

# General Specifications

## B Electrical Capacity

|                        |                                                                      |
|------------------------|----------------------------------------------------------------------|
| <b>Resistive Load:</b> | 10A @ 125V AC or 6A @ 250V AC                                        |
| <b>Motor Load:</b>     | 400W @ 125V AC                                                       |
| <b>Lamp Load:</b>      | 2A @ 125V AC for On-Off-On circuit & 3A @ 125V AC for other circuits |

## Other Ratings

|                               |                                                                                                                            |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| <b>Contact Resistance:</b>    | 10 milliohms maximum                                                                                                       |
| <b>Insulation Resistance:</b> | 1,000 megohms minimum @ 500V DC                                                                                            |
| <b>Dielectric Strength:</b>   | 2,000V AC minimum between contacts for 1 minute minimum;<br>4,000V AC minimum between contacts & case for 1 minute minimum |
| <b>Mechanical Life:</b>       | 50,000 operations minimum                                                                                                  |
| <b>Electrical Life:</b>       | 25,000 operations minimum                                                                                                  |
| <b>Angle of Throw:</b>        | 25°                                                                                                                        |

## Materials & Finishes

|                             |                                   |
|-----------------------------|-----------------------------------|
| <b>Frame:</b>               | Stainless steel                   |
| <b>Case/Base:</b>           | Diallyl phthalate resin (UL94V-0) |
| <b>Movable Contacts:</b>    | Silver alloy with silver plating  |
| <b>Stationary Contacts:</b> | Pure silver with silver plating   |
| <b>Terminals:</b>           | Copper with silver plating        |

## Environmental Data

|                              |                                                                                                                                              |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Operating Temp Range:</b> | -10°C through +85°C (+14°F through +185°F)                                                                                                   |
| <b>Humidity:</b>             | 90 ~ 95% humidity for 96 hours @ 40°C (104°F)                                                                                                |
| <b>Vibration:</b>            | 10 ~ 55Hz with peak-to-peak amplitude of 1.5mm traversing the frequency range & returning in 1 minute; 3 right angled directions for 2 hours |
| <b>Shock:</b>                | 50G (490m/s <sup>2</sup> ) acceleration (tested in 6 right angled directions, with 5 shocks in each direction)                               |

## Installation

|                                   |                                                                                                                              |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| <b>Soldering Time &amp; Temp:</b> | Wave Soldering (Straight PC): See Profile A in Supplement section.<br>Manual Soldering: See Profile A in Supplement section. |
| <b>Cleaning:</b>                  | These devices are not process sealed. Hand clean locally using alcohol based solution.                                       |

## Standards & Certifications

|                                |                                                                                                                                                                                                                                                                                          |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Flammability Standards:</b> | UL94V-0 rated case/base                                                                                                                                                                                                                                                                  |
| <b>UL:</b>                     | <b>File No. E44145 - Recognized only when ordered with marking on switch.</b><br>Add "/U" before dash in part number to order UL recognized switch.<br>Add "/CUL" before dash in part number to order cULus recognized switch.<br>All models recognized at 10A @ 125V AC & 6A @ 250V AC. |
| <b>CSA:</b>                    | <b>File No. 023535_0_000 - Certified only when ordered with marking on switch.</b><br>Add "/C" before dash in part number to order CSA certified switch.<br>All models certified at 10A @ 125V AC & 6A @ 250V AC.                                                                        |
| <b>VDE:</b>                    | License No. 119174<br>All models approved at 10A @ 125V AC & 6A @ 250V AC.<br>Marking on switch is standard. All models meet EN 61058-1 standard.                                                                                                                                        |

# Distinctive Characteristics

Meets EN 61058-1 standard.

Contacts of special silver alloy resist arcing and guarantee stable electrical contact and long life.

Stainless steel frame resists corrosion and increases environmental safety.

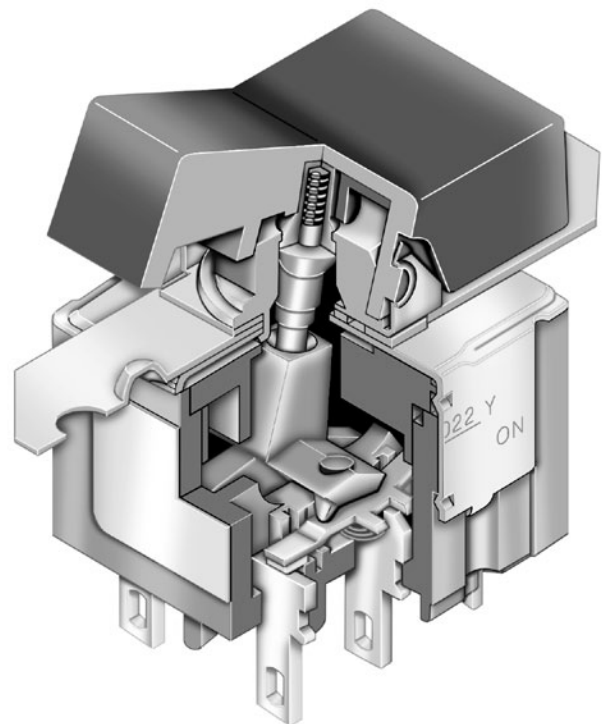
High insulating barriers increase isolation of circuits in double pole devices and provide added protection to contact points.

