

**M20**

**1**

**2**

**S2**

**A2**

#### Poles

<b>1</b>	SPDT
<b>2</b>	DPDT SP3T
<b>3</b>	3PDT
<b>*4</b>	4PDT DP3T

\*4-pole available on vertical models only.

#### Circuits

<b>2</b>	ON	NONE	ON
<b>3</b>	ON	OFF	ON
<b>5</b>	ON	NONE	(ON)
<b>8</b>	(ON)	OFF	(ON)
<b>9</b>	ON	OFF	(ON)
<b>*4</b>	ON	ON	ON
<b>*6</b>	(ON)	ON	(ON)
<b>*7</b>	ON	ON	(ON)

( ) = Momentary

\* 3-ON circuits available with double and four pole bases only

#### Small Toggles

<b>S</b>	.413" (10.5mm) Bat
<b>S2</b>	.200" (5.08mm) Bat
<b>S3</b>	.256" (6.5mm) Bat
<b>E</b>	.450" (11.4mm) Flatted
<b>E2</b>	.256" (6.5mm) Flatted

Toggle dimensions are based on use with a .350" (8.9mm) bushing; add .070" (1.78mm) to toggle length when combining with a .280" (7.1mm) bushing.

#### Locking Lever

<b>L</b>	.201" (5.1mm) Dia. Locking Lever
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#### Small Bushings

<b>A2</b>	.280" (7.1mm) Smooth with Keyway
<b>S2</b>	.350" (8.9mm) Smooth with Keyway
<b>A1</b>	.280" (7.1mm) Threaded with Keyway
<b>S1</b>	.350" (8.9mm) Threaded with Keyway

#### Bushing For Locking Levers

<b>L2</b>	Smooth with Keyway for Lever Lock
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#### Standard Toggle, Bushing, & Terminal Combinations:

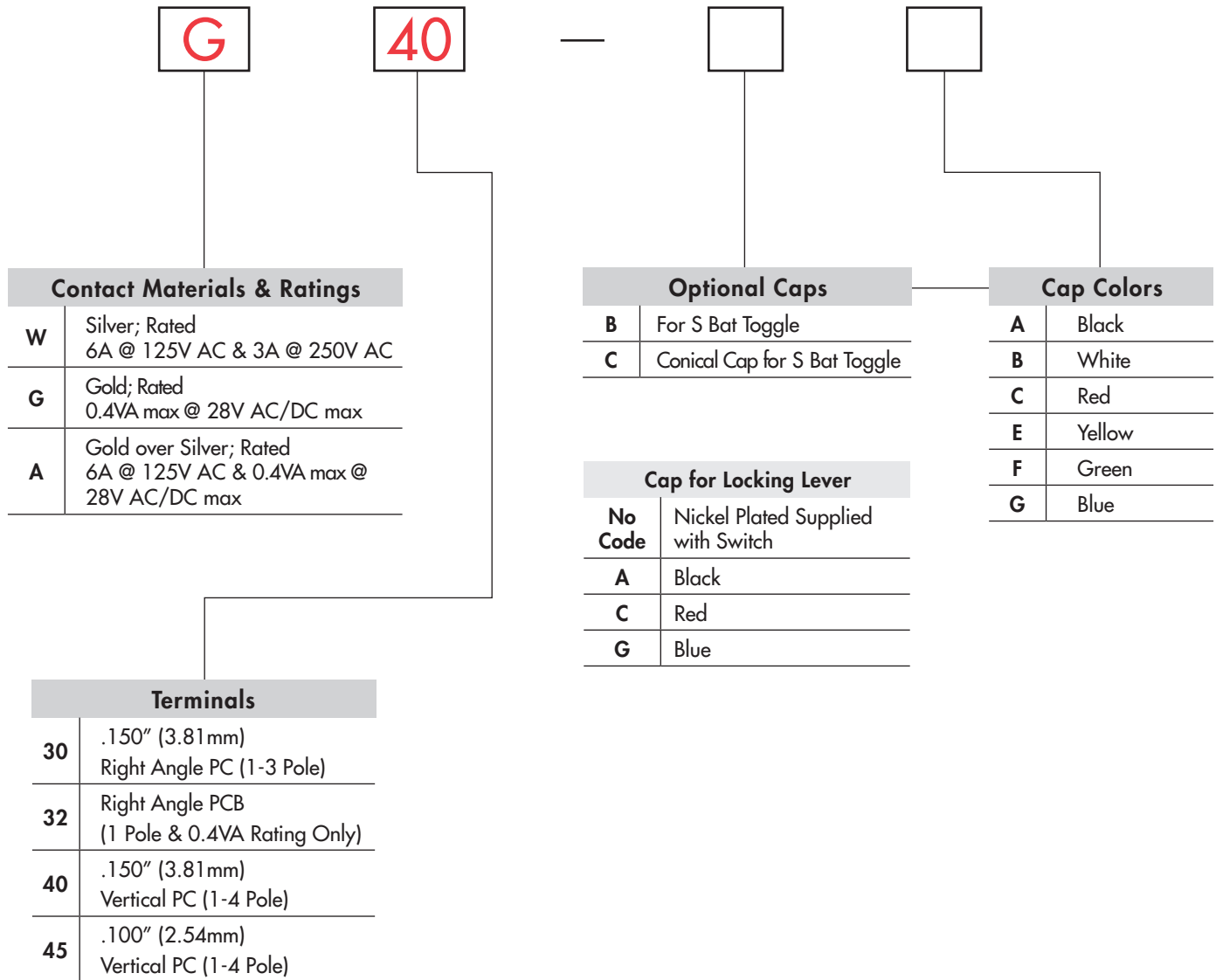
**S2A2G30, S2A2G40, SS2G30, SS2G40, LL2G30, & LL2G40**

