

M20

1

2

S2

A2

Poles

1	SPDT
2	DPDT SP3T
3	3PDT
*4	4PDT DP3T

*4-pole available on vertical models only.

Circuits

2	ON	NONE	ON
3	ON	OFF	ON
5	ON	NONE	(ON)
8	(ON)	OFF	(ON)
9	ON	OFF	(ON)
*4	ON	ON	ON
*6	(ON)	ON	(ON)
*7	ON	ON	(ON)

() = Momentary

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

Small Toggles

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

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

L	.201" (5.1mm) Dia. Locking Lever
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Small Bushings

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

Bushing For Locking Levers

L2	Smooth with Keyway for Lever Lock
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Standard Toggle, Bushing, & Terminal Combinations:

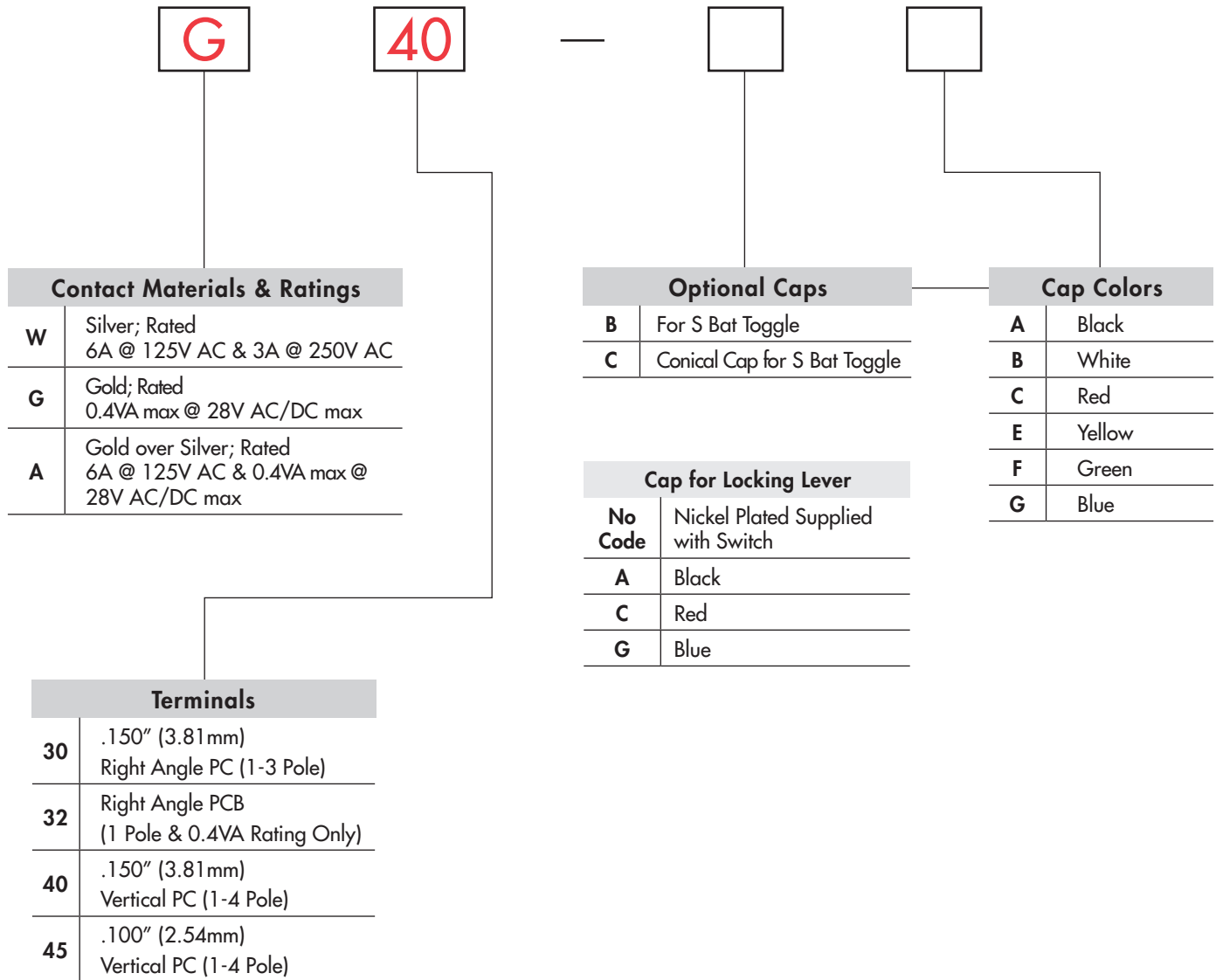
S2A2G30, S2A2G40, SS2G30, SS2G40, LL2G30, & LL2G40

