

## GENERAL SPECIFICATIONS FOR S1 ~ S29

A  
Toggles

### 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 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

### 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: See Profile A in Supplement section.

### Standards & Certifications

**UL:** **File No. E44145 - Recognized only when ordered with marking on switch.**  
 Add "/U" or "/CUL" to end of part number to order UL recognized switch.  
 UL or cULus recognition designated beside part numbers on following pages.  
 See Supplement section to find UL or cULus rating details.

**CSA:** **File No. 023535\_0\_000 - Certified only when ordered with marking on switch.**  
 Add "/C" to end of part number to order CSA certified switch.  
 CSA certification designated beside part numbers on following pages.  
 See Supplement section to find CSA rating details.

Rockers

Pushbuttons

Illuminated PB

Programmable

Keylocks

Rotaries

Slides

Tactiles

Tilt

Touch

Indicators

Accessories

Supplement

Toggles  
A

### SINGLE POLE WITH SOLDER LUG \*

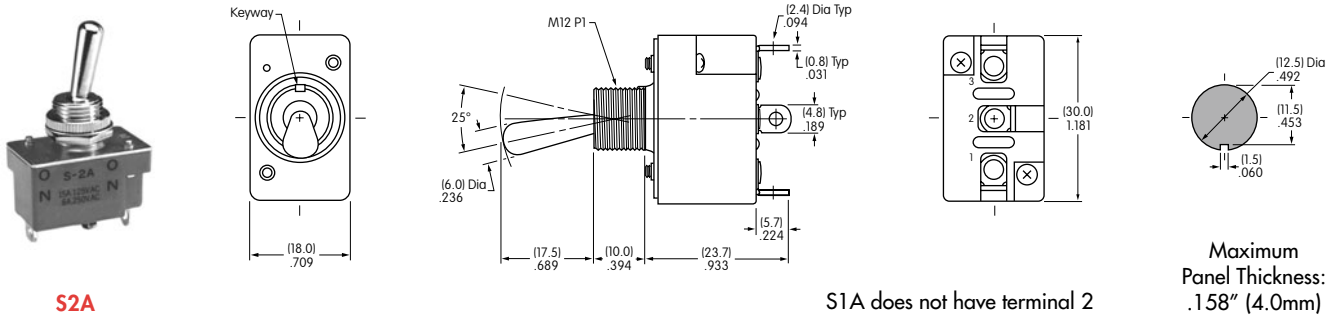
| * UL, cULus & CSA recognized only when ordered with marking on switch (see General Specs) |             |       | Toggle Position/Connected Terminals |              |        |        |        |           | Electrical Capacity |        |                |                |
|---|-------------|-------|-------------------------------------|--------------|--------|--------|--------|-----------|---------------------|--------|----------------|----------------|
| Model   | * Approvals |       |                                     | Pole & Throw | Down   | Center | Up     | Resistive |                     |        | Inductive      | Angle of Throw |
|   | UL          | cULus | CSA                                 |              | Keyway |        |        | 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.

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



S2A

S1A does not have terminal 2

Maximum Panel Thickness: .158" (4.0mm)

### DOUBLE POLE WITH SOLDER LUG \*

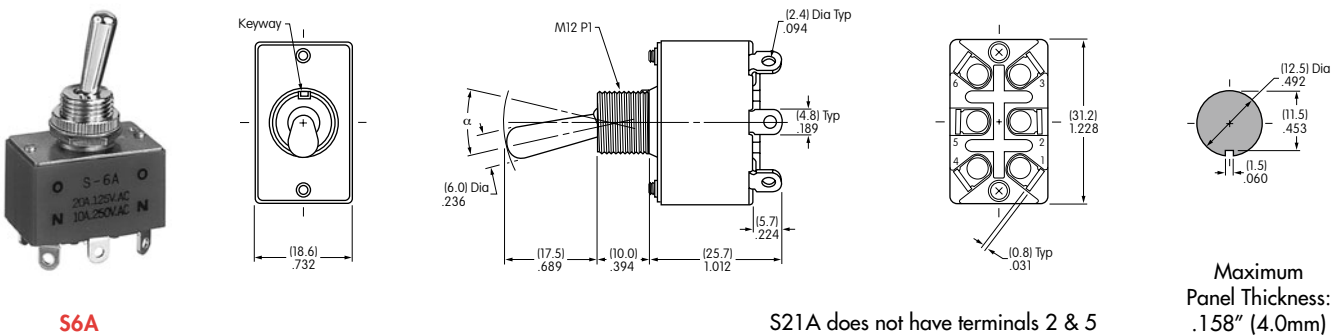
| * UL, cULus & CSA recognized only when ordered with marking on switch (see General Specs) |             |       | Toggle Position/Connected Terminals |              |            |        |            |           | Electrical Capacity |        |                |                           |
|---|-------------|-------|-------------------------------------|--------------|------------|--------|------------|-----------|---------------------|--------|----------------|---------------------------|
| Model   | * Approvals |       |                                     | Pole & Throw | Down       | Center | Up         | Resistive |                     |        | Inductive      | $\alpha =$ Angle of Throw |
|   | UL          | cULus | CSA                                 |              | Keyway     |        |            | 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.

