

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 for S1 ~ S9AW;
 brass with silver plating for S21 ~ S29AW

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

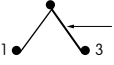
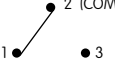
Mounting Torque: 1.47Nm (13 lb•in) for single nut on AW & AL models
 2.94Nm (26 lb•in) for double nut on other models
Maximum Panel Thickness: Shown beneath panel cutout in switch dimension drawings
Soldering Time & Temperature: Manual Soldering: 4 seconds maximum @ 410°C maximum

Standards & Certifications

UL Recognized: Designated with UL recognized symbol beside part numbers on following pages
 See Supplement section to find UL rating details. UL File No. WOYR2.E44145
 Add "/U" to end of part number to order UL mark on switch.
C-UL Recognized: Designated with C-UL recognized symbol beside part numbers on following pages
 See Supplement section to find C-UL rating details. C-UL File No. WOYR8.E44145
 Add "/C-UL" to end of part number to order C-UL mark on switch.
CSA Certified: Designated with CSA certified symbol beside part numbers on following pages
 See Supplement section to find CSA rating details. File No. 023535-0-000
 Add "/C" to end of part number to order CSA mark on switch.

SINGLE POLE WITH SOLDER LUG

Model	Approvals	Pole & Throw	Toggle Position/Connected Terminals				Electrical Capacity				Angle of Throw
			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°	

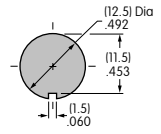
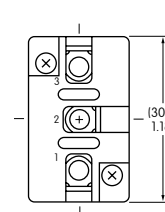
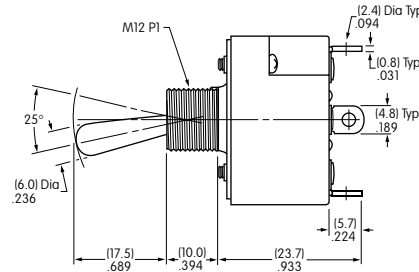
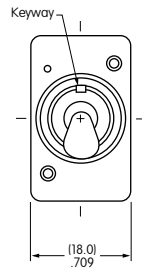
Throw & Schematics: SPST  INTERNAL CONNECTION SPDT  2 (COM)

Note: Terminal numbers are actually on the switch

- Standard Hardware: AT504M Knurled Nut, AT508 Lockwasher, AT527M Backup Hex Nut. See Accessories & Hardware section.
- Solder lug terminal hole accommodates one 12-gauge solid or stranded wire.









S2A

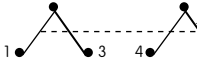
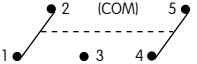


Maximum Panel Thickness: .158" (4.0mm)

S1A does not have terminal 2

DOUBLE POLE WITH SOLDER LUG

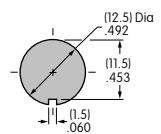
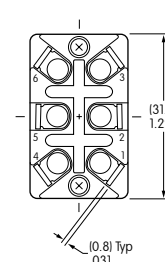
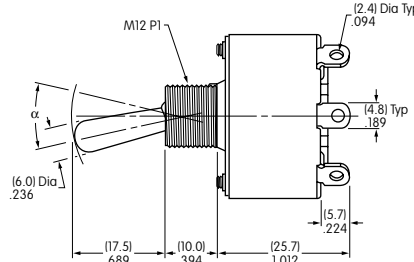
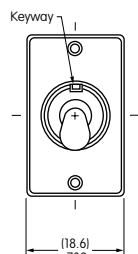
Model	Approvals	Pole & Throw	Toggle Position/Connected Terminals				Electrical Capacity				α = Angle of Throw
			Down 	Center 	Up 	Resistive			Inductive		
						AC 125V	AC 250V	DC 30V	AC 125V PF 0.6		
S21A	— —	DPST	ON 1-3 4-6	NONE	OFF —	15A	15A	15A	8A	21°	
S6A	  	DPDT	ON 2-3 5-6	NONE	ON 2-1 5-4	20A	10A	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  2 (COM) 5

Note: Terminal numbers are actually on the switch






S6A

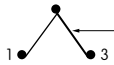



Maximum Panel Thickness: .158" (4.0mm)