IMPORTANT:



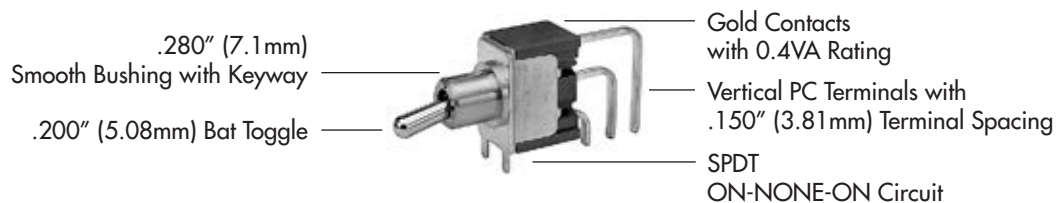
Switches are supplied without UL, cULus & CSA marking unless specified. **UL, cULus & CSA recognized only when ordered with marking on the switch.** Specific models, ratings & ordering instructions are noted on the General Specifications page.

ORDERING EXAMPLE








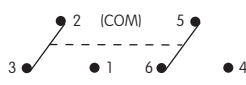
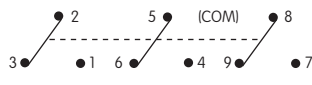
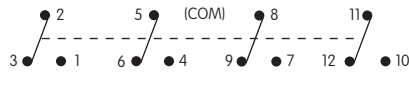


DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

M2012S2A2G40

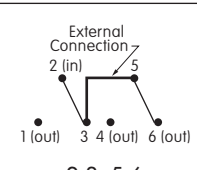
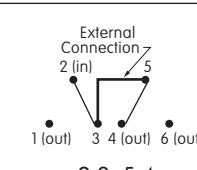
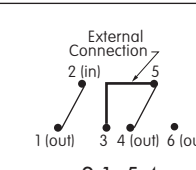
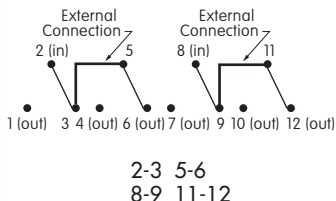
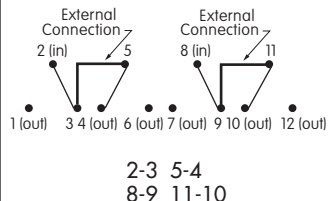
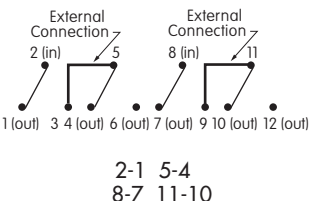


POLES & CIRCUITS

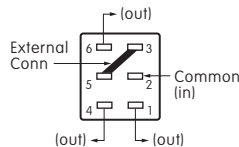
Pole	Model	Toggle Position () = Momentary			Connected Terminals			Throw & Schematics
		Down 	Center 	Up 	Down 	Center 	Up 	
SP	*M2012 *M2013 *M2015 *M2018 M2019	ON ON ON (ON) ON	NONE OFF NONE OFF OFF	ON ON (ON) (ON) (ON)	2-3	OPEN	2-1	Note: Terminal numbers are not actually on the switch. * Reverse circuits 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	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	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	OPEN	2-1 5-4 8-7 11-10	

For 3 Throw (3-On)

Connected Terminals & Schematics

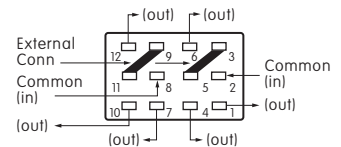
Pole	Model	Down	Center	Up	Down	Center	Up
SP	M2024 M2026 M2027	ON (ON) ON	ON ON ON	ON (ON) (ON)			
DP	M2044 M2046 M2047	ON (ON) ON	ON ON ON	ON (ON) (ON)			

The SP3T model utilizes a double pole base.



