

## GENERAL SPECIFICATIONS FOR S1 ~ S29

A  
Toggles

### Electrical Capacity (Resistive & Inductive Load)

**Power Level:** Shown in the following tables

Rockers

### 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 ( $\alpha$ ):** Shown in tables on following pages

Pushbuttons

Illuminated PB

### 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

Programmable

Keylocks

Rotaries

### 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

Slides

### 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.

Tactiles

Tilt

### Standards & Certifications

**UL:** File No. E44145  
 UL or cULus recognition designated beside part numbers on following pages.  
 See Supplement section to find UL or cULus rating details.  
 Add "/U" to end of part number to order UL mark on switch.  
 Add "/CUL" to end of part number to order cULus mark on switch.

Touch

**CSA:** File No. 023535\_0\_000  
 CSA certification designated beside part numbers on following pages.  
 See Supplement section to find CSA rating details.  
 Add "/C" to end of part number to order CSA mark on switch.




Indicators



Accessories

Supplement

Toggles  
A

### SINGLE POLE WITH SOLDER LUG \*

Model	* Approvals			Pole & Throw	Toggle Position/Connected Terminals				Electrical Capacity				Angle of Throw
	UL	cULus	SP		Down 	Center 	Up 	Resistive			Inductive		
								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  INTERNAL CONNECTION SPDT 

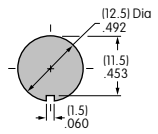
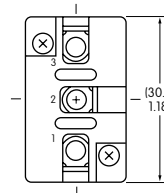
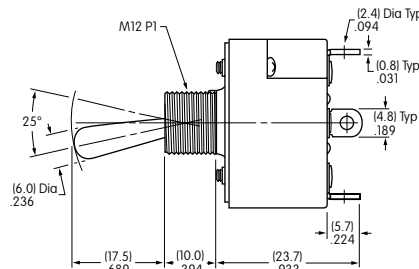
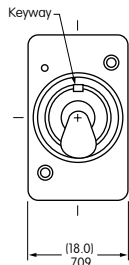
Note: Terminal numbers are actually on the switch

**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.

- \* See General Specifications page for approval marking.
- \* Wire harness & cable assemblies offered only in Americas.






S2A

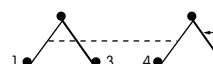
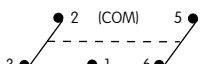


Maximum Panel Thickness: .158" (4.0mm)

S1A does not have terminal 2

### DOUBLE POLE WITH SOLDER LUG \*

Model	* Approvals			Pole & Throw	Toggle Position/Connected Terminals				Electrical Capacity				α = Angle of Throw
	UL	cULus	SP		Down 	Center 	Up 	Resistive			Inductive		
								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 

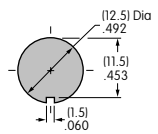
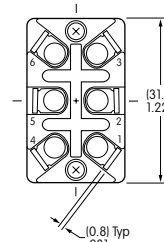
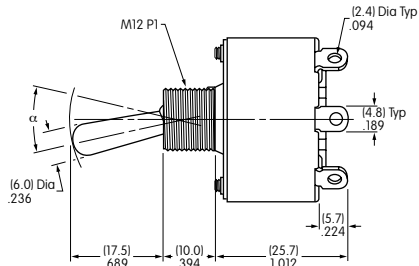
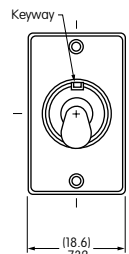
Note: Terminal numbers are actually on the switch

**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.

- \* See General Specifications page for approval marking.
- \* Wire harness & cables assemblies offered only in Americas.



S6A



Maximum Panel Thickness: .158" (4.0mm)

S21A does not have terminals 2 & 5

Rockers

Pushbuttons

Illuminated PB

Programmable

Keylocks

Rotaries

Slides

Tactiles

Tilt




Touch

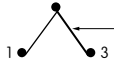

Indicators

Accessories

Supplement

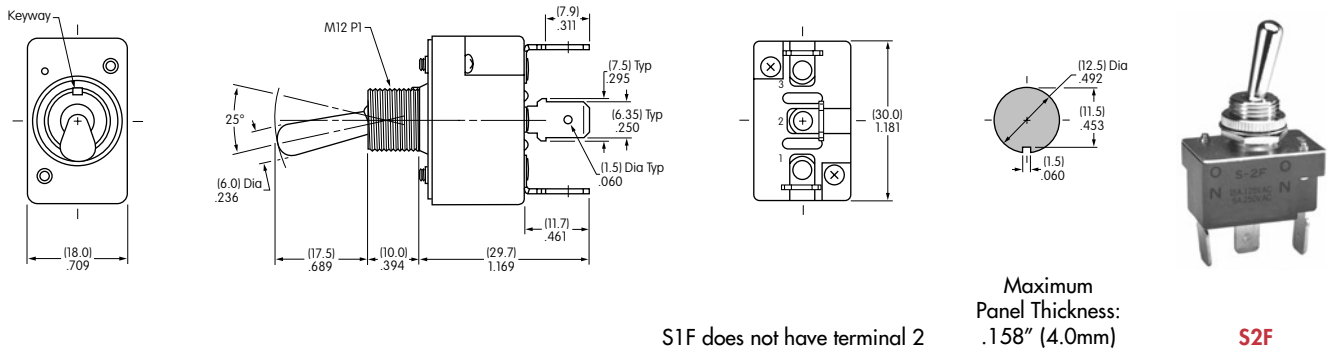
## SINGLE POLE WITH QUICK CONNECT

Model	Approvals		Pole & Throw	Toggle Position/Connected Terminals				Electrical Capacity				Angle of Throw
	UL	SP		Down 	Center 	Up 	Resistive			Inductive		
							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:** SPST  INTERNAL CONNECTION  SPDT

