

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.
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



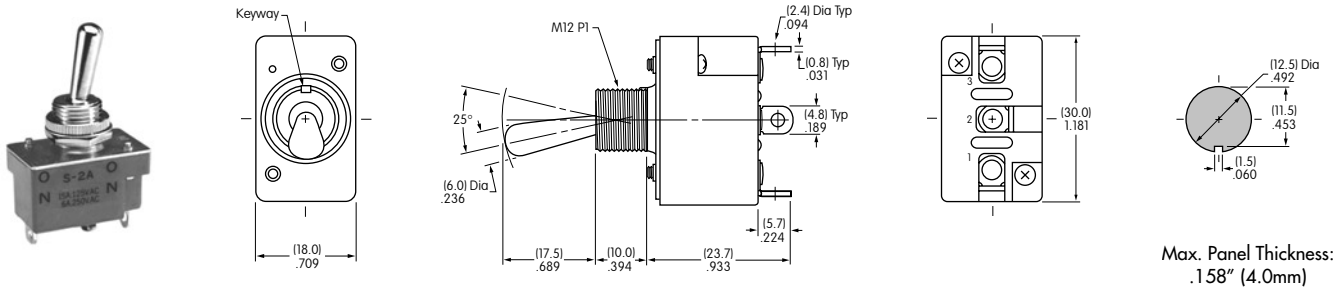
INTERNAL CONNECTION

SPDT



Note: Terminal numbers are actually 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				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°

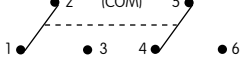
Throw & Schematics:

DPST



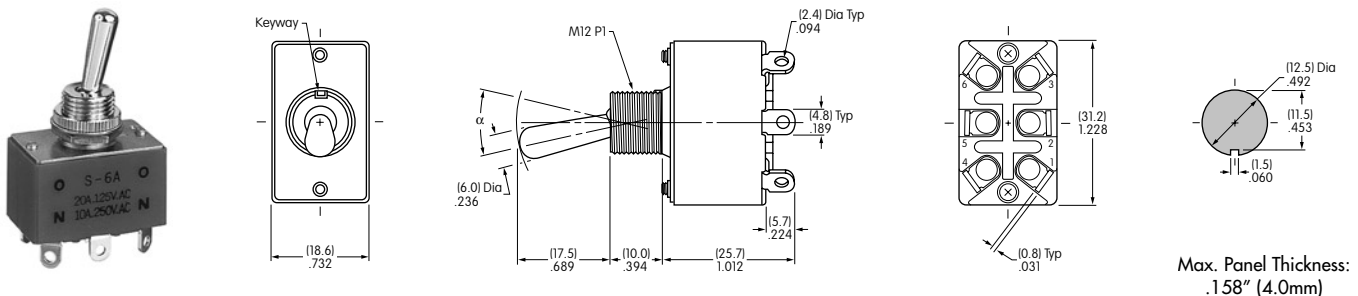
INTERNAL CONNECTION

DPDT



Note: Terminal numbers are actually 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	
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

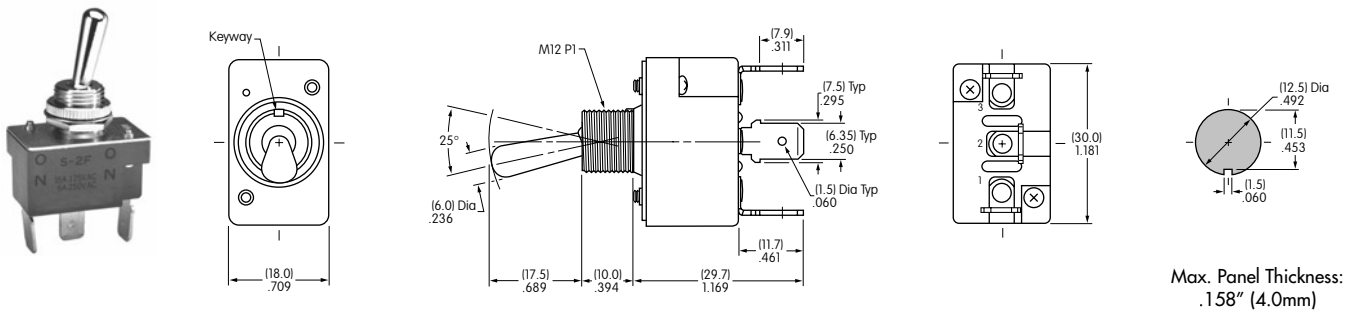


SPDT



Note: Terminal numbers are actually on the switch.

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



S2F

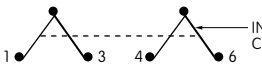
S1F does not have terminal 2.

DOUBLE POLE WITH QUICK CONNECT

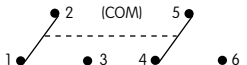
Model	Approvals	Pole & Throw	Toggle Position/Connected Terminals				Electrical Capacity				α = Angle of Throw
			Down 	Center 	Up 		Resistive			Inductive	
							AC 125V	AC 250V	DC 30V	AC 125V PF 0.6	
S21F	— —	DPST	ON 1-3 4-6	NONE	OFF —		15A	15A	15A	8A	21°
S6F	— —	DPDT	ON 2-3 5-6	NONE	ON 2-1 5-4		20A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