External connection must be made during field installation.

The DP3T model utilizes a four pole base.



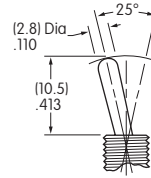
External connection must be made during field installation.

SMALL TOGGLES

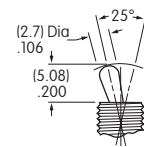
Important:

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).

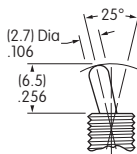
S .413" (10.5mm)
Bat



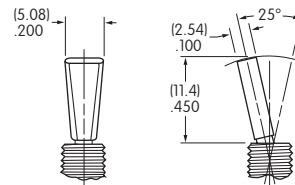
S2 .200" (5.08mm)
Bat



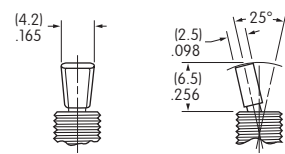
S3 .256" (6.5mm)
Bat



E .450" (11.4mm)
Flatted



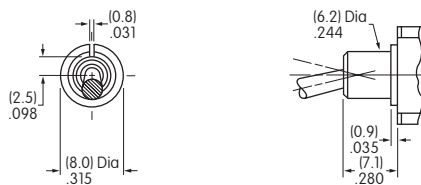
E2 .256" (6.5mm)
Flatted



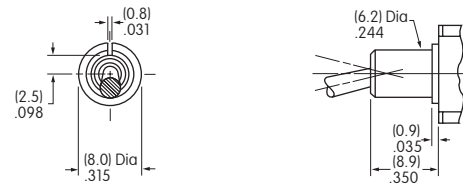
Standard Material & Finish: Brass with Bright Chrome
Contact factory for optional finishes.

SMALL BUSHINGS

A2 .280" (7.1mm)
Smooth with Keyway

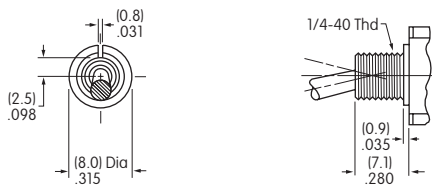


S2 .350" (8.9mm)
Smooth with Keyway

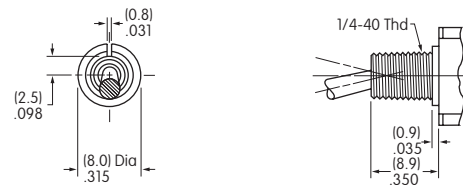


When using this bushing, toggle length is increased by .070" (1.78mm).

A1 .280" (7.1mm)
Threaded with Keyway



S1 .350" (8.9mm)
Threaded with Keyway

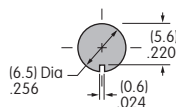


When using this bushing, toggle length is increased by .070" (1.78mm). Maximum Panel Thickness with Standard Hardware: .031" (0.8mm)

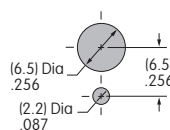
Maximum Panel Thickness with Standard Hardware: .102" (2.6mm)

Panel Cutouts

For A2, S2, A1 or S1 Bushing with Keyway



For A1 or S1 Bushing with Locking Ring



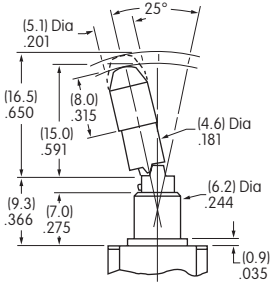
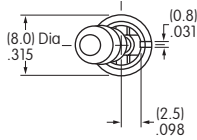
Standard Hardware:

- 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



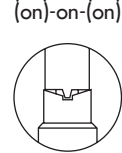
1 position locks



2 positions lock



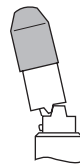
3 positions lock



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



Black



Red



Blue

CONTACT MATERIALS & RATINGS



Silver over Silver

Power Level

6A @ 125V AC & 3A @ 250V AC



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.