#### IMPORTANT:



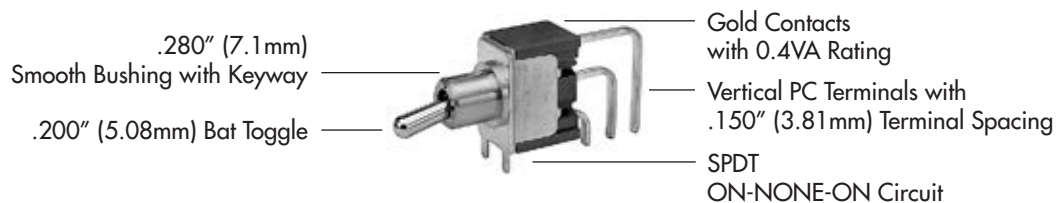
Switches are supplied without UL, cULus & CSA marking unless specified. **UL, cULus & CSA recognized only when ordered with marking on the switch.** Specific models, ratings & ordering instructions are noted on the General Specifications page.

## ORDERING EXAMPLE








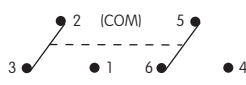
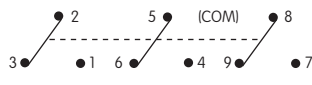
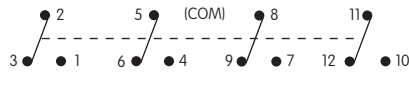


### DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

### M2012S2A2G40

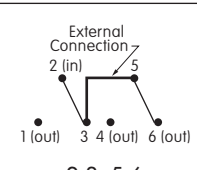
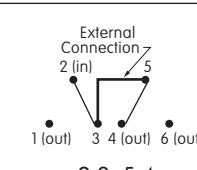
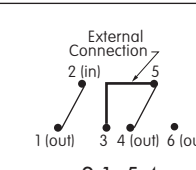
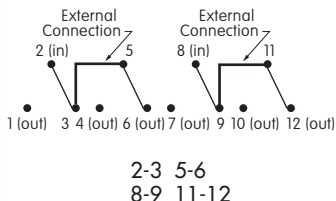
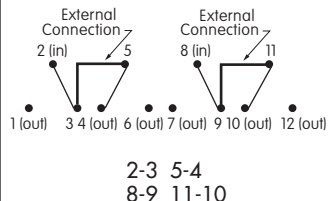
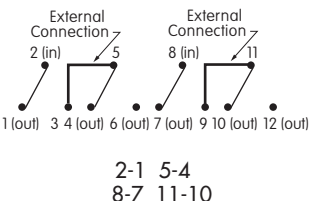


