



Series MB2000

Alternate Action & Momentary Miniature Pushbutton Switches

TYPICAL SWITCH ORDERING EXAMPLE

MB

2011

S

S1

W

01

C

A

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 maximum @ 28V AC/DC maximum
A	Gold over Silver Rated 6A @ 125V AC & 0.4VA maximum @ 28V AC/DC maximum

CAPS	
B	8mm Dia.
C	10mm Dia.

PLUNGER TYPES	
S	Plunger for Screw-on Caps
L	Plunger for Snap-on Caps

CAP COLORS	
A	Black
B	White
C	Red
E	Yellow
F	Green
G	Blue
H	Gray

BUSHINGS	
S1	8.5mm Threaded with Keyway
S2	8.5mm Smooth with Keyway
S4	8.5mm Metric Threaded with Keyway
D1	8.5mm Threaded with D Flat
D3	8.5mm Threaded Splashproof without Keyway

TERMINALS	
01	Solder Lug
02	Quick Connect
03	6.35 Straight PC
05	10.8mm Wirewrap
06	19.05mm Wirewrap
07	24.5mm Wirewrap
08	27mm Wirewrap

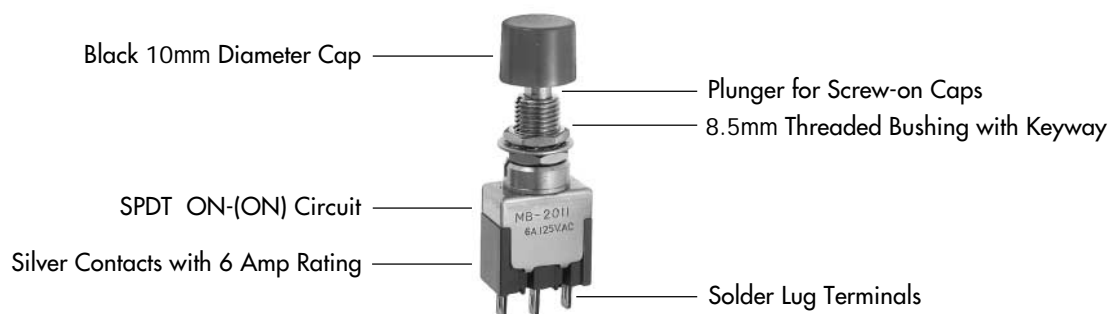
IMPORTANT:



Switches are supplied without UL & CSA marking unless specified. Specific models & ratings noted on General Specifications page.

DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

MB2011SS1W01-CA





Series MB2000

Alternate Action & Momentary Miniature Pushbutton Switches

GENERAL SPECIFICATIONS

Electrical Capacity (Resistive Load)

- Power Level (code W):** 6A @ 125V AC & 3A @ 250V AC or 3A @ 30V DC
 - Logic Level (code G):** 0.4VA maximum @ 28V AC/DC maximum
 - Logic/Power Level (code A):** Combines W & G ratings
- Note: See [Supplement Index](#) to find explanation of dual rating & operating range.

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; 1,500V AC minimum between contacts & case
- Mechanical Life:** 50,000 operations minimum for splashproof models; 100,000 for all other models
- Electrical Life:** 25,000 operations minimum for silver at 100% power level;
50,000 operations minimum for silver at 50% power level;
50,000 operations minimum for gold
- Nominal Operating Force:** Momentary Action: 1-pole 950 grams; 2-pole 1,650 grams; 4-pole 2,400 grams;
Alternate Action: 1-pole 450 grams; 2-pole 720 grams; 4-pole 1,200 grams
- Plunger Travel:**

	Screw-on Cap (Mom.)	Screw-on Cap (Alt.)	Snap-on Cap (Mom. & Alt.)
Pretravel:	0.71 mm (.028")	2.80 mm (.110")	3.19 mm (.125")
Overtravel:	1.09 mm (.043")	1.10 mm (.043")	1.26 mm (.050")
Total Travel:	1.80mm (.071")	3.90 mm (.153")	4.45 mm (.175")

