4 Round
- 5 Rectangular

**Cap Colors For Shroud**

- A Black
- B White
- C Red
- F Green
- G Blue
- H Gray

**Mounter Colors For Shroud**

- A Black
- B White
- H Gray

**Cap Colors For Snap-In**

- A Black
- B White
- C Red
- F Green

---

**Round Shroud**

MB2011SB1W01-4C-A

**Rectangular Shroud**

MB2011SB1W01-5C-A

See custom assemblies on following pages.
Large Bushing Miniature Pushbuttons

Series MB2000

**MOUNTER SHAPES FOR SHROUDS**

<table>
<thead>
<tr>
<th>AT455 Round</th>
<th>AT453 Rectangular</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material: Polycarbonate</td>
<td>Material: Polycarbonate</td>
</tr>
<tr>
<td>Colors: A B H</td>
<td>Colors: A B H</td>
</tr>
</tbody>
</table>

**CAPS & CAP COLORS FOR SHROUDS**

<table>
<thead>
<tr>
<th>AT454 Round Insert Cap</th>
<th>AT452 Rectangular Insert Cap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material: Polycarbonate</td>
<td>Material: Polycarbonate</td>
</tr>
<tr>
<td>Colors: A B C F G H</td>
<td>Colors: A B C F G H</td>
</tr>
</tbody>
</table>

**AT080 Screw Adaptor for Insert Caps**

Material: Brass

**Color Codes:**

- **A** Black
- **B** White
- **C** Red
- **F** Green
- **G** Blue
- **H** Gray

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Series MB2000
Large Bushing Miniature Pushbuttons

CUSTOM ASSEMBLY WITH ROUND SHROUD

MB2011SB1W01-4C-A

Single Pole

Double Pole

Effective Panel Thickness: .217" (5.5mm) maximum

CUSTOM ASSEMBLY WITH RECTANGULAR SHROUD

MB2011SB1W01-5C-A

Single Pole

Double Pole

Effective Panel Thickness: .217" (5.5mm) maximum