

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.

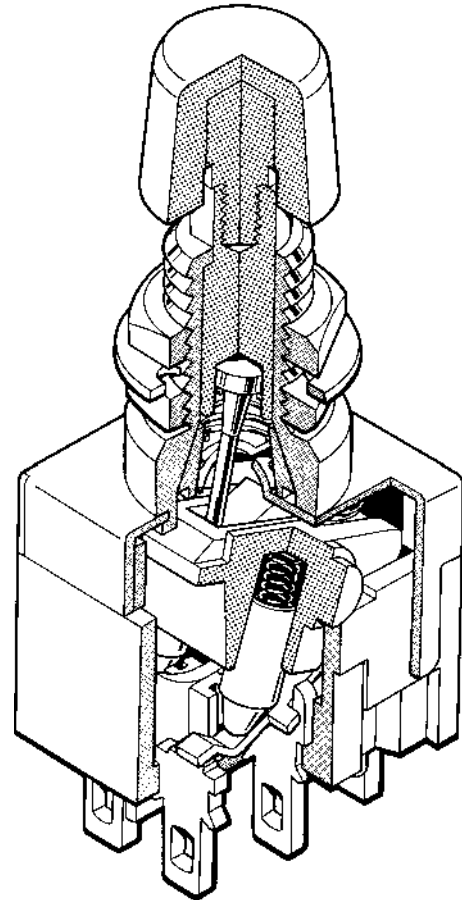
Splashproof option (D3 and B3 bushing codes) features an o-ring within the bushing and one under the face nut to protect from splashed, sprayed, or spilled liquids.

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

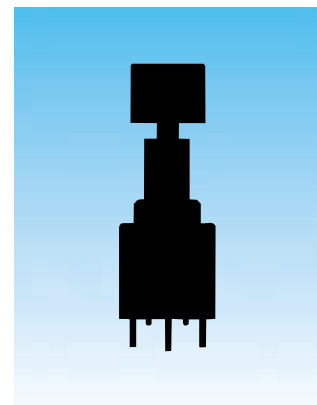
Prominent external insulating barriers increase insulation resistance and dielectric strength.

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.



Actual Size



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 (page Z2) 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 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; 50,000 operations minimum for silver at 3A @ 125V AC		
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		
Contact Timing:	Slow make, slow break		
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; polyacetal resin with B1 bushing
Bushing:	Brass with nickel plating
Frame:	Stainless steel
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 ~ 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 (490m/s ²) acceleration (tested in 6 right angled directions, with 5 shocks in each direction)
Sealing:	B3 & D3 bushing options equivalent to IP67

