

## 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 ( $\alpha$ ):** 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 Contact:** 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:** 3 seconds @ 350°C or 5 seconds @ 270°C

### Standards & Certifications

**UL Recognized:** Designated with UL recognized symbol beside part numbers on following pages  
 See Supplement Index (page Z2) to find UL rating details. UL File No. WOYR2.E44145  
 Add "/U" to end of part number to order UL mark on switch.  
**CSA Certified:** Designated with CSA certified symbol beside part numbers on following pages  
 See Supplement Index (page Z2) 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 Keyway	Center	Up	Resistive			Inductive AC 125V PF 0.6	
						AC 125V	AC 250V	DC 30V		
<b>S1A</b>		SPST	ON 1-3	NONE	OFF —	15A	6A	20A	8A	25°
<b>S2A</b>		SPDT	ON 2-3	NONE	ON 2-1	15A	6A	20A	8A	25°
<b>S3A</b>		SPDT	ON 2-3	OFF	ON 2-1	15A	6A	20A	8A	25°

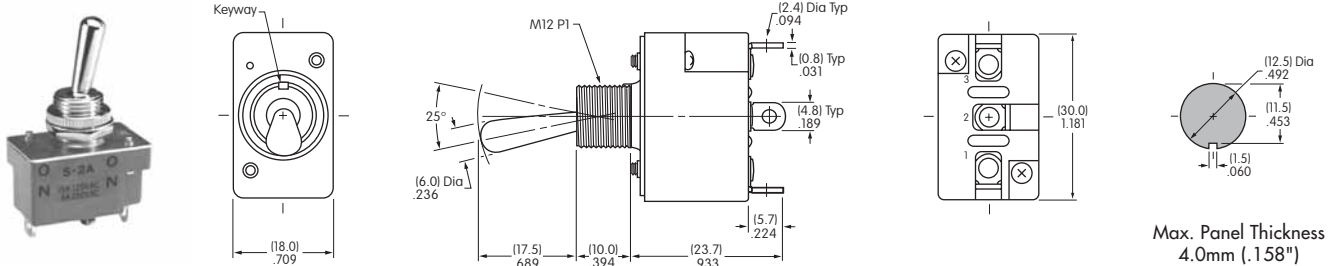
**Throw & Schematics:**

SPST:

SPDT:

Note: Terminal numbers are on the switch.

- Standard Hardware: AT504 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

S1A does not have terminal 2.

### DOUBLE POLE WITH SOLDER LUG

Model	Approvals	Pole & Throw	Toggle Position/Connected Terminals			Electrical Capacity				$\alpha$ = Angle of Throw
			Down Keyway	Center	Up	Resistive			Inductive AC 125V PF 0.6	
						AC 125V	AC 250V	DC 30V		
<b>S21A</b>	— —	DPST	ON 1-3 4-6	NONE	OFF —	15A	15A	15A	8A	21°
<b>S6A</b>		DPDT	ON 2-3 5-6	NONE	ON 2-1 5-4	20A	10A	20A	8A	21°
<b>S7A</b>	—	DPDT	ON 2-3 5-6	OFF	ON 2-1 5-4	20A	10A	20A	8A	28°

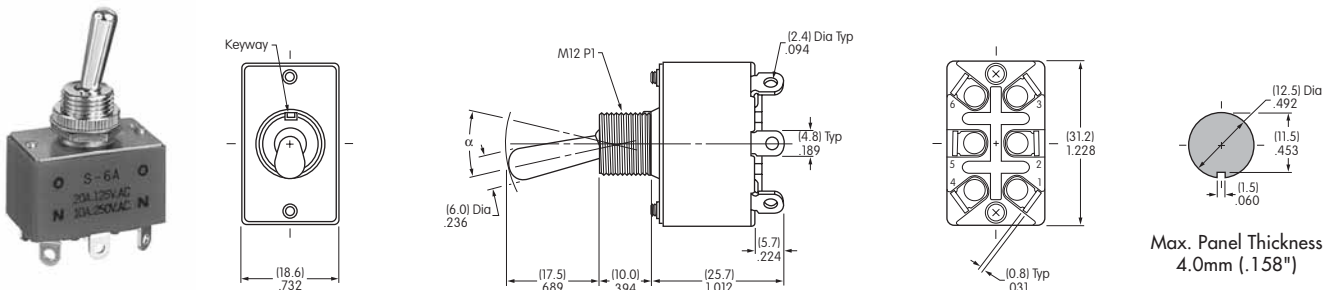
**Throw & Schematics:**

DPST:

DPDT:

Note: Terminal numbers are on the switch.




- Standard Hardware: AT504 Knurled Nut, AT508 Lockwasher, AT527M Backup Hex Nut. See Accessories & Hardware section.
- Solder lug terminal hole accommodates one 12-gauge solid or stranded wire.



S6A

S21A does not have terminals 2 & 5.