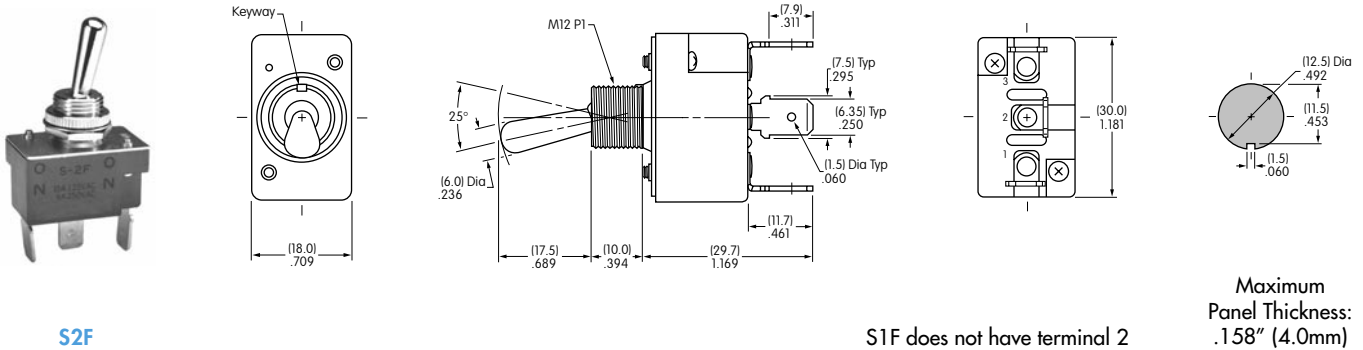
S21A does not have terminals 2 & 5

SINGLE POLE WITH QUICK CONNECT




Model	Approvals	Pole & Throw	Toggle Position/Connected Terminals				Electrical Capacity				Angle of Throw
			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°	


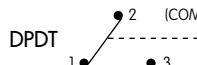
Throw & Schematics: SPST  INTERNAL CONNECTION  Note: Terminal numbers are actually on the switch

• Standard Hardware: AT504M Knurled Nut, AT508 Lockwasher, AT527M Backup Hex Nut. See Accessories & Hardware section.

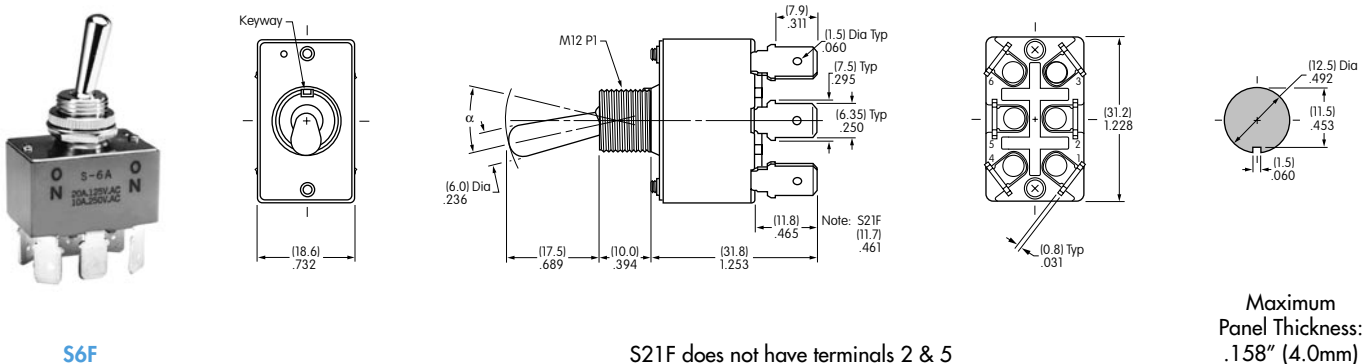


DOUBLE POLE WITH QUICK CONNECT




Model	Approvals	Pole & Throw	Toggle Position/Connected Terminals				Electrical Capacity				α = Angle of Throw
			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  Note: Terminal numbers are actually on the switch

• Standard Hardware: AT504M Knurled Nut, AT508 Lockwasher, AT527M Backup Hex Nut. See Accessories & Hardware section.



SINGLE POLE WITH PANEL SEAL

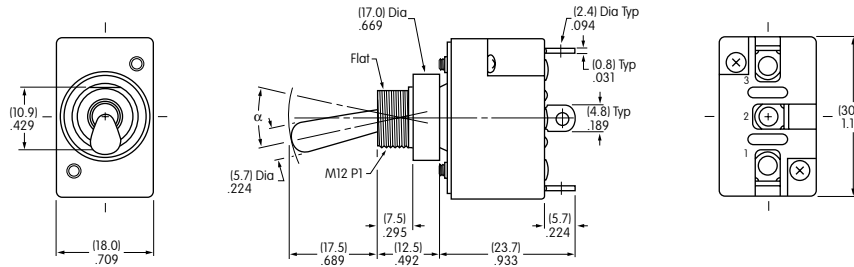
Model	Approvals	Pole & Throw	Toggle Position/Connected Terminals () = Momentary				Electrical Capacity				α = Angle of Throw
			Down 	Center 	Up 	Resistive			Inductive		
						AC 125V	AC 250V	DC 30V	AC 125V		
S1AW	— —	SPST	ON 1-3	NONE	OFF —	15A	6A	20A	200W	24°	
S2AW	— —	SPDT	ON 2-3	NONE	ON 2-1	15A	6A	20A	200W	24°	
S3AW	— —	SPDT	ON 2-3	OFF	ON 2-1	15A	6A	20A	200W	28°	
S5AW	— —	SPDT	ON 2-3	NONE	(ON) 2-1	15A	6A	20A	200W	20°	
S8AW	— —	SPDT	(ON) 2-3	OFF	(ON) 2-1	15A	6A	20A	200W	24°	
S9AW	— —	SPDT	ON 2-3	OFF	(ON) 2-1	15A	6A	20A	200W	24°	

Throw & Schematics: SPST  INTERNAL CONNECTION  Note: Terminal numbers are actually on the switch

- Standard Hardware: AT503M Face Hex Nut, AT508 Lockwasher, AT537 O-ring. See Accessories & Hardware section.
- Solder lug terminal hole accommodates one 12-gauge solid or stranded wire. Contact factory for availability of .250" (6.35mm) quick connect terminals.