Gold over Silver

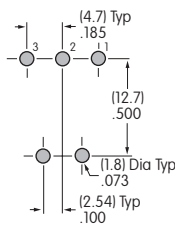
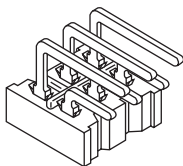
Power Level
or Logic Level

6A @ 125V AC
or 0.4VA maximum @ 28V AC/DC maximum

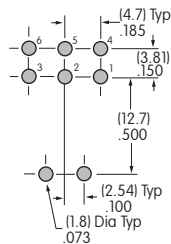
Note: This dual rated option is suitable when two or more identical switches are used in logic and in power circuits within the same application. See Supplement section to find complete explanation of dual rating and operating range.

TERMINALS

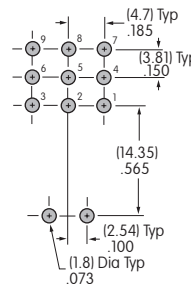
30 .150" (3.81 mm) Right Angle PC (1-3 Pole)



Single Pole

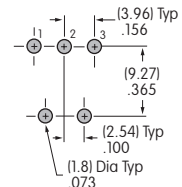
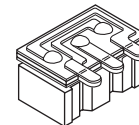


Double Pole



Three Pole

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

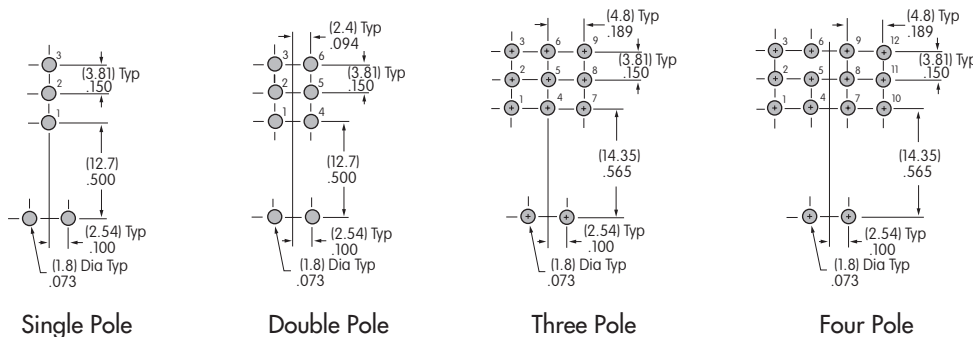
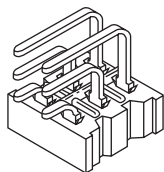


Terminal dimensions are shown on the Typical Switch Dimensions pages which follow.

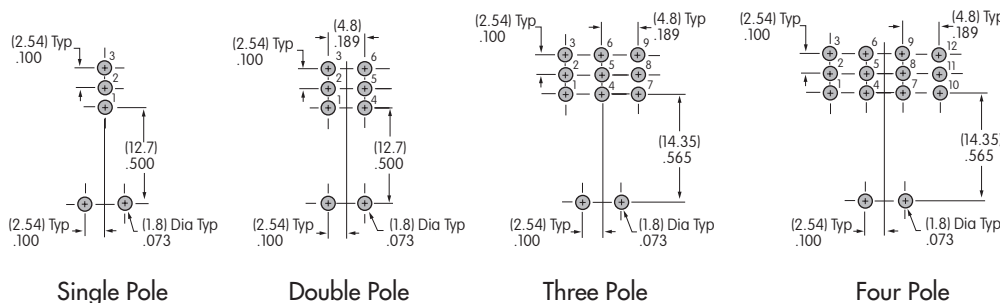
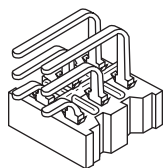
TERMINALS (Continued)

A
Toggles

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



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

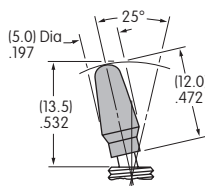


Terminal dimensions are shown on the Typical Switch Dimensions pages which follow.