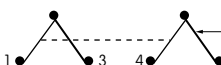
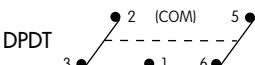
Note: Terminal numbers are actually on the switch

**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.



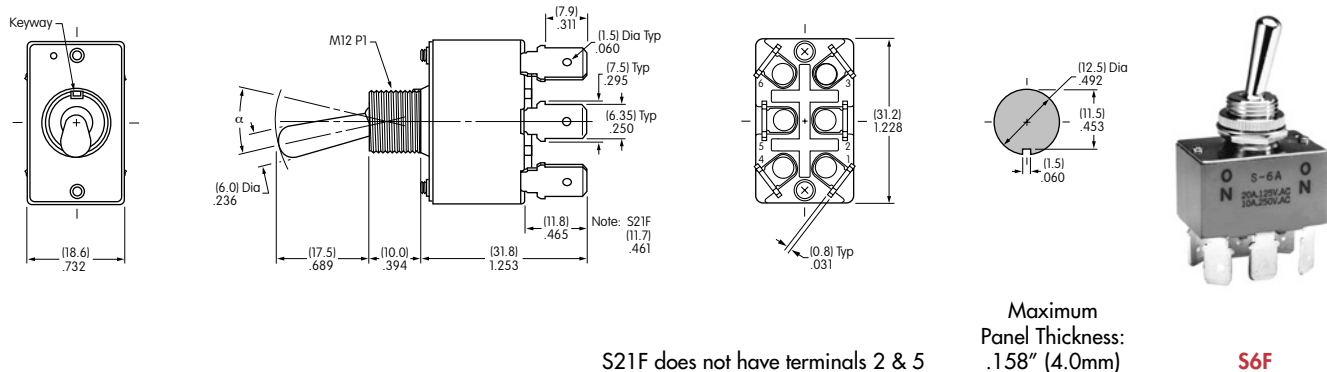
## DOUBLE POLE WITH QUICK CONNECT

Model	Approvals		Pole & Throw	Toggle Position/Connected Terminals				Electrical Capacity				$\alpha$ = Angle of Throw
	UL	SP		Down 	Center 	Up 	Resistive			Inductive		
							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


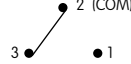
Note: Terminal numbers are actually on the switch

**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 \*

Model	Approvals UL SP	Pole & Throw	Toggle Position/Connected Terminals ( ) = Momentary				Electrical Capacity			$\alpha$ = Angle of Throw
			Down Keyway	Center	Up	Resistive				
						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:** SPST  INTERNAL CONNECTION 

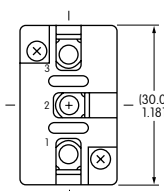
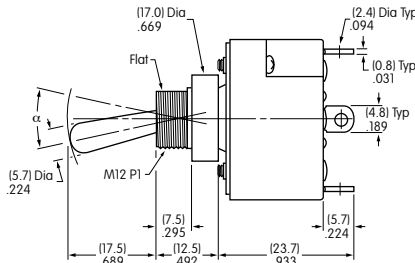
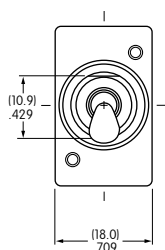
Note: Terminal numbers are actually on the switch

**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.

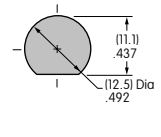
\* Wire harness & cable assemblies offered only in Americas.



S2AW



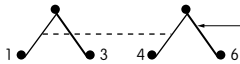
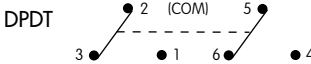
S1AW does not have terminal 2



Maximum Panel Thickness: .158" (4.0mm)

### DOUBLE POLE SOLDER LUG WITH PANEL SEAL \*

Model	Approvals UL SP	Pole & Throw	Toggle Position/Connected Terminals ( ) = Momentary				Electrical Capacity			$\alpha$ = Angle of Throw
			Down Keyway	Center	Up	Resistive				
						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 

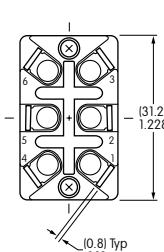
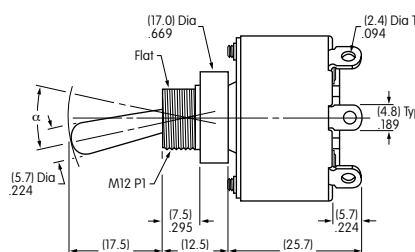
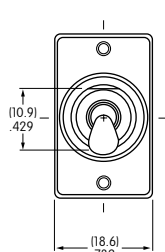
Note: Terminal numbers are actually on the switch

**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.

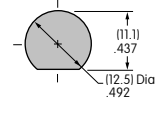
\* Wire harness & cable assemblies offered only in Americas.



S6AW



S21AW does not have terminals 2 & 5



Maximum Panel Thickness: .158" (4.0mm)