## POLES & CIRCUITS

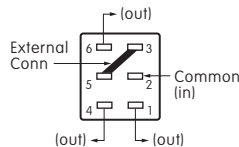
Pole	Model	Toggle Position ( ) = Momentary			Connected Terminals			Throw & Schematics
		Down 	Center 	Up 	Down 	Center 	Up 	
SP	*M2012 *M2013 *M2015 *M2018 M2019	ON ON ON (ON) ON	NONE OFF NONE OFF OFF	ON ON (ON) (ON) (ON)	2-3 2-3	OPEN	2-1	Note: Terminal numbers are not actually on the switch. * Reverse circuits available for vertical mount SP & DP upon request. 
DP	*M2022 *M2023 *M2025 *M2028 M2029	ON ON ON (ON) ON	NONE OFF NONE OFF OFF	ON ON (ON) (ON) (ON)	2-3 5-6 2-3 5-6	OPEN	2-1 5-4	
3P	M2032 M2033 M2035 M2038 M2039	ON ON ON (ON) ON	NONE OFF NONE OFF OFF	ON ON (ON) (ON) (ON)	2-3 5-6 8-9 2-3 5-6 8-9	OPEN	2-1 5-4 8-7	
4P	M2042 M2043 M2045 M2048 M2049	ON ON ON (ON) ON	NONE OFF NONE OFF OFF	ON ON (ON) (ON) (ON)	2-3 5-6 8-9 11-12 2-3 5-6 8-9 11-12	OPEN	2-1 5-4 8-7 11-10	

### For 3 Throw (3-On)

### Connected Terminals & Schematics

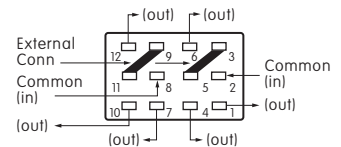
Pole	Model	Down	Center	Up	Down	Center	Up
SP	M2024 M2026 M2027	ON (ON) ON	ON ON ON	ON (ON) (ON)			
DP	M2044 M2046 M2047	ON (ON) ON	ON ON ON	ON (ON) (ON)			

The SP3T model utilizes a double pole base.



External connection must be made during field installation.

The DP3T model utilizes a four pole base.



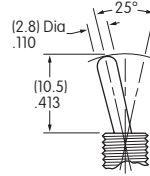
External connection must be made during field installation.

## SMALL TOGGLES

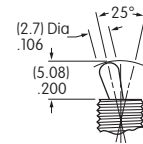
### Important:

Toggle length changes based on bushing selected. All illustrations are shown with .350" (8.9mm) long bushing. When using a .280" (7.1mm) long bushing, toggle length increases .070" (1.78mm).

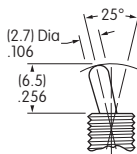
**S** .413" (10.5mm) Bat



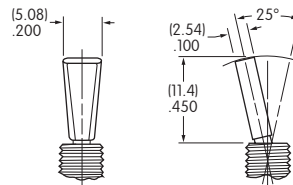
**S2** .200" (5.08mm) Bat



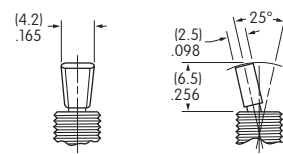
**S3** .256" (6.5mm) Bat



**E** .450" (11.4mm) Flatted



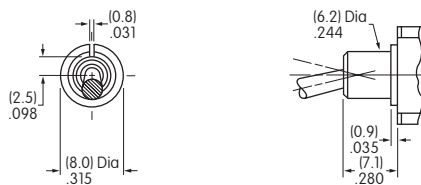
**E2** .256" (6.5mm) Flatted



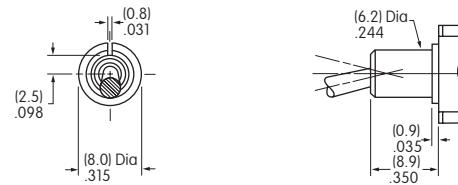
Standard Material & Finish: Brass with Bright Chrome  
Contact factory for optional finishes.