S2AW

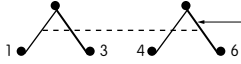
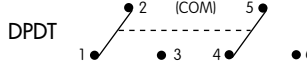


S1AW does not have terminal 2

Maximum Panel Thickness: .158" (4.0mm)

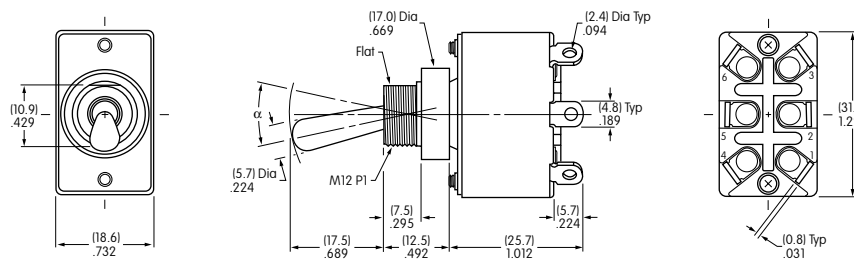
DOUBLE POLE WITH PANEL SEAL

Model	Approvals	Pole & Throw	Toggle Position/Connected Terminals () = Momentary				Electrical Capacity				α = Angle of Throw
			Down 	Center 	Up 	Resistive			Inductive		
						AC 125V	AC 250V	DC 30V	AC 125V		
S21AW	— —	DPST	ON 1-3 4-6	NONE	OFF —	15A	15A	15A	200W	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






S6AW

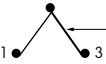



S21AW does not have terminals 2 & 5

Maximum Panel Thickness: .158" (4.0mm)

SINGLE POLE WITH LOCKING LEVER & PANEL SEAL

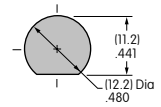
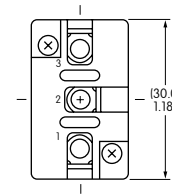
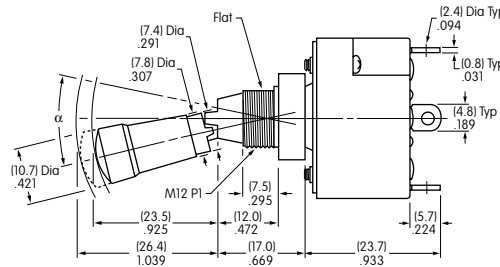
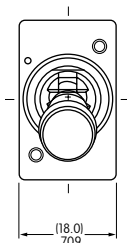
Model	Approvals	Pole & Throw	Toggle Position/Connected Terminals			Electrical Capacity				$\alpha =$ Angle of Throw
			Down 	Center 	Up 	Resistive			Inductive	
						AC 125V	AC 250V	DC 30V	AC 125V PF 0.6	
S1AL	— —	SPST	ON 1-3	NONE	OFF —	15A	6A	20A	8A	24°
S2AL	— —	SPDT	ON 2-3	NONE	ON 2-1	15A	6A	20A	8A	24°
S3AL	— —	SPDT	ON 2-3	OFF	ON 2-1	15A	6A	20A	8A	28°

Throw & Schematics: SPST  INTERNAL CONNECTION  Note: Terminal numbers are actually on the switch

- Standard Hardware: AT503M Face Hex Nut, AT508 Lockwasher, AT537 O-ring. See Accessories & Hardware section.
- Solder lug terminal hole accommodates one 12-gauge solid or stranded wire.






S2AL

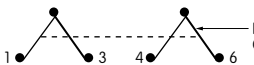
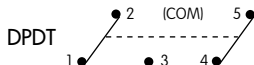


S1AL does not have terminal 2

Maximum Panel Thickness: .158" (4.0mm)

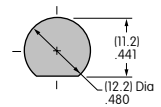
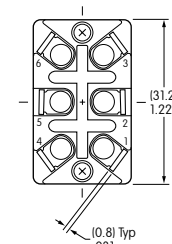
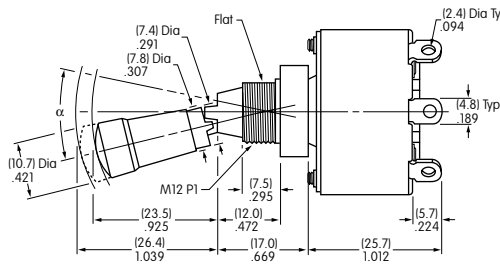
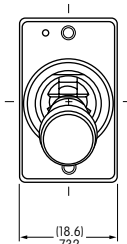
DOUBLE POLE WITH LOCKING LEVER & PANEL SEAL

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  Note: Terminal numbers are actually on the switch



S6AL



S21AL does not have terminals 2 & 5

Maximum Panel Thickness: .158" (4.0mm)