

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:	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.

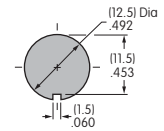
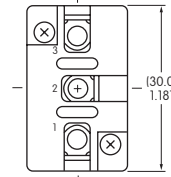
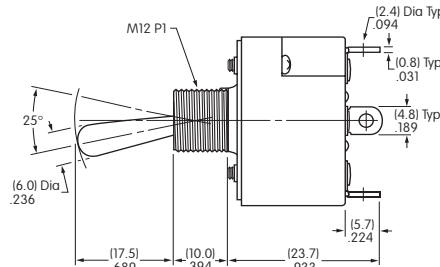
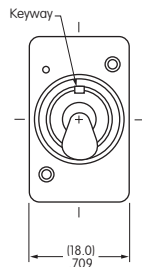
SINGLE POLE WITH SOLDER LUG

Model	Approvals	Pole & Throw	Toggle Position/Connected Terminals			Electrical Capacity				Angle of Throw
			Down Keyway	Center	Up	Resistive			Inductive	
						AC 125V	AC 250V	DC 30V	AC 125V PF 0.6	
S1A	UL SP	SPST	ON 1-3	NONE	OFF —	15A	6A	20A	8A	25°
S2A	UL SP	SPDT	ON 2-3	NONE	ON 2-1	15A	6A	20A	8A	25°
S3A	UL SP	SPDT	ON 2-3	OFF	ON 2-1	15A	6A	20A	8A	25°

Throw & Schematics: SPST  INTERNAL CONNECTION 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.



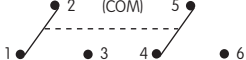
Max. Panel Thickness
4.0mm (.158")

S2A

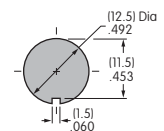
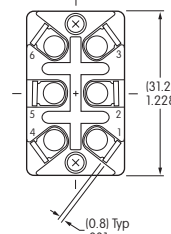
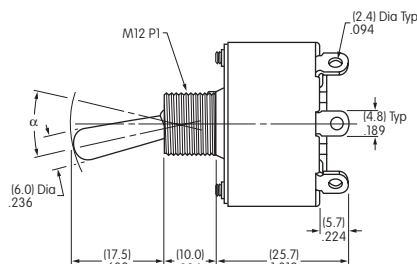
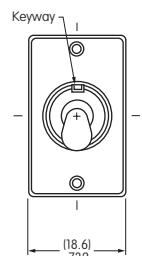
S1A does not have terminal 2.

DOUBLE POLE WITH SOLDER LUG

Model	Approvals	Pole & Throw	Toggle Position/Connected Terminals			Electrical Capacity				α = Angle of Throw
			Down Keyway	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	UL SP	DPDT	ON 2-3 5-6	NONE	ON 2-1 5-4	20A	10A	20A	8A	21°
S7A	— SP	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 on the switch.



Max. Panel Thickness
4.0mm (.158")

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	
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

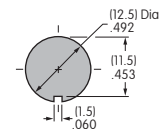
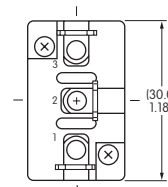
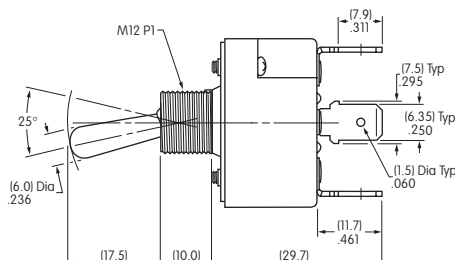
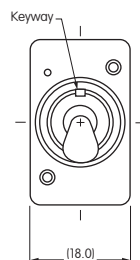


SPDT



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	
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

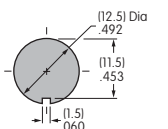
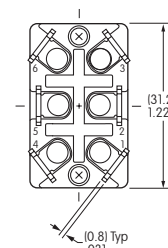
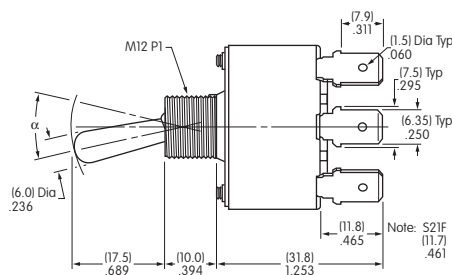
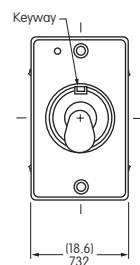


DPDT



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				α = Angle of Throw
			Down Keyway	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:



INTERNAL CONNECTION

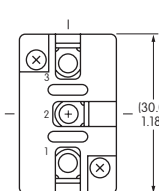
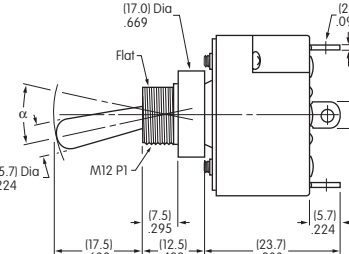
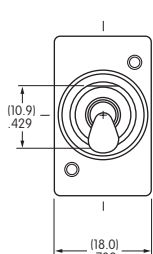


Note: Terminal numbers are on the switch.