OPTIONAL CAPS & CAP COLORS

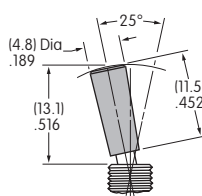
B * AT415
for S Bat Toggle

Material:
Polyethylene



C * AT444
Conical Cap for S Bat Toggle

Material:
Polyethylene



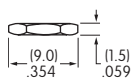
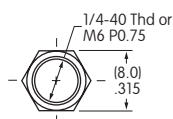
Colors Available

- | | |
|----------------|-----------------|
| A Black | E Yellow |
| B White | F Green |
| C Red | G Blue |

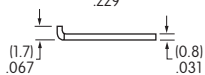
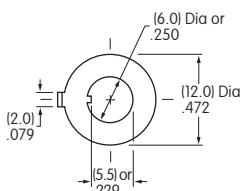
* AT415 and AT444 for use with S toggles only, not S2 or S3 toggles.

STANDARD HARDWARE

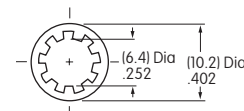
AT513H for Inch
AT513M for Metric
Hex Nut (2 per switch)
Brass/Nickel



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

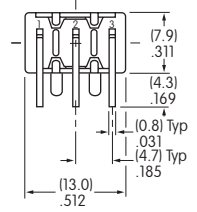
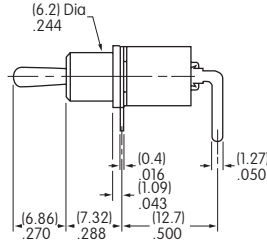
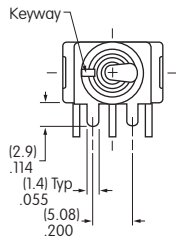
Accessories

Supplement

TYPICAL SWITCH DIMENSIONS

.150" (3.81mm) Right Angle PC

Single Pole



M2012S2A2G30

Rockers

Pushbuttons

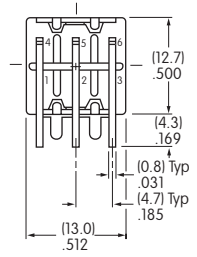
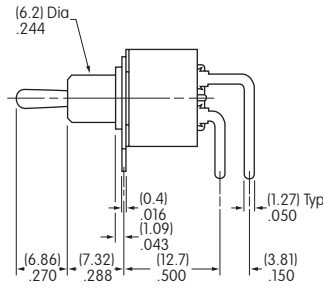
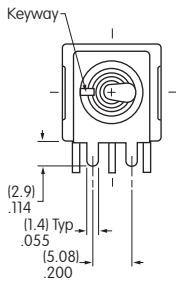
Illuminated PB

Programmable

Keylocks

.150" (3.81mm) Right Angle PC

Double Pole



M2022S2A2G30

Rotaries

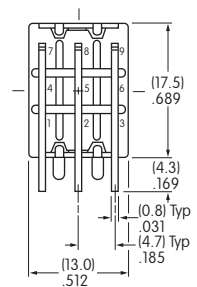
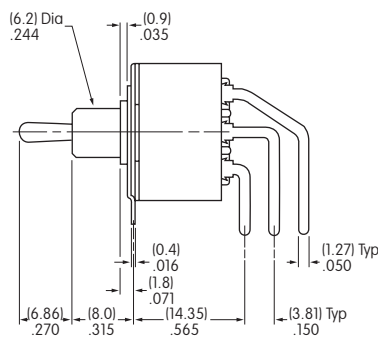
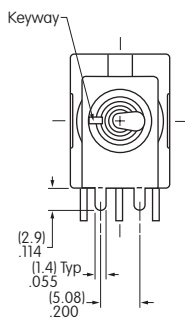
Slides