Installation

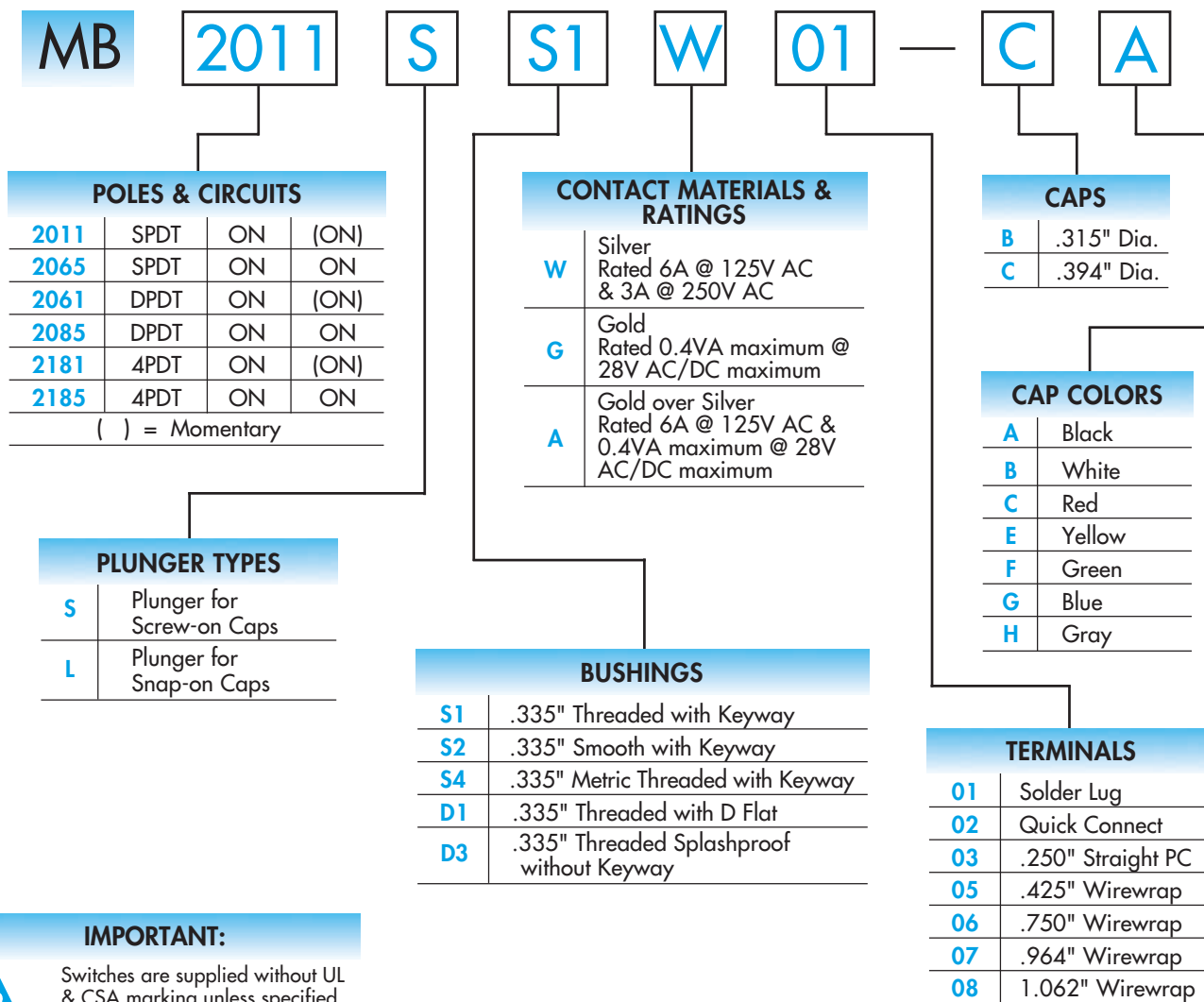
Mounting Torque:	1.5Nm (13.0 lb•in) for double nut; 0.7Nm (6.0 lb•in) for single nut
Cap Installation Force:	80.0N (18.0 lbf) maximum downward force on actuator
Soldering Time & Temperature:	3 seconds @ 350°C or 5 seconds @ 270°C
Process Seal:	Not available

Standards & Certifications



Flammability Standards:	UL94V-0 for case
UL Recognized:	All models recognized at 6A @ 125V AC or 3A @ 250V AC or 0.4A max. @ 28V DCmax.; UL File No. WOYR2.E44145; add "/U" to end of part number to order UL mark
CSA Certified:	All models certified at 6A @ 125V AC or 3A @ 250V AC or 0.4VA max. @ 28V max.; CSA File No. 023535-0-000; add "/C" to end of part number to order CSA mark

TYPICAL SWITCH ORDERING EXAMPLE



IMPORTANT:








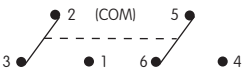
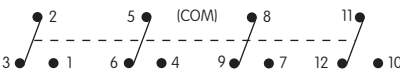
Switches are supplied without UL & CSA marking unless specified. Specific models & ratings noted on General Specifications page.

DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

MB2011SS1W01-CA



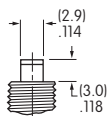
POLES & CIRCUITS

Pole	Model	Plunger Position () = Momentary		Connected Terminals		Throw & Schematics
		Normal  Keyway	Down 	Normal  Keyway	Down 	
SP	MB2011	ON	(ON)	2-3	2-1	SPDT 
	MB2065	ON	ON			
DP	MB2061	ON	(ON)	2-3 5-6	2-1 5-4	DPDT 
	MB2085	ON	ON			
4P	MB2181	ON	(ON)	2-3 5-6 8-9 11-12	2-1 5-4 8-7 11-10	4PDT 
	MB2185	ON	ON			

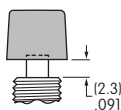
PLUNGER TYPES

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

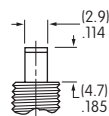
S Plunger for Screw-on Caps



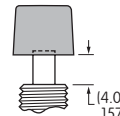
Momentary
Plunger Length



Momentary
Cap Location

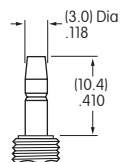


Alternate
Plunger Length

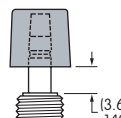


Alternate
Cap Location

L Plunger for Snap-on Caps



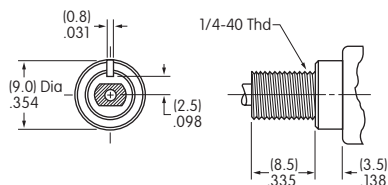
Momentary & Alternate
Plunger Length



Momentary & Alternate
Cap Location

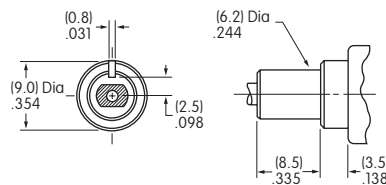
BUSHINGS

S1 .335" Threaded with Keyway

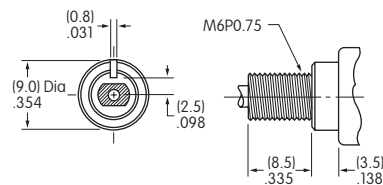


Maximum panel thickness with standard hardware: 3.9mm (.154")

S2 .335" Smooth with Keyway

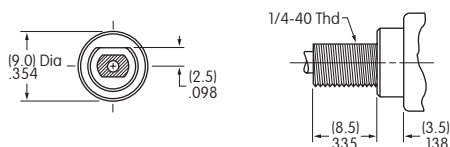


S4 .335" Metric Threaded with Keyway



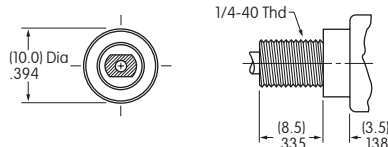
Maximum panel thickness with standard hardware: 3.9mm (.154")

D1 .335" Threaded with D Flat



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

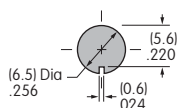
D3 .335" Threaded Splashproof without Keyway



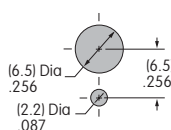
Maximum panel thickness with standard hardware: 6.1mm (.240")

Panel Cutouts

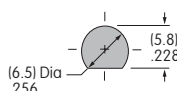
For S1, S2, or S4 Bushing with Keyway



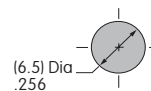
For S1 or S4 Bushing with Optional Locking Ring



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 are illustrated following the Typical Switch Dimension drawings.

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 (page Z2) 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

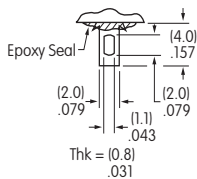
Note: This dual rated option is suitable when two or more identical switches are used in logic and in power circuits within the same application. See Supplement Index (page Z2) to find complete explanation of dual rating and operating range.