### SINGLE POLE WITH QUICK CONNECT

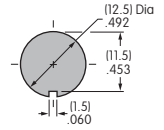
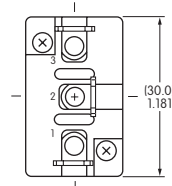
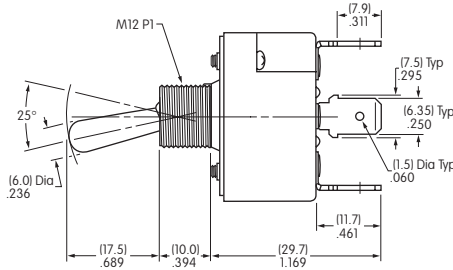
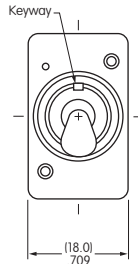
Model	Approvals	Pole & Throw	Toggle Position/Connected Terminals				Electrical Capacity				Angle of Throw
			Down 	Center 	Up 	Resistive			Inductive		
						AC 125V	AC 250V	DC 30V	AC 125V PF 0.6		
<b>S1F</b>	— —	SPST	ON 1-3	NONE	OFF —	15A	6A	20A	8A	25°	
<b>S2F</b>	— —	SPDT	ON 2-3	NONE	ON 2-1	15A	6A	20A	8A	25°	
<b>S3F</b>	— —	SPDT	ON 2-3	OFF	ON 2-1	15A	6A	20A	8A	25°	

**Throw & Schematics:**



Note: Terminal numbers are on the switch.

• Standard Hardware: AT504 Face Hex Nut, AT508 Lockwasher, AT527M Backup Hex Nut. See Accessories & Hardware section.






Max. Panel Thickness 4.0mm (.158")

S2F

S1F does not have terminal 2.

### DOUBLE POLE WITH QUICK CONNECT

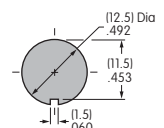
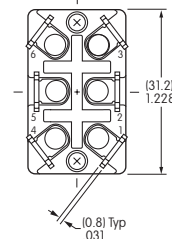
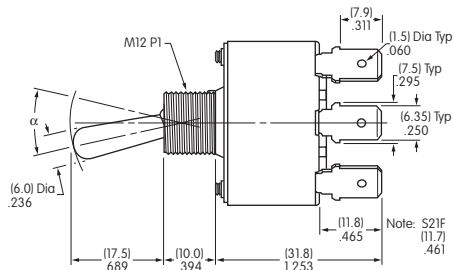
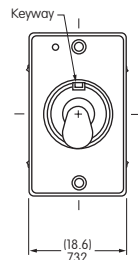
Model	Approvals	Pole	Toggle Position/Connected Terminals				Electrical Capacity				α = Angle of Throw
			Down 	Center 	Up 	Resistive			Inductive		
						AC 125V	AC 250V	DC 30V	AC 125V PF 0.6		
<b>S21F</b>	— —	DPST	ON 1-3 4-6	NONE	OFF —	15A	15A	15A	8A	21°	
<b>S6F</b>	— —	DPDT	ON 2-3 5-6	NONE	ON 2-1 5-4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

**Throw & Schematics:**



Note: Terminal numbers are on the switch.

• Standard Hardware: AT504 Face Hex Nut, AT508 Lockwasher, AT527M Backup Hex Nut. See Accessories & Hardware section.







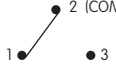
Max. Panel Thickness 4.0mm (.158")

S6F

S21F does not have terminals 2 & 5.

## SINGLE POLE WITH 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			
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	MOM	2-1	15A	6A	20A	200W	20°
S8AW	— —	SPDT	MOM	2-3	OFF	MOM	2-1	15A	6A	20A	200W	24°
S9AW	— —	SPDT	ON	2-3	OFF	MOM	2-1	15A	6A	20A	200W	24°

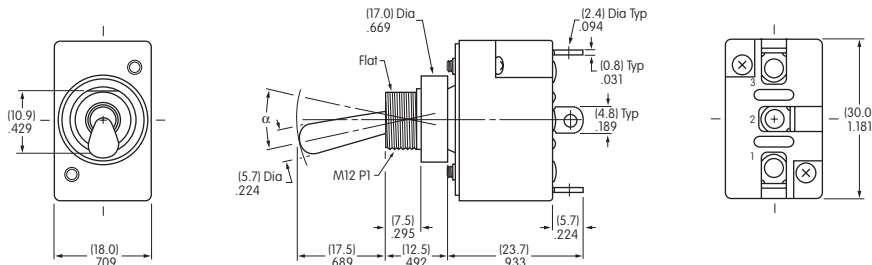
**Throw & Schematics:** SPST  INTERNAL CONNECTION SPDT  2 (COM) 3

Note: Terminal numbers are on the switch.

- Standard Hardware: AT503 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" quick connect terminals.