Tactiles

Tilt

.150" (3.81mm) Right Angle PC

Three Pole



M2032S2A2G30

Touch

Indicators

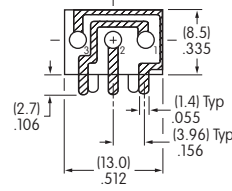
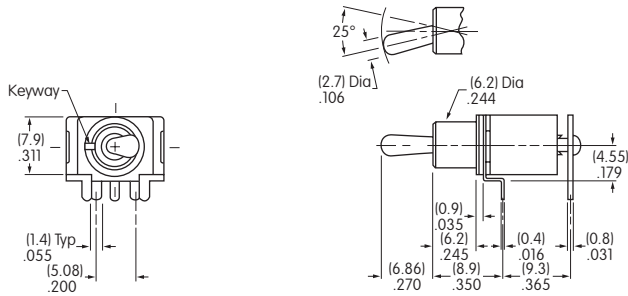
Accessories

Supplement

TYPICAL SWITCH DIMENSIONS

Single Pole • Reverse Circuit

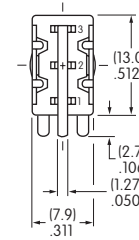
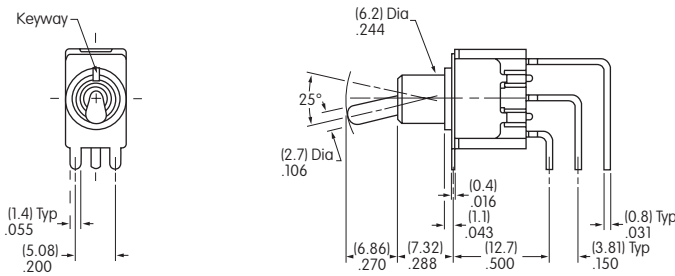
Right Angle PCB



M2012S2A2G32

Single Pole

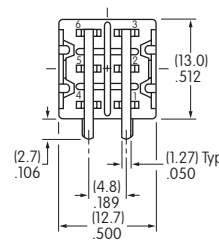
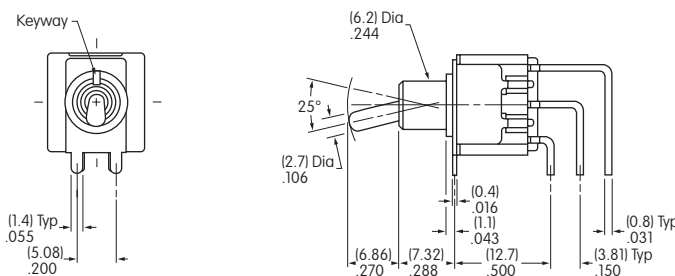
.150" (3.81mm) Vertical PC