TERMINALS

01

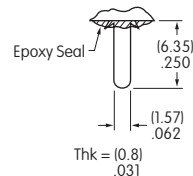
Solder Lug

The .043" X .079" oblong hole accommodates 1 solid 18-gauge wire or 2 solid or stranded 20-gauge wires.



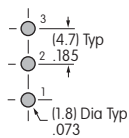
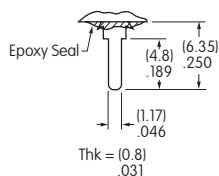
02

.062" Wide Quick Connect

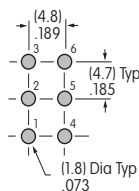


03

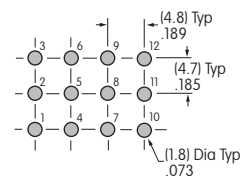
.250" Straight PC



Single Pole



Double Pole



Four Pole

05

.425" (10.8mm) Wirewrap or Extended PC

06

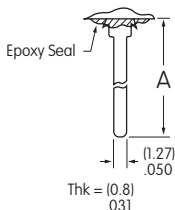
.750" (19.05mm) Wirewrap or Extended PC

07

.964" (24.5mm) Wirewrap or Extended PC

08

1.062" (27.0mm) Wirewrap or Extended PC



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

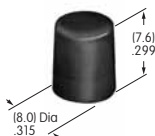
AT413 .315" Diameter Screw-on Cap For use with Plunger Code S

Material: PBT
Finish: Glossy



AT443 .315" Diameter Snap-on Cap For use with Plunger Code L

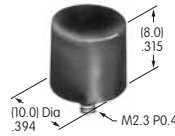
Material: Polycarbonate
Finish: Glossy



C

AT407 .394" Diameter Screw-on Cap For use with Plunger Code S

Material: PBT
Finish: Glossy



AT442 .394" Diameter Snap-on Cap For use with Plunger Code L

Material: Polycarbonate
Finish: Glossy



Cap Colors
Available:

A

Black

B

White

C

Red

E

Yellow

F

Green

G

Blue

H

Gray

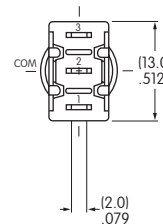
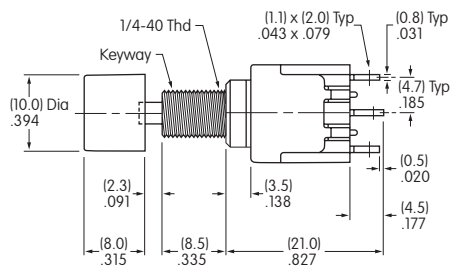
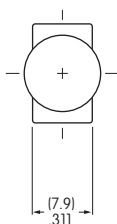
J

Clear

TYPICAL SWITCH DIMENSIONS

Solder Lug

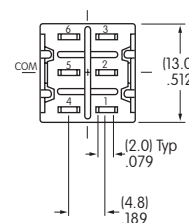
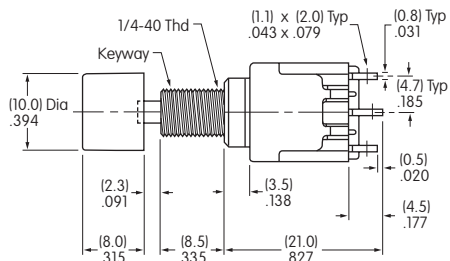
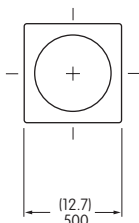
Single Pole



