

GENERAL SPECIFICATIONS FOR S1 ~ S29

Electrical Capacity (Resistive & Inductive Load)

Power Level: Shown in the following tables

Other Ratings

Contact Resistance: 10 milliohms maximum
Insulation Resistance: 1,000 megohms minimum @ 500V DC
Dielectric Strength: 2,000V AC minimum for 1 minute minimum
Mechanical Life: 30,000 operations minimum for S5AW, S8AW, S9AW, S25AW, S28AW, S29AW
 50,000 operations minimum for all other models
Electrical Life: 25,000 operations minimum
Angle of Throw (α): Shown in tables on following pages

Materials & Finishes

Toggle: Brass with chrome plating
Bushing: Brass with chrome plating
Case: Phenolic resin
Case Cover: Steel with zinc plating
Movable Contactor: Copper with silver plating
Movable Contacts: Silver alloy capped on copper with silver plating
Stationary Contacts: Silver alloy capped on copper with silver plating
Terminals: Brass with tin plating

Environmental Data

Operating Temp Range: -30°C through +70°C (-22°F through +158°F) for Splashproof models;
 -10°C through +70°C (+14°F through +158°F) for all other models
Sealing: Splashproof & lever lock panel seal models meet IP67 standard

Installation

Mounting Torque: 1.47Nm (13 lb•in) for single nut on AW & AL models
 2.94Nm (26 lb•in) for double nut on other models
Maximum Panel Thickness: Shown beneath panel cutout in switch dimension drawings
Soldering Time & Temperature: Manual Soldering: See Profile A in Supplement section.

Standards & Certifications

UL: **File No. E44145 - Recognized only when ordered with marking on switch.**
 Add "/U" or "/CUL" to end of part number to order UL recognized switch.
 UL or cULus recognition designated beside part numbers on following pages.
 See Supplement section to find UL or cULus rating details.
CSA: **File No. 023535_0_000 - Certified only when ordered with marking on switch.**
 Add "/C" to end of part number to order CSA certified switch.
 CSA certification designated beside part numbers on following pages.
 See Supplement section to find CSA rating details.

A
Toggles

Rockers

Pushbuttons

Illuminated PB

Programmable

Keylocks

Rotaries

Slides

Tactiles

Tilt

Touch

Indicators

Accessories

Supplement

SINGLE POLE WITH SOLDER LUG *

* UL, cULus & CSA recognized only when ordered with marking on switch (see General Specs)				Toggle Position/Connected Terminals				Electrical Capacity				
Model	* Approvals			Pole & Throw	Down	Center	Up	Resistive			Inductive	Angle of Throw
								AC 125V	AC 250V	DC 30V	AC 125V PF 0.6	
S1A	✓	✓	✓	SPST	ON 1-3	NONE	OFF —	15A	6A	20A	8A	25°
S2A	✓	✓	✓	SPDT	ON 2-3	NONE	ON 2-1	15A	6A	20A	8A	25°
S3A	✓	✓	✓	SPDT	ON 2-3	OFF	ON 2-1	15A	6A	20A	8A	25°

Throw & Schematics:

SPST



SPDT



Note: Terminal numbers are actually on the switch

Throw & Schematics:

SPST



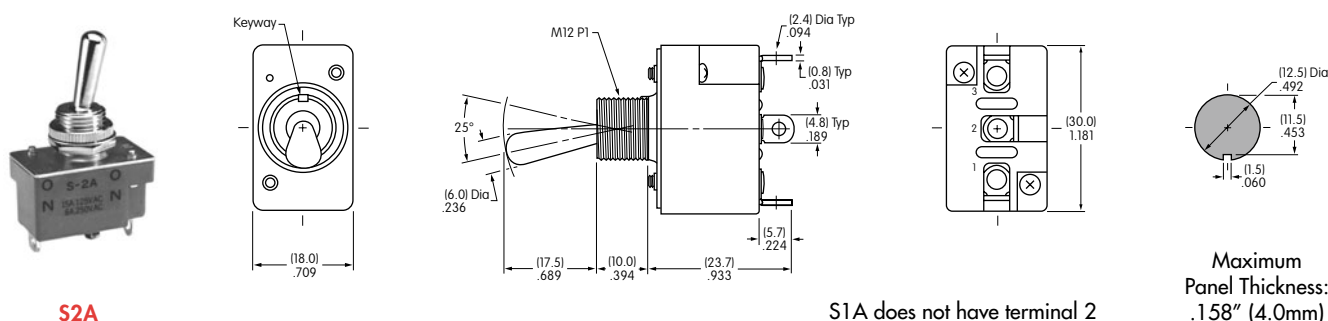
SPDT



Note: Terminal numbers are actually on the switch

Notes: Standard Hardware: AT504M Knurled Nut, AT508 Lockwasher, AT527M Backup Hex Nut. See Accessories & Hardware section.
Optional Splashproof Boot Assemblies: AT401 & AT4181 boots plus hex nut & o-ring. See Accessories & Hardware section.

* Wire harness & cable assemblies offered only in Americas.



S2A

S1A does not have terminal 2

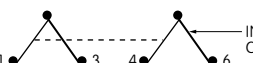
Maximum Panel Thickness: .158" (4.0mm)

DOUBLE POLE WITH SOLDER LUG *

* UL, cULus & CSA recognized only when ordered with marking on switch (see General Specs)				Toggle Position/Connected Terminals				Electrical Capacity				
Model	* Approvals			Pole & Throw	Down	Center	Up	Resistive			Inductive	α = Angle of Throw
								AC 125V	AC 250V	DC 30V	AC 125V PF 0.6	
S21A	—	—	—	DPST	ON 1-3 4-6	NONE	OFF —	15A	15A	15A	8A	21°
S6A	✓	✓	✓	DPDT	ON 2-3 5-6	NONE	ON 2-1 5-4	20A	10A	20A	8A	21°
S7A	—	—	✓	DPDT	ON 2-3 5-6	OFF	ON 2-1 5-4	20A	10A	20A	8A	28°

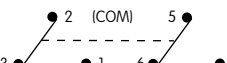
Throw & Schematics:

DPST



INTERNAL CONNECTION

DPDT



(COM)

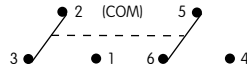
Note: Terminal numbers are actually on the switch

Throw & Schematics:

DPST



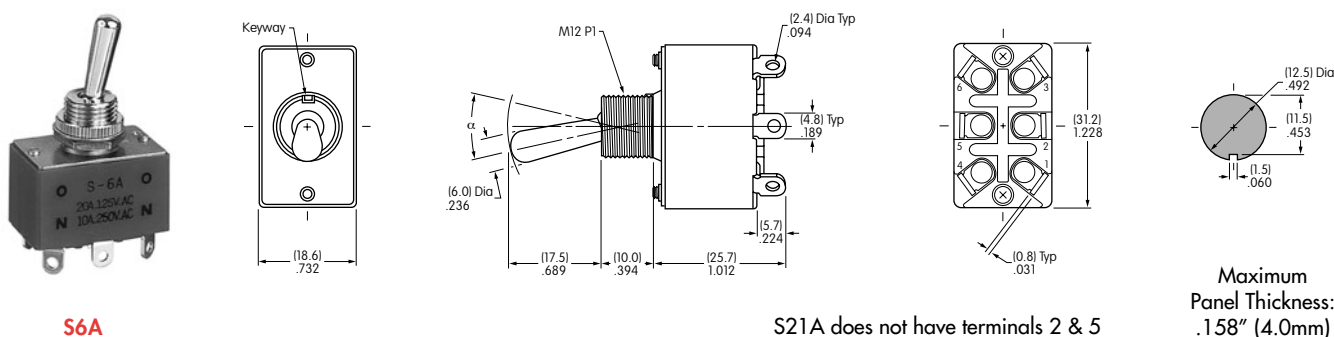
DPDT



Note: Terminal numbers are actually on the switch

Notes: Standard Hardware: AT504M Knurled Nut, AT508 Lockwasher, AT527M Backup Hex Nut. See Accessories & Hardware section.
Optional Splashproof Boot Assemblies: AT401 & AT4181 boots plus hex nut & o-ring. See Accessories & Hardware section.

* Wire harness & cables assemblies offered only in Americas.