## SMALL BUSHINGS

**A2** .280" (7.1mm) Smooth with Keyway

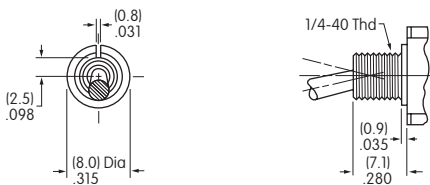


**S2** .350" (8.9mm) Smooth with Keyway

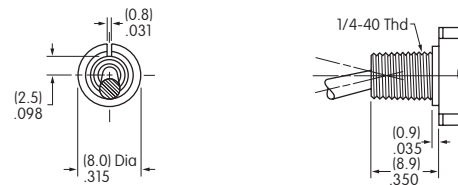


When using this bushing, toggle length is increased by .070" (1.78mm).

**A1** .280" (7.1mm) Threaded with Keyway



**S1** .350" (8.9mm) Threaded with Keyway

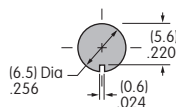


When using this bushing, toggle length is increased by .070" (1.78mm). Maximum Panel Thickness with Standard Hardware: .031" (0.8mm)

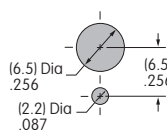
Maximum Panel Thickness with Standard Hardware: .102" (2.6mm)

### Panel Cutouts

For A2, S2, A1 or S1 Bushing with Keyway



For A1 or S1 Bushing with Locking Ring



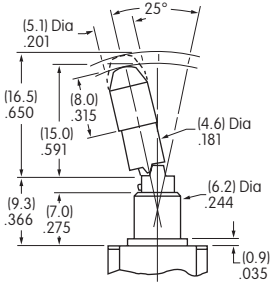
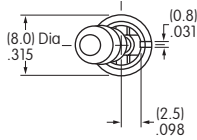
### Standard Hardware:

- 2 Hex Nuts (AT513H)
- 1 Lockwasher (AT509)
- 1 Locking Ring (AT507H)

For dimensions, see Accessories & Hardware section.

## LOCKING LEVER & BUSHING

### LL2 Smooth with Keyway



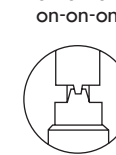
2 positions lock



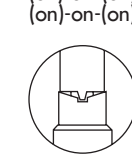
1 position locks



2 positions lock



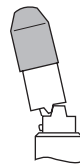
3 positions lock



1 position locks

### Locking Mechanism

**No Code**



**Cap for Locking Lever**  
 Supplied with Cap AT427  
**Material & Finish:**  
 Brass with Nickel Plating  
**Lever Material & Finish:**  
 Brass with Chrome Plating

**Color Codes for Optional Anodized Aluminum Caps**

- A** Black
- C** Red
- G** Blue

## 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

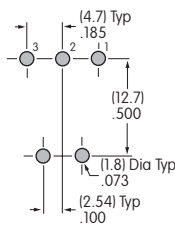
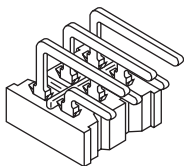
Note: See Supplement section to find complete explanation of operating range.

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

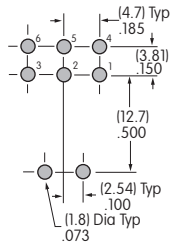
Note: This dual rated option is suitable when two or more identical switches are used in logic and in power circuits within the same application. See Supplement section to find complete explanation of dual rating and operating range.