Materials & Finishes

- Plunger:** Brass with nickel plating
- Bushing:** Brass with nickel plating
- Frame:** Stainless steel
- Case:** Diallyl phthalate resin
- Movable Contactor:** Phosphor bronze with silver or gold plating
- Movable Contacts:** Silver alloy (code W); copper with gold plating over nickel plating (code G); or silver alloy with gold plating over nickel plating (code A)
- Stationary Contacts:** Silver with silver plating (code W); copper or brass with gold plating over nickel plating (code G); or silver with gold plating over nickel plating (code A)
- Terminals:** Copper or brass with silver plating; copper or brass with gold plating over nickel 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 ~ 55 Hz with peak-to-peak amplitude of 1.5 mm traversing the frequency range & returning in 1 minute; 3 right angled directions for 2 hours
- Shock:** 50g acceleration (tested in 6 right angled directions, with 5 shocks in each direction)
- Sealing:** D3 bushing option equivalent to IP67

Installation

- Mounting Torque:** 15 kgf/cm (13 lb/in) for double nut; 7 kgf/cm (6 lb/in) for single nut
- Cap Installation Force:** 8.16 kg (18 lb) maximum downward force on actuator
- Soldering Time & Temperature:** 3 seconds @ 350°C or 5 seconds @ 270°C
- Process Seal:** Not available

Standards & Certifications





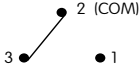
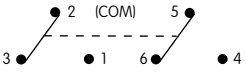
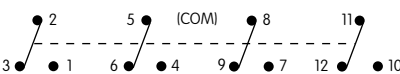
- Flammability Standards:** UL94V-0 available
- UL Recognized:** All models recognized at 6A @ 125V AC or 3A @ 250V AC or 0.4VA maximum @ 28V AC/DC maximum; UL File No. E44145
- CSA Certified:** All models certified at 6A @ 125V AC or 3A @ 250V AC or 0.4VA maximum @ 28V AC/DC maximum; CSA File No. LR23535



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POLES & CIRCUITS

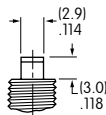
		Plunger Position () = Momentary		Connected Terminals		Throw & Schematics
Pole	Model	Normal  Keyway	Down 	Normal  Keyway	Down 	Note: Terminal numbers are not actually on the switch.
SP	MB2011 MB2065	ON	(ON)	2-3	2-1	SPDT 
DP	MB2061 MB2085	ON	(ON)	2-3 5-6	2-1 5-4	DPDT 
4P	MB2181 MB2185	ON	(ON)	2-3 5-6 8-9 11-12	2-1 5-4 8-7 11-10	4PDT 

PLUNGER TYPES

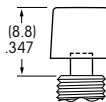
On alternate action models, after transferring circuit, the plunger returns to its original position and does not latch down.

S Plunger for Screw-on Caps

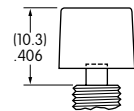
For
Momentary
Action:



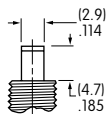
With
8mm Dia. Cap
AT413



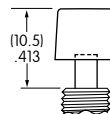
With
10mm Dia. Cap
AT407



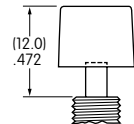
For
Alternate
Action:



With
8mm Dia. Cap
AT413

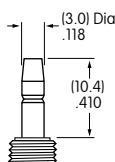


With
10mm Dia. Cap
AT407

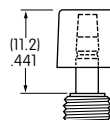


L Plunger for Snap-on Caps

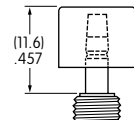
Momentary
& Alternate
Action:



With
8mm Dia. Cap
AT443



With
10mm Dia. Cap
AT442



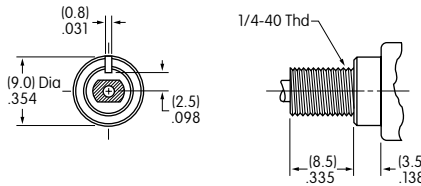


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Alternate Action & Momentary Miniature Pushbutton Switches

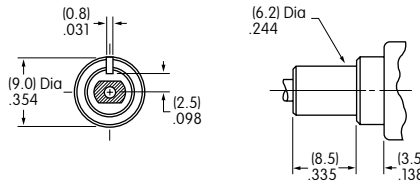
BUSHINGS

S1 8.5mm Threaded with Keyway

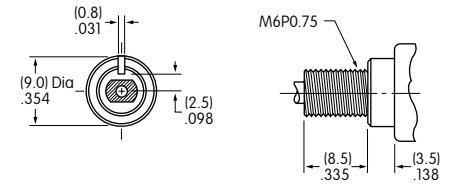


Maximum panel thickness with standard hardware: 3.9mm (.154")