S6A

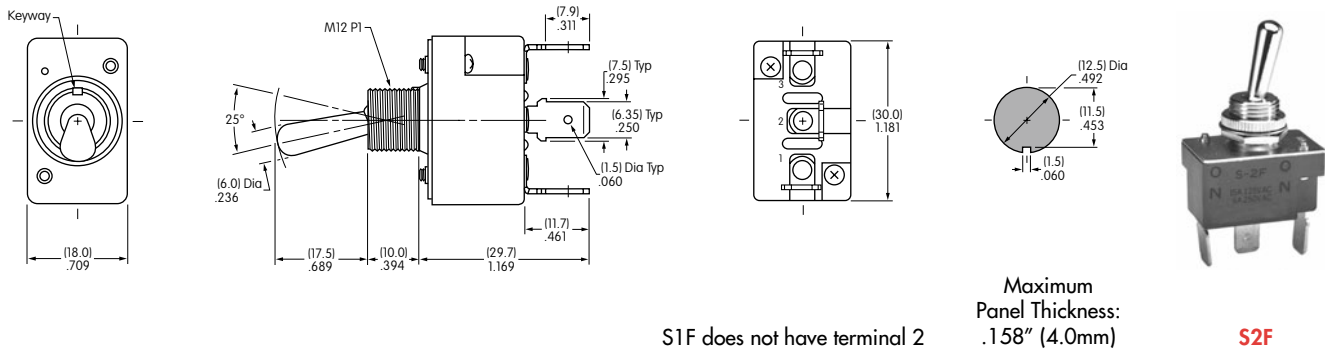
S21A does not have terminals 2 & 5

Maximum Panel Thickness: .158" (4.0mm)

SINGLE POLE WITH QUICK CONNECT

			Toggle Position/Connected Terminals				Electrical Capacity				
Model	Approvals		Pole & Throw	Down	Center	Up	Resistive			Inductive	Angle of Throw
				 Keyway			AC 125V	AC 250V	DC 30V	AC 125V PF 0.6	
S1F	—	—	SPST	ON 1-3	NONE	OFF —	15A	6A	20A	8A	25°
S2F	—	—	SPDT	ON 2-3	NONE	ON 2-1	15A	6A	20A	8A	25°
S3F	—	—	SPDT	ON 2-3	OFF	ON 2-1	15A	6A	20A	8A	25°
Throw & Schematics:								Note: Terminal numbers are actually on the switch			
SPST  INTERNAL CONNECTION											
SPDT  2 (COM)											

Notes: Standard Hardware: AT504M Knurled Nut, AT508 Lockwasher, AT527M Backup Hex Nut. See Accessories & Hardware section.
Optional Splashproof Boot Assemblies: AT401 & AT4181 boots plus hex nut & o-ring. See Accessories & Hardware section.



DOUBLE POLE WITH QUICK CONNECT

			Toggle Position/Connected Terminals					Electrical Capacity				
Model	Approvals  	Pole & Throw	Down 		Center 	Up 		Resistive			Inductive	α = Angle of Throw
							AC 125V	AC 250V	DC 30V	AC 125V PF 0.6		
S21F	— —	DPST	ON	1-3 4-6	NONE	OFF	—	15A	15A	15A	8A	21°
S6F	— —	DPDT	ON	2-3 5-6	NONE	ON	2-1 5-4	20A	10A	20A	8A	21°
S7F	— —	DPDT	ON	2-3 5-6	OFF	ON	2-1 5-4	20A	10A	20A	8A	28°

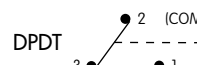
Throw & Schematics:

DPST



INTERNAL CONNECTION

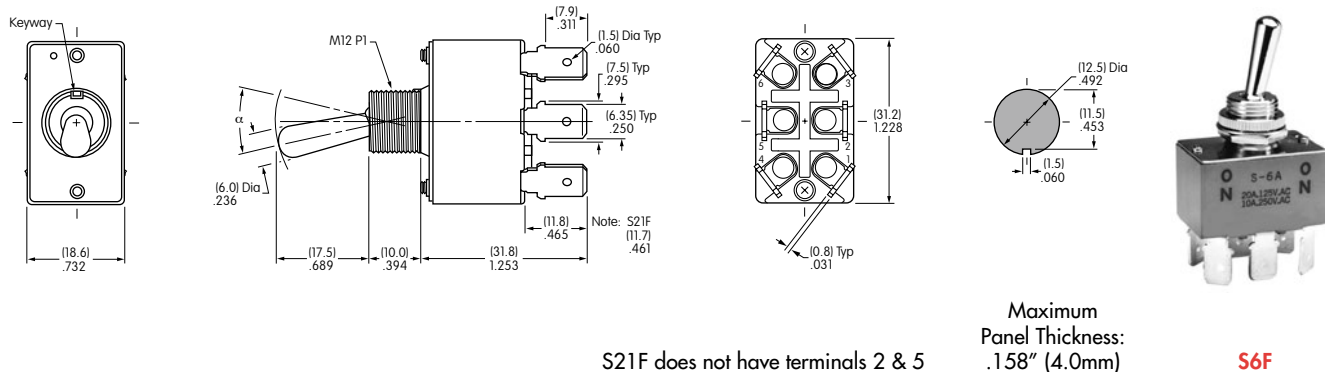
DPDT



2 (COM)

Note: Terminal numbers are actually on the switch

Notes: Standard Hardware: AT504M Knurled Nut, AT508 Lockwasher, AT527M Backup Hex Nut. See Accessories & Hardware section.
Optional Splashproof Boot Assemblies: AT401 & AT4181 boots plus hex nut & o-ring. See Accessories & Hardware section.



SINGLE POLE SOLDER LUG WITH PANEL SEAL *

			Toggle Position/Connected Terminals () = Momentary				Electrical Capacity			
Model	Approvals  	Pole & Throw	Down  Keyway	Center 	Up 	Resistive			α = Angle of Throw	
						AC 125V	AC 250V	DC 30V		
S1AW	— —	SPST	ON 1-3 	NONE	OFF —	15A	6A	20A	24°	
S2AW	— —	SPDT	ON 2-3 	NONE	ON 2-1 	15A	6A	20A	24°	
S3AW	— —	SPDT	ON 2-3 	OFF	ON 2-1 	15A	6A	20A	28°	
S5AW	— —	SPDT	ON 2-3 	NONE	(ON) 2-1 	15A	6A	20A	20°	
S8AW	— —	SPDT	(ON) 2-3 	OFF	(ON) 2-1 	15A	6A	20A	24°	
S9AW	— —	SPDT	ON 2-3 	OFF	(ON) 2-1 	15A	6A	20A	24°	
Throw & Schematics:							Note: Terminal numbers are actually on the switch			
SPST										
			SPDT							
										

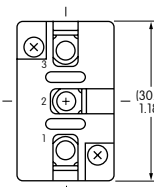
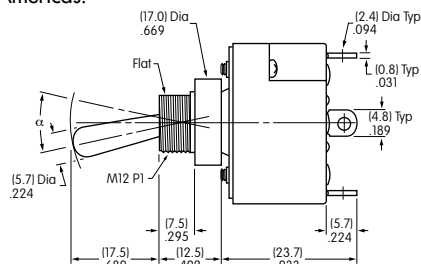
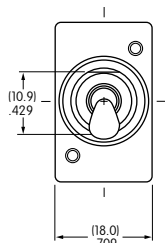
Notes: Standard Hardware: AT503M Face Hex Nut, AT508 Lockwasher, AT537 O-ring. See Accessories & Hardware section.

For .250" Quick Connect terminals, add "F" to end of part number. See Quick Connect terminal dimensions on previous page. For further information, contact factory.

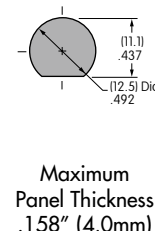
* Wire harness & cable assemblies offered only in Americas.



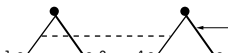
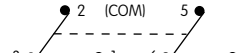
S2AW