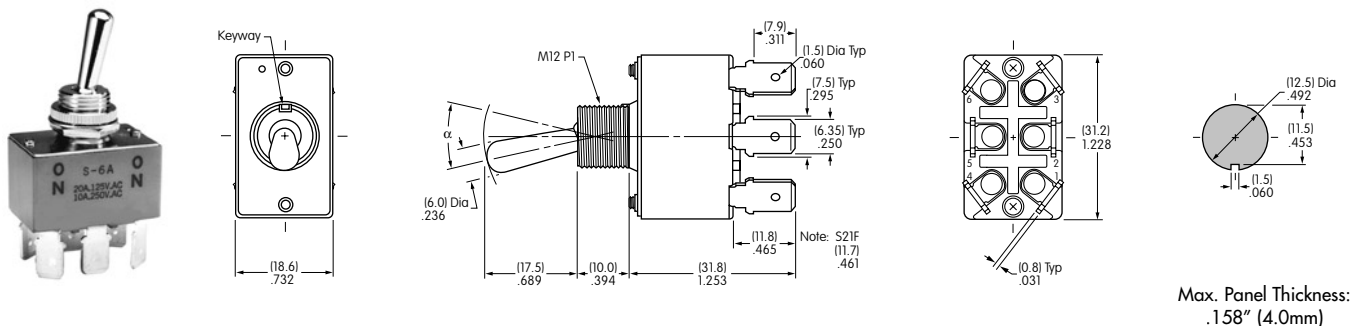


DPDT



Note: Terminal numbers are actually on the switch.

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



S6F

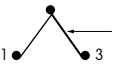
S21F does not have terminals 2 & 5.

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

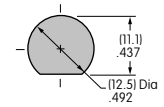
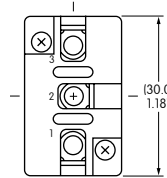
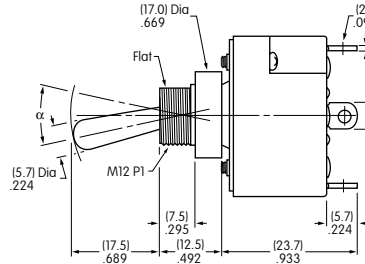
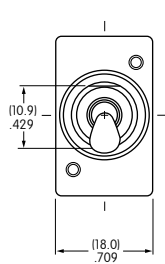


Note: Terminal numbers are actually on the switch.

- 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" (6.35mm) quick connect terminals.



S2AW



Max. Panel Thickness:
.158" (4.0mm)

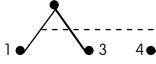
S1AW does not have terminal 2.

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°

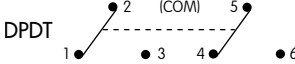
Throw & Schematics:

DPST



INTERNAL CONNECTION

DPDT

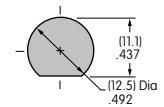
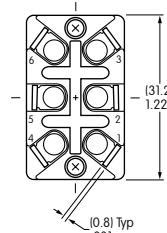
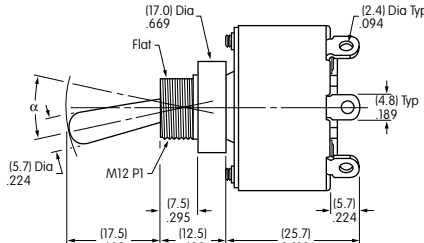
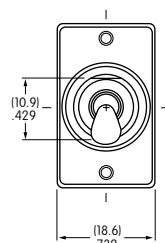


Note: Terminal numbers are actually on the switch.

- 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" (6.35mm) quick connect terminals.



S6AW



Max. Panel Thickness:
.158" (4.0mm)

S21AW does not have terminals 2 & 5.

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°

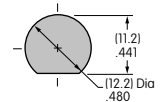
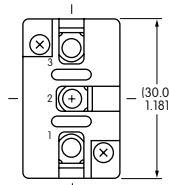
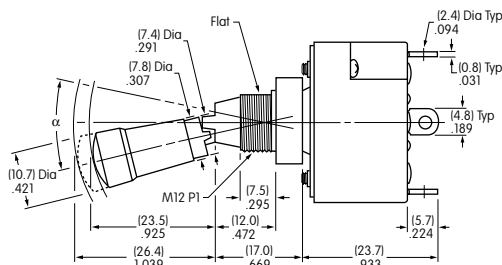
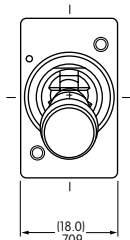
Throw & Schematics:

SPST  INTERNAL CONNECTION

SPDT 

Note: Terminal numbers are actually 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.



Max. Panel Thickness:
.158" (4.0mm)

S2AL

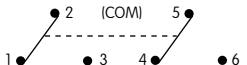
S1AL does not have terminal 2.

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°

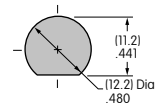
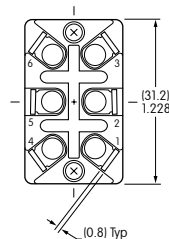
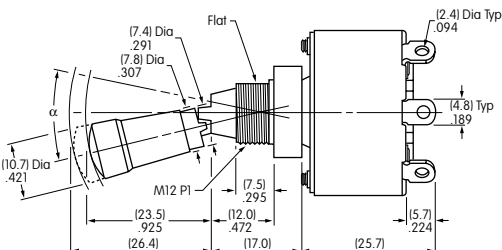
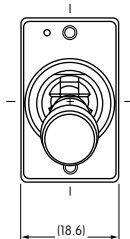
Throw & Schematics:

DPST  INTERNAL CONNECTION

DPDT 

Note: Terminal numbers are actually 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.



Max. Panel Thickness:
.158" (4.0mm)

S6AL

S21AL does not have terminals 2 & 5.