S2 8.5mm Smooth with Keyway

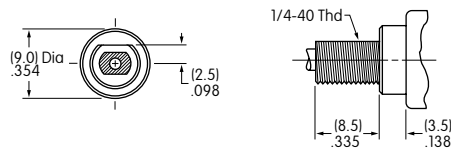


S4 8.5mm Metric Threaded with Keyway



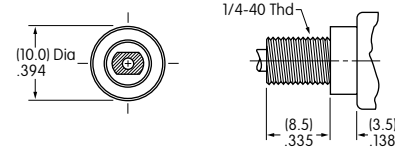
Maximum panel thickness with standard hardware: 3.9mm (.154")

D1 8.5mm Threaded with D Flat



Maximum panel thickness with standard hardware: 3.9mm (.154")

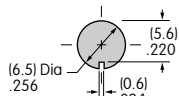
D3 8.5mm Threaded Splashproof without Keyway



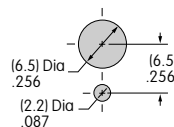
Maximum panel thickness with standard hardware: 6.1mm (.240")

Panel Cutouts

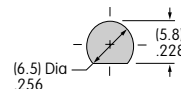
For S1, S2, or S4 Bushing with Keyway



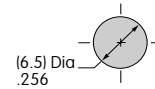
For S1 or S4 Bushing with Optional Locking Ring



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

CONTACT MATERIALS & RATINGS

W Silver over Silver **Power Level** 6A @ 125V AC & 3A @ 250V AC

G Gold over Brass or Copper **Logic Level** 0.4VA maximum @ 28V AC/DC maximum
Note: See [Supplement Index](#) to find complete explanation of operating range.

A Gold over Silver **Power Level or Logic Level** 6A @ 125V AC & 3A @ 250V AC or 0.4VA maximum @ 28V AC/DC maximum

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 Index](#) to find complete explanation of dual rating and operating range.



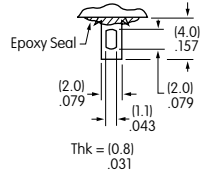
Series MB2000

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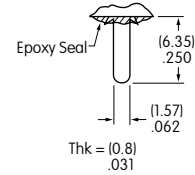
TERMINALS

01 Solder Lug

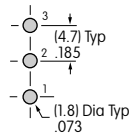
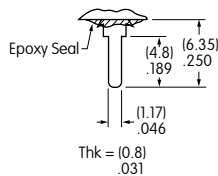
The 1.1mm x 2mm oblong hole accommodates 1 solid 18-gauge wire or 2 solid or stranded 20-gauge wires.



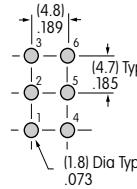
02 1.57mm Wide Quick Connect



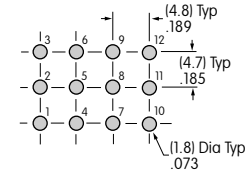
03 6.35mm Straight PC



Single Pole



Double Pole



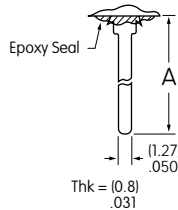
Four Pole

05 10.8mm/.425" Wirewrap or Extended PC

06 19.05mm/.750" Wirewrap or Extended PC

07 24.5mm/.964" Wirewrap or Extended PC

08 27.0mm/1.062" Wirewrap or Extended 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.

CAPS & CAP COLORS

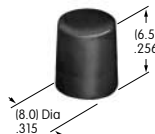
B AT413
8mm Diameter
Screw-on Cap
For use with
Plunger Code S

Material: Polystyrene
Finish: Glossy



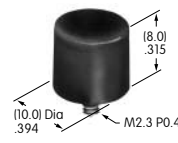
AT443
8mm Diameter
Snap-on Cap
For use with
Plunger Code L

Material: Polycarbonate
Finish: Glossy



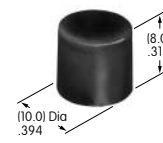
C AT407
10mm Diameter
Screw-on Cap
For use with
Plunger Code S

Material: Polystyrene
Finish: Glossy



AT442
10mm Diameter
Snap-on Cap
For use with
Plunger Code L

Material: Polycarbonate
Finish: Glossy



Cap Colors Available:



Black



White



Red



Yellow



Green



Blue



Gray



Clear



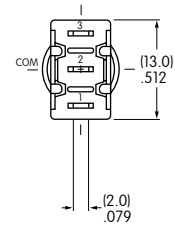
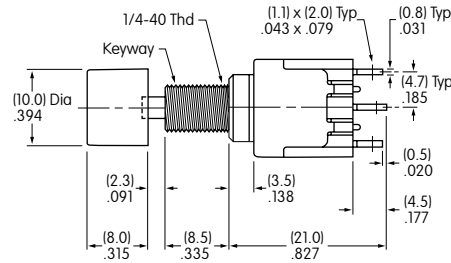
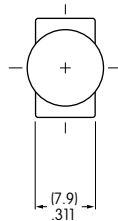
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TYPICAL SWITCH DIMENSIONS

Solder Lug

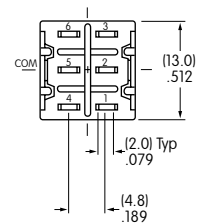
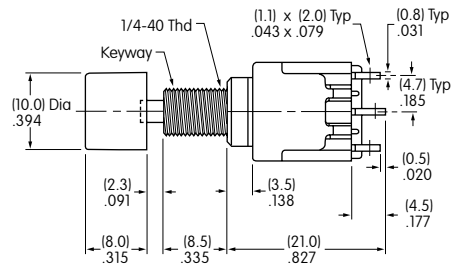
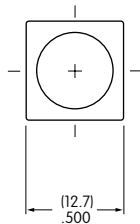
Single Pole



MB2011SS1W01-CA

Solder Lug

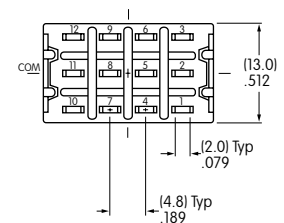
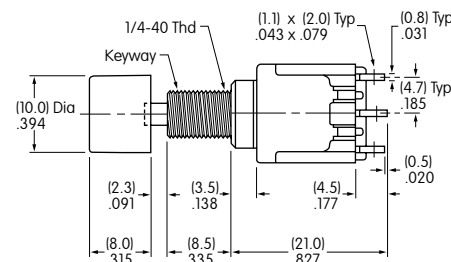
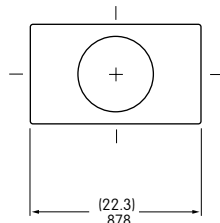
Double Pole



MB2061SS1W01-CA

Solder Lug

Four Pole



MB2181SS1W01-CA



Series MB2000

Alternate Action & Momentary Miniature Pushbutton Switches

HARDWARE

Standard Hardware		Optional Hardware	
<p>AT513M for Metric AT513H for Inch Hex Nut</p> <p>2 included with each switch (1 with splashproof models)</p> <p>Material: Brass, nickel plated</p>	<p>AT509 Lockwasher</p> <p>1 included with each switch (not with splashproof models)</p> <p>Material: Steel, chromate over zinc plating</p>	<p>AT516 O-ring for Splashproof Bushing</p> <p>1 included with each splashproof</p> <p>Material: Nitrile butadiene rubber</p>	<p>AT507M for Metric AT507H for Inch Locking Ring</p> <p>Material: Steel, chromate over zinc plating</p>

Optional Mounting Collars / Conical Nuts		Optional Splashproof Boots for S Plunger	
<p>AT512M for Metric AT512H for Inch Conical Nut</p> <p>Used with 8mm Dia. Cap (cap code B)</p> <p>Material: Brass with chrome plating</p>	<p>AT512CM for Metric AT512CH for Inch Conical Nut</p> <p>Used with 10mm Dia. Cap (cap code C)</p> <p>Material: Brass with chrome plating</p>	<p>AT4041M for Metric AT4041H for Inch Boot for Momentary</p> <p>Material: Silicone Rubber</p>	<p>AT4042M for Metric AT4042H for Inch Boot for Alternate</p> <p>Material: Silicone Rubber</p>

Dimension A = Cap Height

- 2.3mm (.091") for momentary with plunger code S
- 4.0mm (.157") for alternate with plunger code S
- 3.6mm (.142") for momentary & alternate with plunger code L

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