S1AW does not have terminal 2



DOUBLE POLE SOLDER LUG WITH PANEL SEAL *

			Toggle Position/Connected Terminals () = Momentary					Electrical Capacity			
Model	Approvals  	Pole & Throw	Down  Keyway	Center 	Up 	Resistive			α = Angle of Throw		
						AC 125V	AC 250V	DC 30V			
S21AW	— —	DPST	ON 1-3 4-6	NONE	OFF —	15A	15A	15A	22°		
S6AW	— —	DPDT	ON 2-3 5-6	NONE	ON 2-1 5-4	20A	10A	20A	22°		
S7AW	— —	DPDT	ON 2-3 5-6	OFF	ON 2-1 5-4	20A	10A	20A	28°		
S25AW	— —	DPDT	ON 2-3 5-6	NONE	(ON) 2-1 5-4	15A	6A	20A	20°		
S28AW	— —	DPDT	(ON) 2-3 5-6	OFF	(ON) 2-1 5-4	15A	6A	20A	22°		
S29AW	— —	DPDT	ON 2-3 5-6	OFF	(ON) 2-1 5-4	15A	6A	20A	22°		
Throw & Schematics:			DPST  INTERNAL CONNECTION				DPDT 			Note: Terminal numbers are actually on the switch	

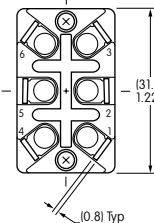
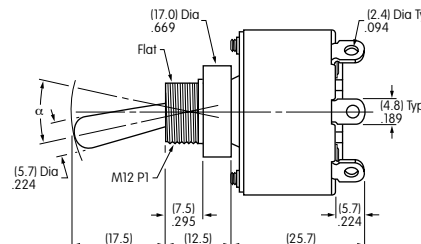
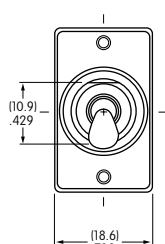
Notes: Standard Hardware: AT503M Face Hex Nut, AT508 Lockwasher, AT537 O-ring. See Accessories & Hardware section.

For .250" Quick Connect terminals, add "F" to end of part number. See Quick Connect terminal dimensions on previous page. For further information, contact factory.

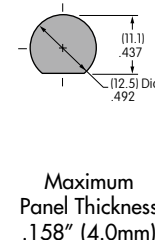
* Wire harness & cable assemblies offered only in Americas.



S6AW



S21AW does not have terminals 2 & 5

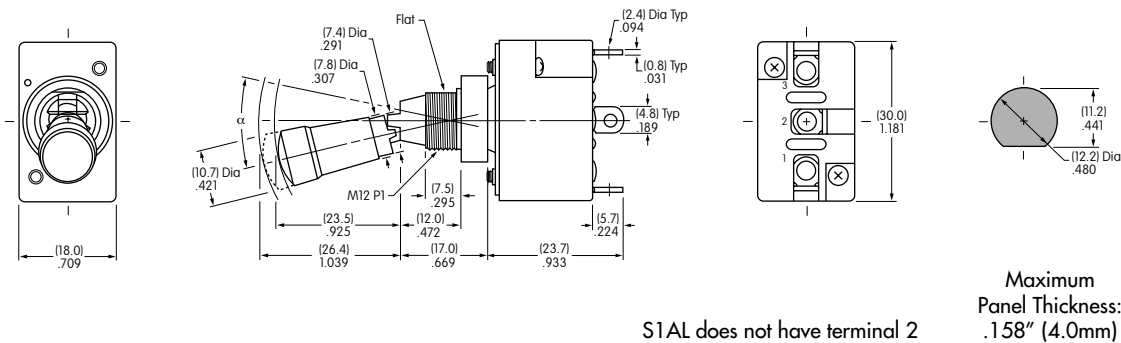


SINGLE POLE SOLDER LUG WITH LOCKING LEVER & PANEL SEAL *

Model	Approvals  	Pole & Throw	Toggle Position/Connected Terminals			Electrical Capacity				$\alpha =$ Angle of Throw
			Down 	Center 	Up 	Resistive			Inductive	
						AC 125V	AC 250V	DC 30V	AC 125V PF 0.6	
S1AL	—	SPST	ON 1-3	NONE	OFF —	15A	6A	20A	8A	24°
S2AL	—	SPDT	ON 2-3	NONE	ON 2-1	15A	6A	20A	8A	24°
S3AL	—	SPDT	ON 2-3	OFF	ON 2-1	15A	6A	20A	8A	28°
Throw & Schematics:			SPST  INTERNAL CONNECTION SPDT  2 (COM)			Note: Terminal numbers are actually on the switch				

Notes: Standard Hardware: AT503M Face Hex Nut, AT508 Lockwasher, AT537 O-ring. See Accessories & Hardware section.