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



S6A

S21A does not have terminals 2 & 5

Maximum Panel Thickness: .158" (4.0mm)

Rockers

Pushbuttons

Pushbuttons

Pushbuttons

Pushbuttons

Keylocks

Rotaries

Slides

Tactiles

Tilt




Touch



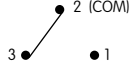
Indicators

Accessories

Supplement

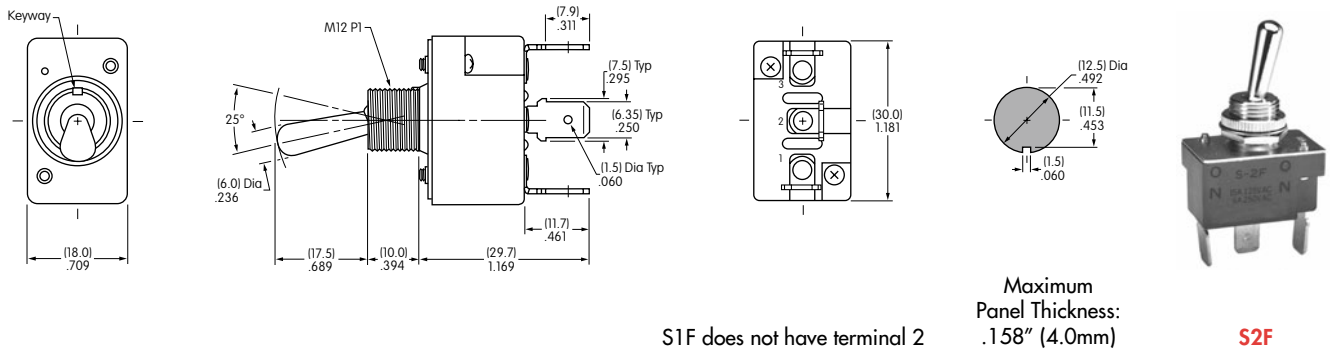
## SINGLE POLE WITH QUICK CONNECT

| Model | Approvals |    | Pole & Throw | Toggle Position/Connected Terminals   |   |   |           | Electrical Capacity |        |                |     | Angle of Throw |
|-------|-----------|----|--------------|---|---|---|-----------|---------------------|--------|----------------|-----|----------------|
|       | UL        | SP |              | Down<br> | Center<br> | Up<br> | 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 

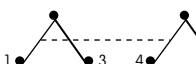
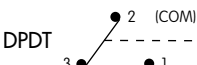
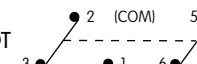
Note: Terminal numbers are actually on the switch