## TERMINALS

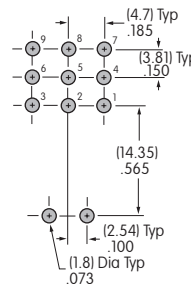
### 30 .150" (3.81 mm) Right Angle PC (1-3 Pole)



Single Pole

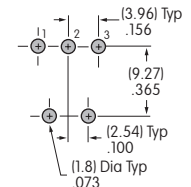
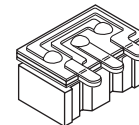


Double Pole



Three Pole

### 32 Right Angle PCB with Reverse Circuit (1 Pole & 0.4VA Rating Only)

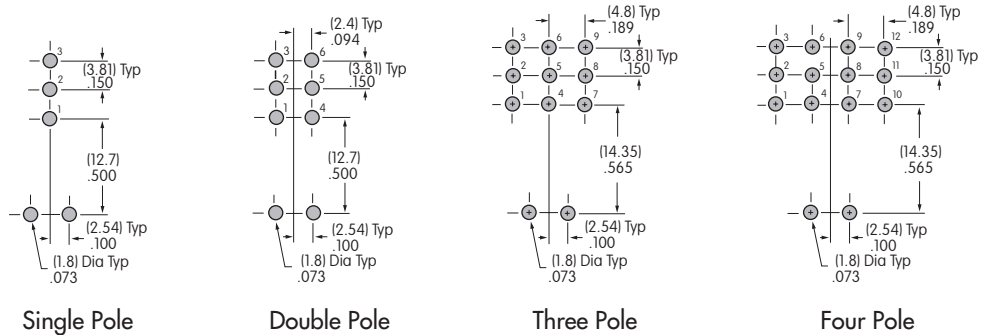
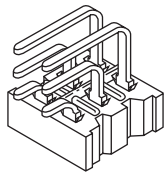


Terminal dimensions are shown on the Typical Switch Dimensions pages which follow.

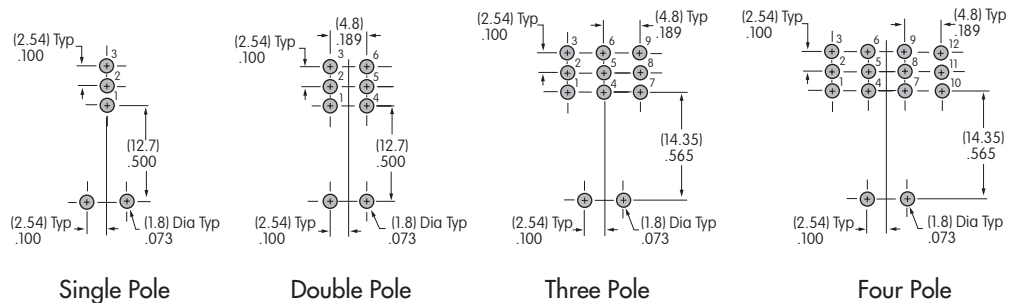
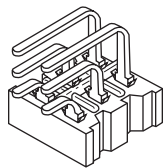
## TERMINALS (Continued)

A  
Toggles

**40** .150" (3.81mm)  
Vertical PC (1-4 Pole)



**45** .100" (2.54mm)  
Vertical PC (1-4 Pole)

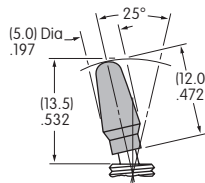


Terminal dimensions are shown on the Typical Switch Dimensions pages which follow.

## OPTIONAL CAPS & CAP COLORS

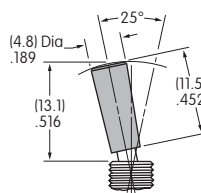
**B** \* AT415  
for S Bat Toggle

Material:  
Polyethylene



**C** \* AT444  
Conical Cap for S Bat Toggle

Material:  
Polyethylene



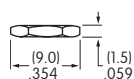
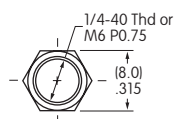
### Colors Available

- |                |                 |
|----------------|-----------------|
| <b>A</b> Black | <b>E</b> Yellow |
| <b>B</b> White | <b>F</b> Green  |
| <b>C</b> Red   | <b>G</b> Blue   |

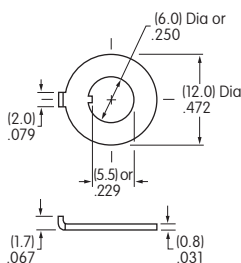
\* AT415 and AT444 for use with S toggles only, not S2 or S3 toggles.