* Wire harness & cable assemblies offered only in Americas.

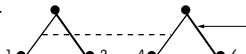
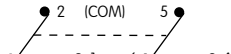


S1AL does not have terminal 2

Maximum Panel Thickness:
.158\" (4.0mm)

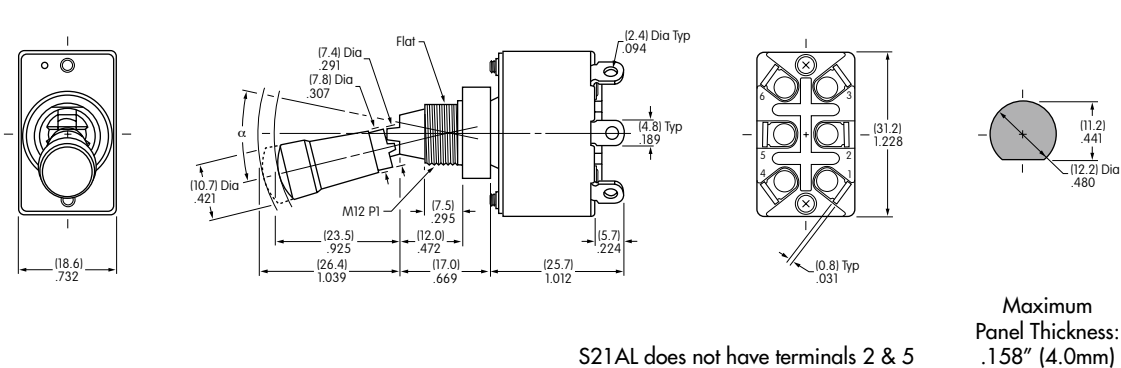
S2AL

DOUBLE POLE SOLDER LUG WITH LOCKING LEVER & PANEL SEAL *

Model	*Approvals  	Pole & Throw	Toggle Position/Connected Terminals			Electrical Capacity				$\alpha =$ Angle of Throw
			Down 	Center 	Up 	Resistive			Inductive	
						AC 125V	AC 250V	DC 30V	AC 125V PF 0.6	
S21AL	✓	DPST	ON 1-3 4-6	NONE	OFF —	15A	15A	15A	8A	22°
S6AL	✓	DPDT	ON 2-3 5-6	NONE	ON 2-1 5-4	20A	10A	20A	8A	22°
S7AL	—	DPDT	ON 2-3 5-6	OFF	ON 2-1 5-4	20A	10A	20A	8A	28°
Throw & Schematics:			DPST  INTERNAL CONNECTION DPDT  2 (COM)			Note: Terminal numbers are actually on the switch				

Notes: Standard Hardware: AT503M Face Hex Nut, AT508 Lockwasher, AT537 O-ring. See Accessories & Hardware section.

* Wire harness & cable assemblies offered only in Americas.



S21AL does not have terminals 2 & 5

Maximum Panel Thickness:
.158\" (4.0mm)

S6AL

Mouser Electronics

Authorized Distributor

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

NKK Switches:

[S28AW-RO](#) [S21F-RO](#) [S1AL-RO](#) [S7AW-RO](#) [S7F-RO](#) [S2F-RO](#) [S7A-RO](#) [S25AW-RO](#) [S3AW-RO](#) [S21A-RO](#)
[S6AW-RO](#) [S3A-RO](#) [S6A-RO](#) [S5AW-RO](#) [S21AL-RO](#) [S3F-RO](#) [S2AL-RO](#) [S2B-RO](#) [S21B-RO](#) [S3B-RO](#) [S6B-RO](#)
[S7B-RO](#) [S6F-RO](#) [S7AL-RO](#) [S3AL-RO](#) [S8AW-RO](#) [S6AL-RO](#) [S2AW-RO](#) [S21AW-RO](#) [S9AW-RO](#) [S29AW-RO](#) [S1B-](#)
[RO](#) [S1A/UC-RO](#) [S1AWF-RO](#) [S21AWF-RO](#) [S25AWF-RO](#) [S28AWF-RO](#) [S2AWF-RO](#) [S5AWF-RO](#) [S6AWF-RO](#)
[S7AWF-RO](#) [S8AWF-RO](#) [S9AWF-RO](#)