MB2011SS1W01-CA

Solder Lug

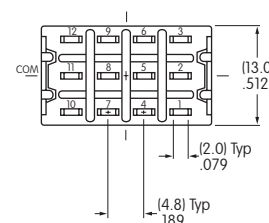
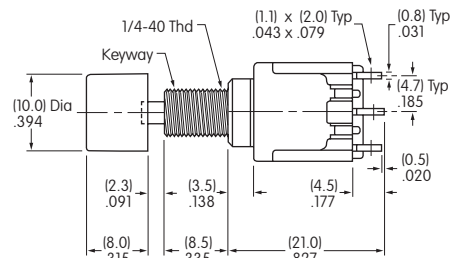
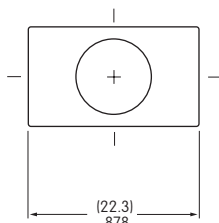
Double Pole



MB2061SS1W01-CA

Solder Lug

Four Pole



MB2181SS1W01-CA

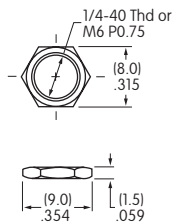
HARDWARE

Standard Hardware

AT513H for Inch AT513M for Metric Hex Nut

2 included
with each switch
(1 with splashproof
models)

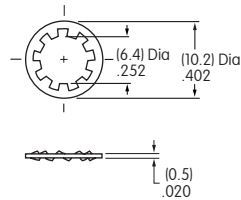
Material:
Brass, nickel plated



AT509 Lockwasher

1 included
with each switch
(not with splash-
proof models)

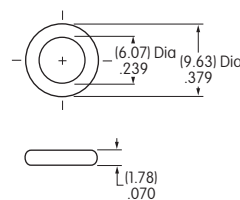
Material:
Steel, chromate
over zinc plating



AT516 O-ring for Splashproof Bushing

1 included
with each splashproof

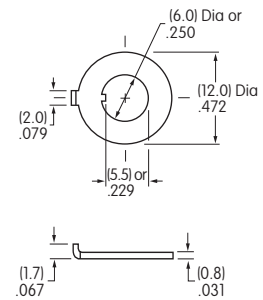
Material:
Nitrile butadiene rubber



Optional Hardware

AT507H for Inch AT507M for Metric Locking Ring

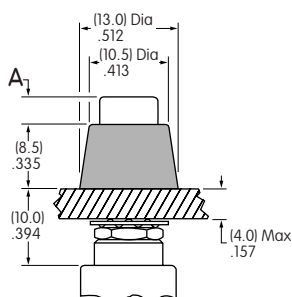
Material:
Steel, chromate over
zinc plating



Optional Mounting Collars / Conical Nuts

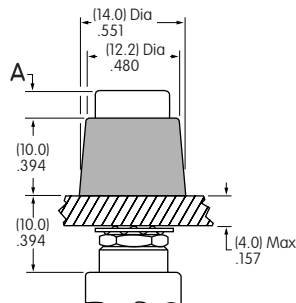
AT512H for Inch AT512M for Metric Conical Nut

Used with .315" Dia. Cap
(cap code B)
Material:
Brass with chrome plating



AT512CH for Inch AT512CM for Metric Conical Nut

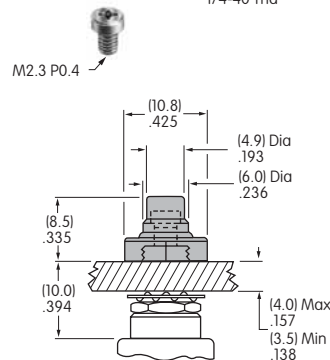
Used with .394" Dia. Cap
(cap code C)
Material:
Brass with chrome plating



Optional Splashproof Boots for S Plunger

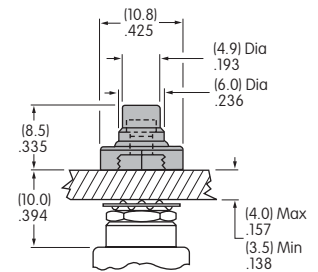
AT4041H for Inch AT4041M for Metric Boot for Momentary

Material:
Silicone Rubber



AT4042H for Inch AT4042M for Metric Boot for Alternate

Material:
Silicone Rubber



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