**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.



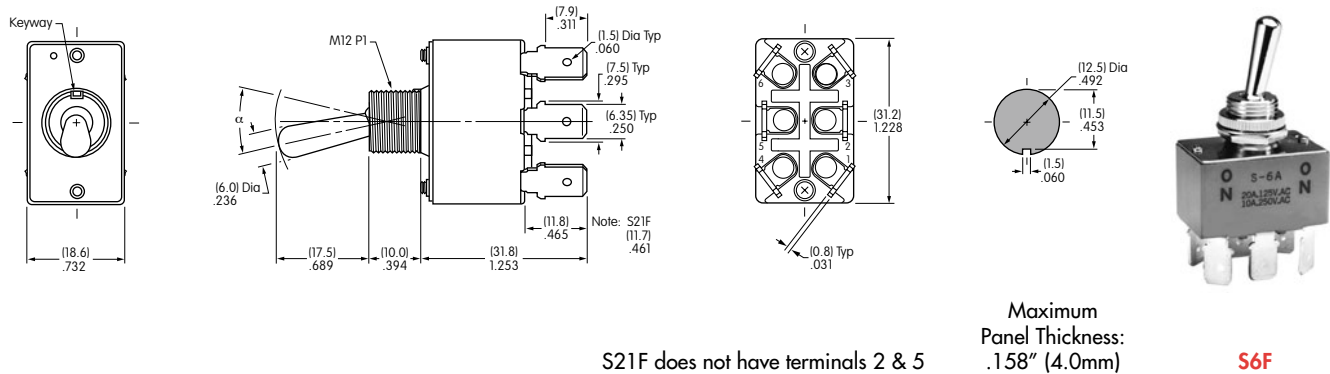
## DOUBLE POLE WITH QUICK CONNECT

| Model | Approvals |    | Pole & Throw | Toggle Position/Connected Terminals   |   |   |           | Electrical Capacity |        |                |     | $\alpha$ = Angle of Throw |
|-------|-----------|----|--------------|---|---|---|-----------|---------------------|--------|----------------|-----|---------------------------|
|       | UL        | SP |              | Down<br> | Center<br> | Up<br> | 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 


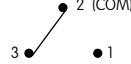
Note: Terminal numbers are actually on the switch

**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<br>UL<br>SP | Pole & Throw | Toggle Position/Connected Terminals<br>( ) = Momentary |        |          |           | Electrical Capacity |        |     | $\alpha$ = Angle of Throw |
|-------|-----------------------|--------------|--|--------|----------|-----------|---------------------|--------|-----|---------------------------|
|       |                       |              | Down<br>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° |                           |

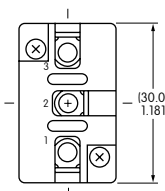
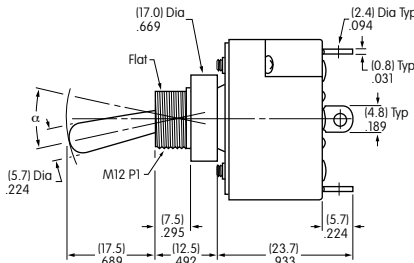
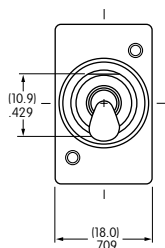
**Throw & Schematics:** SPST  INTERNAL CONNECTION SPDT 

Note: Terminal numbers are actually on the switch

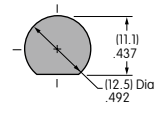
**Notes:** Standard Hardware: AT503M Face Hex Nut, AT508 Lockwasher, AT537 O-ring. See Accessories & Hardware section. For **.250" Quick Connect terminals**, add "F" to end of part number. See **Quick Connect terminal** dimensions on previous page. For further information, contact factory.  
 \* Wire harness & cable assemblies offered only in Americas.



S2AW




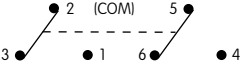
S1AW does not have terminal 2



Maximum Panel Thickness: .158" (4.0mm)

## DOUBLE POLE SOLDER LUG WITH PANEL SEAL \*

| Model | Approvals<br>UL<br>SP | Pole & Throw | Toggle Position/Connected Terminals<br>( ) = Momentary |        |              |           | Electrical Capacity |        |     | $\alpha$ = Angle of Throw |
|-------|-----------------------|--------------|--|--------|--------------|-----------|---------------------|--------|-----|---------------------------|
|       |                       |              | Down<br>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° |                           |

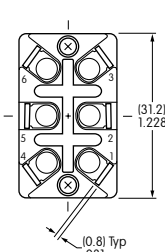
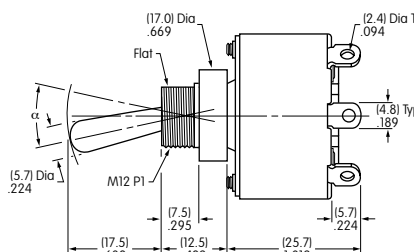
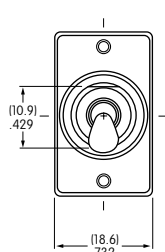
**Throw & Schematics:** DPST  INTERNAL CONNECTION DPDT 

Note: Terminal numbers are actually on the switch

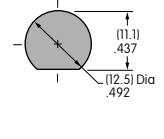
**Notes:** Standard Hardware: AT503M Face Hex Nut, AT508 Lockwasher, AT537 O-ring. See Accessories & Hardware section. For **.250" Quick Connect terminals**, add "F" to end of part number. See **Quick Connect terminal** dimensions on previous page. For further information, contact factory.  
 \* Wire harness & cable assemblies offered only in Americas.



S6AW



S21AW does not have terminals 2 & 5



Maximum Panel Thickness: .158" (4.0mm)