M2012S2A2G40

Double Pole

.150" (3.81mm) Vertical PC

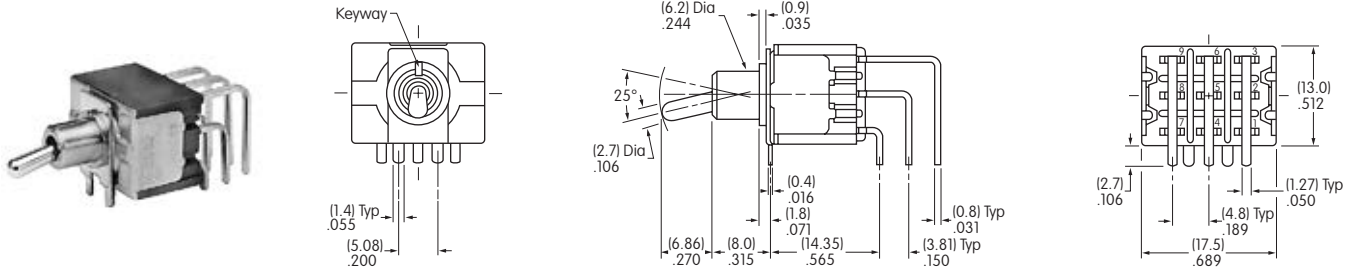


M2022S2A2G40

TYPICAL SWITCH DIMENSIONS

.150" (3.81mm) Vertical PC

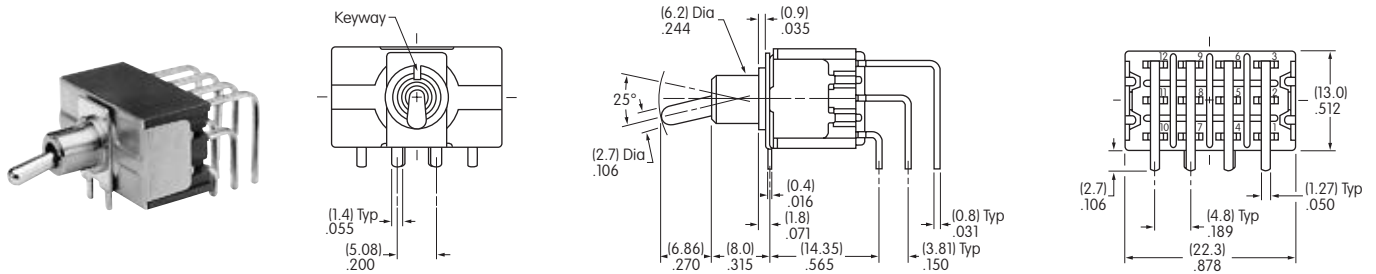
Three Pole



M2032S2A2G40

.150" (3.81mm) Vertical PC

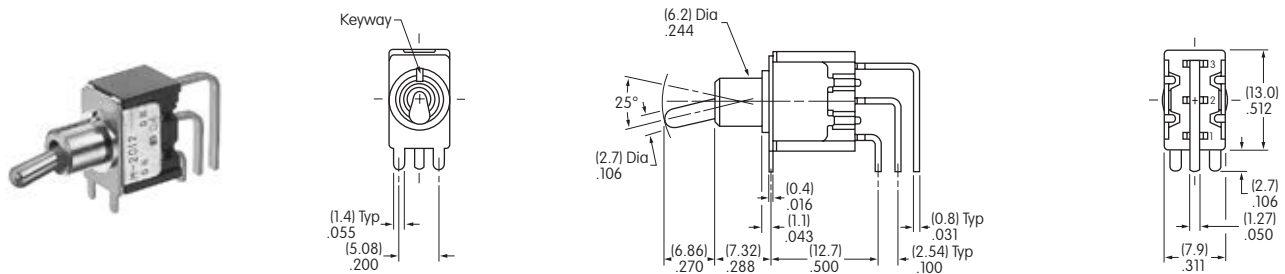
Four Pole



M2042S2A2G40

.100" (2.54mm) Vertical PC

Single Pole

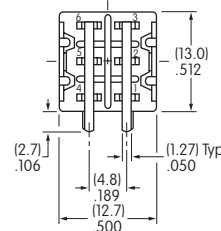
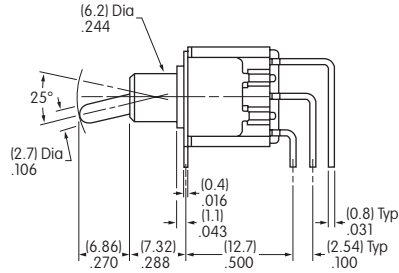
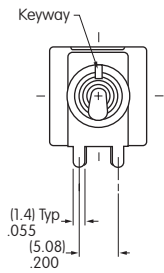


M2012S2A2G45

TYPICAL SWITCH DIMENSIONS

Double Pole

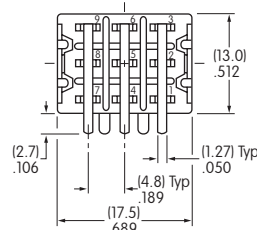
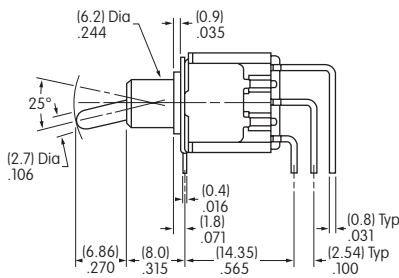
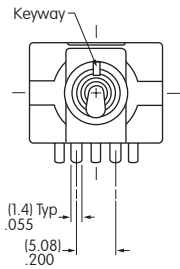
.100" (2.54mm) Vertical PC