- 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



Max. Panel Thickness 4.0mm (.158")

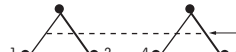
S1AW model does not have terminal 2.

DOUBLE POLE WITH PANEL SEAL

Model	Approvals	Pole & Throw	Toggle Position/Connected Terminals				Electrical Capacity				α = Angle of Throw
			Down Keyway	Center	Up		Resistive			Inductive	
							AC 125V	AC 250V	DC 30V	AC 125V	
S21AW	— —	DPST	ON	1-3 4-6	OFF —	—	15A	15A	15A	200W	22°
S6AW	— —	DPDT	ON	2-3 5-6	ON 2-1 5-4	—	20A	10A	20A	—	22°
S7AW	— —	DPDT	ON	2-3 5-6	OFF 2-1 5-4	—	20A	10A	20A	—	28°
S25AW	— —	DPDT	ON	2-3 5-6	NONE 2-1 5-4	—	15A	6A	20A	—	20°
S28AW	— —	DPDT	MOM	2-3 5-6	OFF 2-1 5-4	—	15A	6A	20A	—	22°
S29AW	— —	DPDT	ON	2-3 5-6	MOM 2-1 5-4	—	15A	6A	20A	—	22°

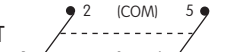
Throw & Schematics:

DPST



INTERNAL CONNECTION

DPDT

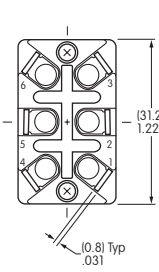
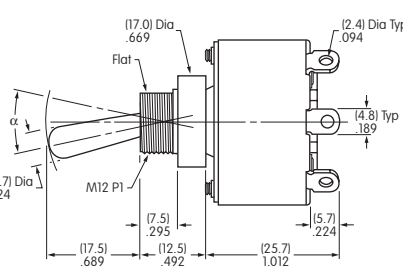
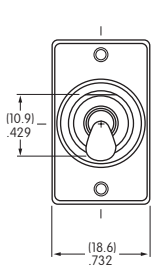


Note: Terminal numbers are on the switch.

- 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



Max. Panel Thickness 4.0mm (.158")

S21AW model does not have terminals 2 & 5.

SINGLE POLE WITH LOCKING LEVER & PANEL SEAL

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	
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:



INTERNAL CONNECTION

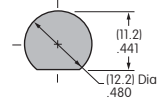
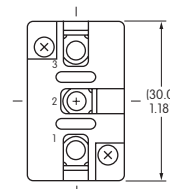
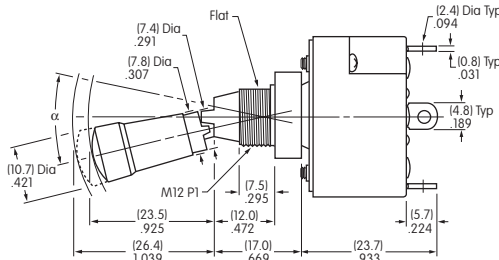
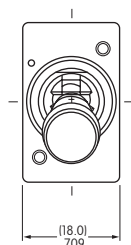


Note: Terminal numbers are on the switch.

- 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



Max. Panel Thickness
4.0mm (.158")

S1AL model does not have terminal 2.

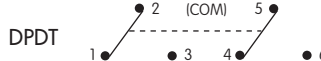
DOUBLE POLE WITH LOCKING LEVER & PANEL SEAL

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	
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:



INTERNAL CONNECTION

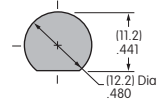
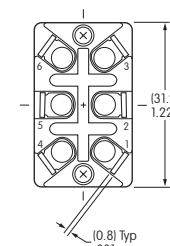
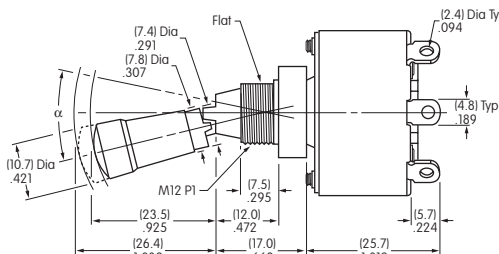
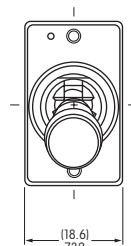


Note: Terminal numbers are on the switch.

- 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



Max. Panel Thickness
4.0mm (.158")

S21AL model does not have terminals 2 & 5.