## STANDARD HARDWARE

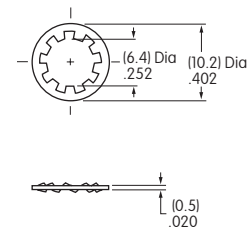
**AT513H for Inch**  
**AT513M for Metric**  
Hex Nut (2 per switch)  
Brass/Nickel



**AT507H for Inch**  
**AT507M for Metric**  
Locking Ring (1 per switch)  
Steel with Zinc/Chromate



**AT509**  
Lockwasher (1 per switch, none with splashproof)  
Steel with Zinc/Chromate



Rockers

Pushbuttons

Illuminated PB

Programmable

Keylocks

Rotaries

Slides

Tactiles

Tilt

Touch

Indicators

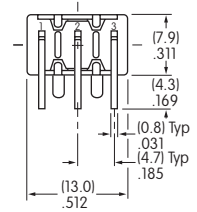
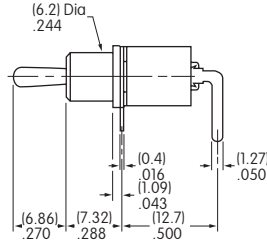
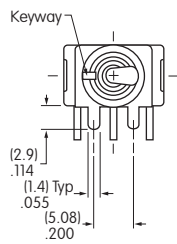
Accessories

Supplement

## TYPICAL SWITCH DIMENSIONS

### .150" (3.81mm) Right Angle PC

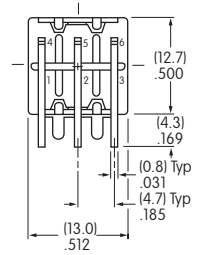
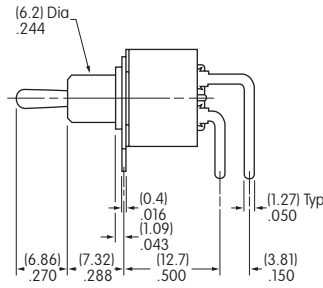
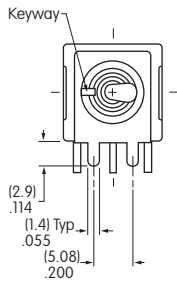
### Single Pole



**M2012S2A2G30**

### .150" (3.81mm) Right Angle PC

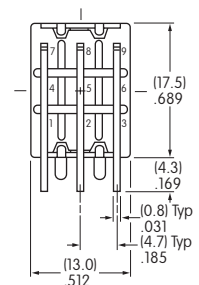
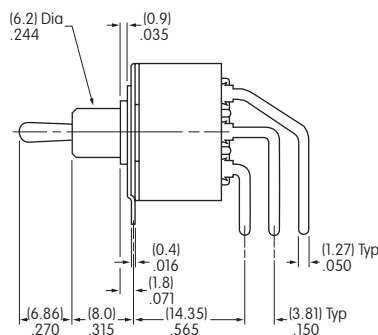
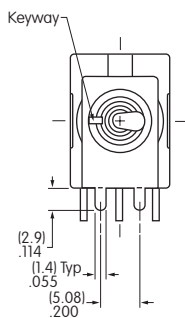
### Double Pole