M2022S2A2G45

Three Pole

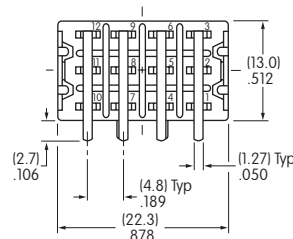
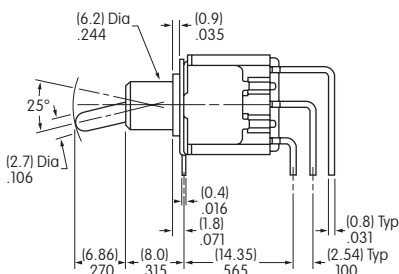
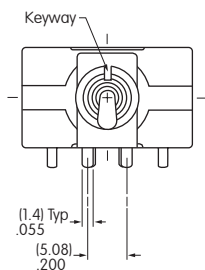
.100" (2.54mm) Vertical PC



M2032S2A2G45

Four Pole

.100" (2.54mm) Vertical PC



M2042S2A2G45

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

NKK Switches:

[M2013S2A2G40](#) [M2012SA2G30](#) [M2012EA2G30](#) [M2012ES2G40](#) [M2012S2A2W40](#) [M2032ES1G40](#)
[M2012S2A1G32](#) [M2013S2A2W30](#) [M2022LL2W30](#) [M2022SA2G30](#) [M2022SA2G40](#) [M2033S2A2G40](#) [M2042SA1G40](#)
[M2032S2A2G30](#) [M2012S2S2W30](#) [M2012S2S2W40](#) [M2012SS2G45](#) [M2013SA2A40](#) [M2013SA2W40](#)
[M2013SS1G30](#) [M2013SS1G45](#) [M2013SS2G45](#) [M2018ES1A40](#) [M2018SA2G40](#) [M2018SS1W40](#) [M2018SS1W45](#)
[M2022LL2A30](#) [M2022S3A2W40](#) [M2022SA1W30](#) [M2023S2A2W30](#) [M2024SS2G45](#) [M2042SS1G45](#) [M2042SS1W45](#)
[M2012S2A1W30](#) [M2022S2A2W40/UC](#) [M2027S2A2G30](#) [M2048SS2W40/CUL](#) [M2049SS2W40/CUL](#) [M2022SA2W40](#)
[M2032E2S1G40](#) [M2024SS2G30](#) [M2033SS1A40](#) [M2015S2A2A40](#) [M2015S2A2W40](#) [M2024S3A2A30](#) [M2026SA2G40](#)
[M2032S2A2W30](#) [M2046SA2G40](#) [M2012LL2A40](#) [M2012S2S1W40](#) [M2013S2S1W40](#) [M2042SS1G45-BA](#)
[M2012S2S1W30](#) [M2027S2A2W30](#) [M2022S2S1W40](#) [M2012LL2G45](#) [M2013SS1G40](#) [M2012S2A2G45](#)
[M2022LL1G45](#) [M2012S2A2W45](#) [M2023S2A2G40](#) [M2012SA2G40](#) [M2012S2A2W30](#) [M2012LL1G45](#) [M2022S2A2G45](#)
[M2032S2A2W40](#) [M2022LL1G30](#) [M2022SA1W40](#) [M2029ES1G30](#) [M2012ES2W40](#) [M2012S2A1G40/UC](#)
[M2012SS2G30/U](#) [M2018S2A2G30](#) [M2013SS2G30](#) [M2022SS2W45](#) [M2012SS1W40](#) [M2029ES2G30](#) [M2013LL2G30](#)
[M2029SS2G30](#) [M2022SS1W40](#) [M2021S2A2G40](#) [M2012E2A2W40](#) [M2023SS1G30](#) [M2024SS1W40](#)
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[M2022S2A2W30](#) [M2028EA2W45](#) [M2043S2A2G40](#) [M2012LL2W30](#)