S2AW


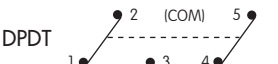


S1AW model does not have terminal 2.

Max. Panel Thickness 4.0mm (.158")

## DOUBLE POLE WITH 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			
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	MOM	2-1 5-4	15A	6A	20A	—	20°
S28AW	— —	DPDT	MOM	2-3 5-6	OFF	MOM	2-1 5-4	15A	6A	20A	—	22°
S29AW	— —	DPDT	ON	2-3 5-6	OFF	MOM	2-1 5-4	15A	6A	20A	—	22°

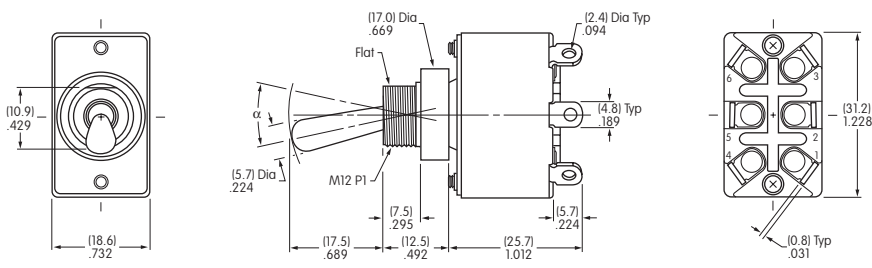
**Throw & Schematics:** DPST  INTERNAL CONNECTION DPDT  2 (COM) 5 3 4 6

Note: Terminal numbers are on the switch.

- Standard Hardware: AT503 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" quick connect terminals.






S6AW



S21AW model does not have terminals 2 & 5.

Max. Panel Thickness 4.0mm (.158")

### 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			
<b>S1AL</b>	— —	SPST	ON	1-3	NONE	OFF	—	15A	6A	20A	8A	24°
<b>S2AL</b>	— —	SPDT	ON	2-3	NONE	ON	2-1	15A	6A	20A	8A	24°
<b>S3AL</b>	— —	SPDT	ON	2-3	OFF	ON	2-1	15A	6A	20A	8A	28°

**Throw & Schematics:**

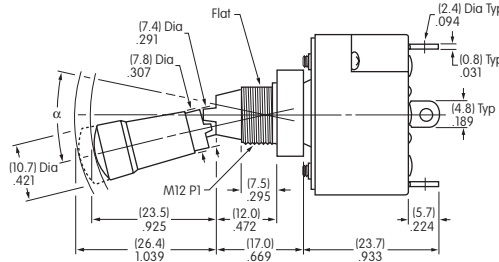
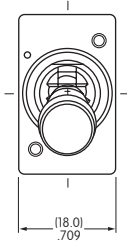


Note: Terminal numbers are on the switch.

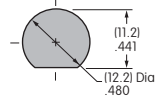
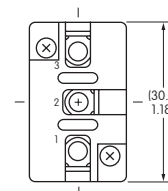
- Standard Hardware: AT503 Face Hex Nut, AT508 Lockwasher, AT537 O-ring. See Accessories & Hardware section.
- Solder lug terminal hole accommodates one 12-gauge solid or stranded wire.



**S2AL**






S1AL model does not have terminal 2.



Max. Panel Thickness  
4.0mm (.158")

### 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			
<b>S21AL</b>	— —	DPST	ON	1-3 4-6	NONE	OFF	—	15A	15A	15A	8A	22°
<b>S6AL</b>	— —	DPDT	ON	2-3 5-6	NONE	ON	2-1 5-4	20A	10A	20A	8A	22°
<b>S7AL</b>	— —	DPDT	ON	2-3 5-6	OFF	ON	2-1 5-4	20A	10A	20A	8A	28°

**Throw & Schematics:**

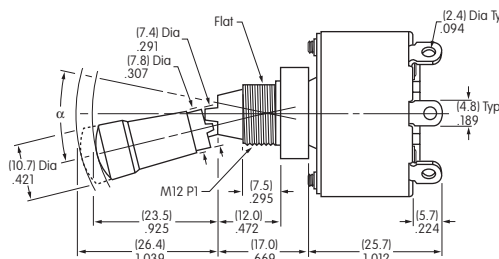
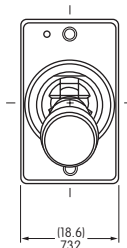


Note: Terminal numbers are on the switch.

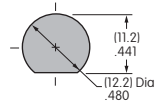
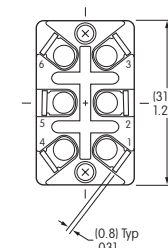
- Standard Hardware: AT503 Face Hex Nut, AT508 Lockwasher, AT537 O-ring. See Accessories & Hardware section.
- Solder lug terminal hole accommodates one 12-gauge solid or stranded wire.



**S6AL**



S21AL model does not have terminals 2 & 5.



Max. Panel Thickness  
4.0mm (.158")