**M2022S2A2G30**

### .150" (3.81mm) Right Angle PC

### Three Pole



**M2032S2A2G30**

Rockers

Pushbuttons

Illuminated PB

Programmable

Keylocks

Rotaries

Slides

Tactiles

Tilt

Touch

Indicators

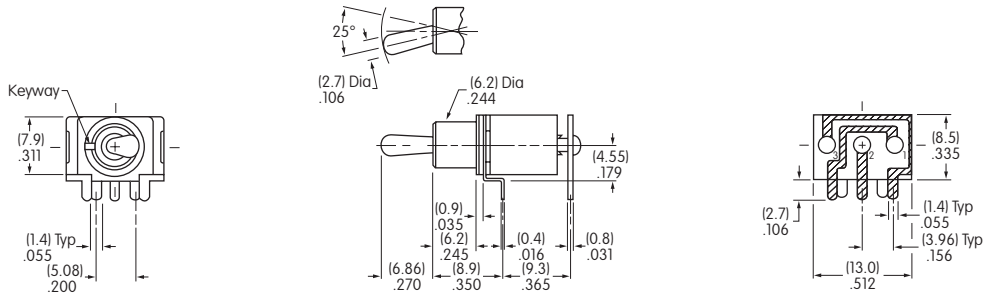
Accessories

Supplement

## TYPICAL SWITCH DIMENSIONS

### Single Pole • Reverse Circuit

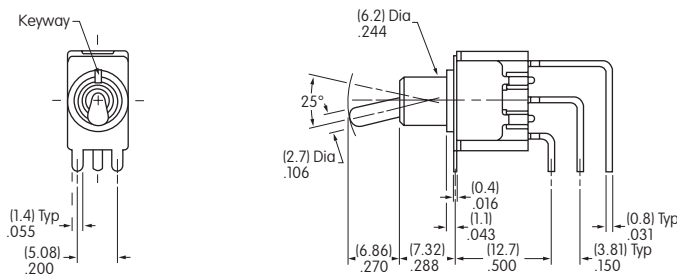
### Right Angle PCB



**M2012S2A2G32**

### Single Pole

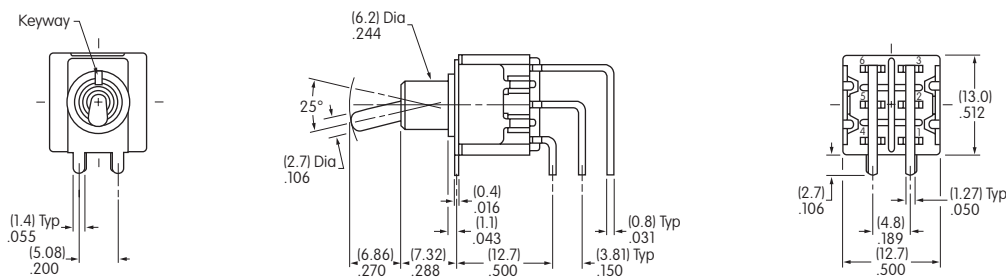
### .150" (3.81mm) Vertical PC



**M2012S2A2G40**

### Double Pole

### .150" (3.81mm) Vertical PC



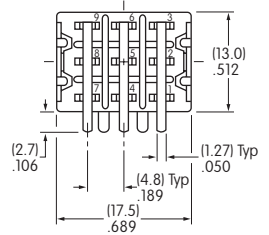
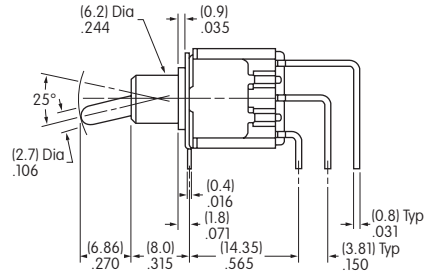
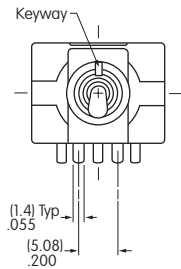
**M2022S2A2G40**



## TYPICAL SWITCH DIMENSIONS

### .150" (3.81mm) Vertical PC

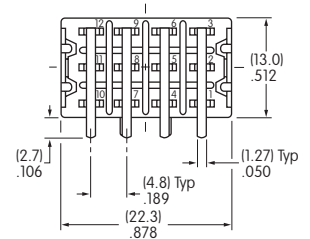
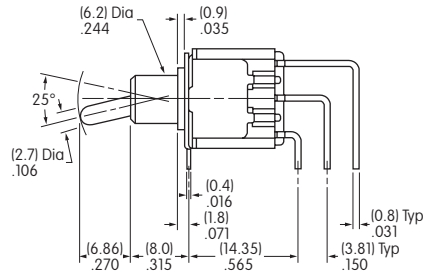
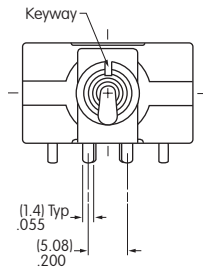
### Three Pole



**M2032S2A2G40**

### .150" (3.81mm) Vertical PC

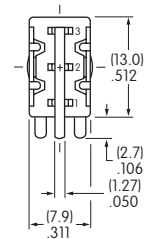
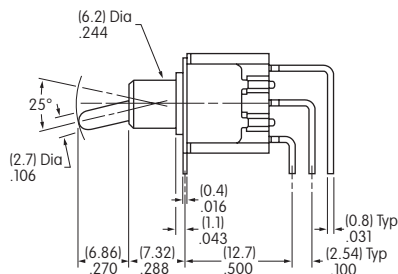
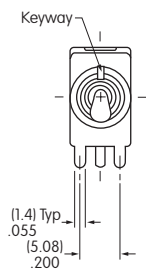
### Four Pole



**M2042S2A2G40**

### .100" (2.54mm) Vertical PC

### Single Pole

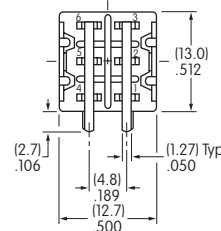
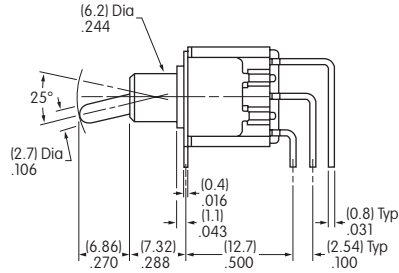
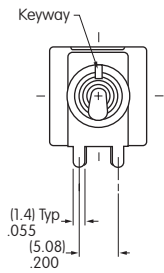


**M2012S2A2G45**

## TYPICAL SWITCH DIMENSIONS

### Double Pole

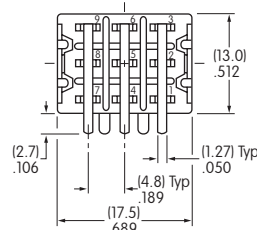
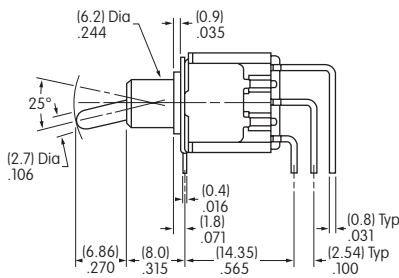
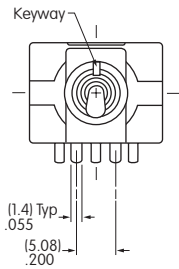
### .100" (2.54mm) Vertical PC



**M2022S2A2G45**

### Three Pole

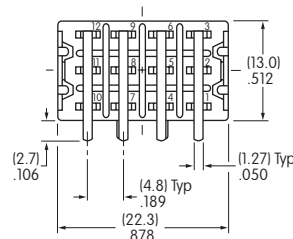
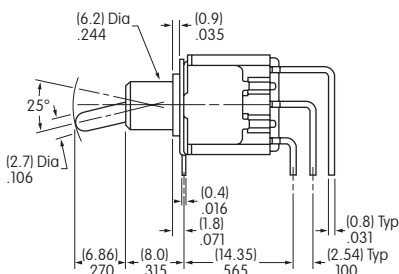
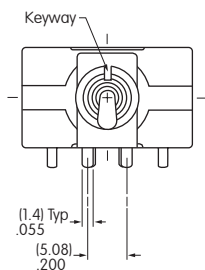
### .100" (2.54mm) Vertical PC



**M2032S2A2G45**

### Four Pole

### .100" (2.54mm) Vertical PC



**M2042S2A2G45**

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