Case/base of heat resistant resin meets UL94V-0 flammability standard.

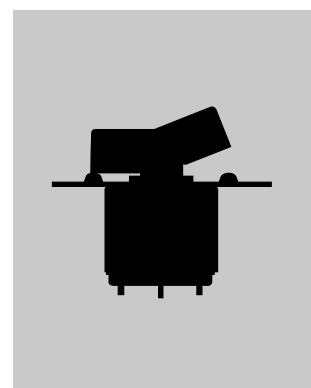
Prominent external insulating barriers increase insulation resistance and dielectric strength.

Clinching of the frame to the case well above the base and terminals provides 4,000V dielectric strength.

Epoxy sealed terminals prevent entry of flux, solvents, and other contaminants.



Actual Size



|                  |
|------------------|
| Toggles          |
| <b>B</b> Rockers |
| Pushbuttons      |
| Illuminated PB   |
| Programmable     |
| Keylocks         |
| Rotaries         |
| Slides           |
| Tactiles         |
| Tilt             |
| Touch            |
| Indicators       |
| Accessories      |
| Supplement       |

TYPICAL SWITCH ORDERING EXAMPLE

P20

22

Y

J

C

| Poles & Circuits |      |    |      |     |
|------------------|------|----|------|-----|
| 11               | SPST | ON | NONE | OFF |
| 12               | SPDT | ON | NONE | ON  |
| 13               | SPDT | ON | OFF  | ON  |
| 21               | DPST | ON | NONE | OFF |
| 22               | DPDT | ON | NONE | ON  |
| 23               | DPDT | ON | OFF  | ON  |

| Paddle/Rocker Frames |                      |
|----------------------|----------------------|
| N                    | Frame for Small Caps |
| Y                    | Frame for Large Caps |

| Terminals |                              |
|-----------|------------------------------|
| No Code   | Solder Lug*                  |
| P         | Straight PC                  |
| Z         | .187" (4.75mm) Quick Connect |

| Rocker/Paddle Caps |                             |
|--------------------|-----------------------------|
| For N Frame        |                             |
| D                  | .365" (9.27mm) Wide Rocker  |
| E                  | .365" (9.27mm) Wide Paddle  |
| For Y Frame        |                             |
| J                  | .595" (15.11mm) Wide Rocker |
| H                  | .595" (15.11mm) Wide Paddle |

| Cap Colors |        |
|------------|--------|
| A          | Black  |
| B          | White  |
| C          | Red    |
| E          | Yellow |
| F          | Green  |
| G          | Blue   |
| H          | Gray   |

IMPORTANT:

VDE is marked on all models. Switches are supplied without UL, cULus & CSA marking unless specified. **UL, cULus & CSA recognized only when ordered with marking on the switch.** Specific models, ratings, & ordering instructions are noted on General Specifications page.

\* Wire harness & cable assemblies offered only in Americas

DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

P2022Y-JC

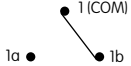
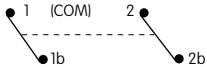
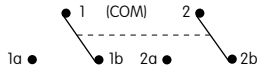
.595" (15.11mm) Wide Red Rocker

DPDT ON-NONE-ON Circuit

Frame for Large Caps

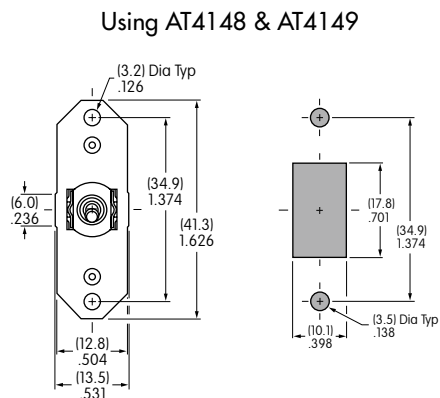
Solder Lug Terminals

## POLES & CIRCUITS

| Pole | Model          | Rocker Position                                                                   |                                                                                   |                                                                                   | Connected Terminals                                                               |                                                                                   |                                                                                    | Throw & Schematics                                                                       |
|------|----------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
|      |                | Down                                                                              | Center                                                                            | Up                                                                                | Down                                                                              | Center                                                                            | Up                                                                                 |                                                                                          |
|      |                |  |  |  |  |  |  | Note: Terminal numbers are on the switch.                                                |
| SP   | P2011          | ON                                                                                | NONE                                                                              | OFF                                                                               | 1-1b                                                                              | OPEN                                                                              | OPEN                                                                               | SPST  |
| SP   | P2012<br>P2013 | ON<br>ON                                                                          | NONE<br>OFF                                                                       | ON<br>ON                                                                          | 1-1b                                                                              | OPEN                                                                              | 1-1a                                                                               | SPDT  |
| DP   | P2021          | ON                                                                                | NONE                                                                              | OFF                                                                               | 1-1b<br>2-2b                                                                      | OPEN                                                                              | OPEN                                                                               | DPST  |
| DP   | P2022<br>P2023 | ON<br>ON                                                                          | NONE<br>OFF                                                                       | ON<br>ON                                                                          | 1-1b<br>2-2b                                                                      | OPEN                                                                              | 1-1a<br>2-2a                                                                       | DPDT  |

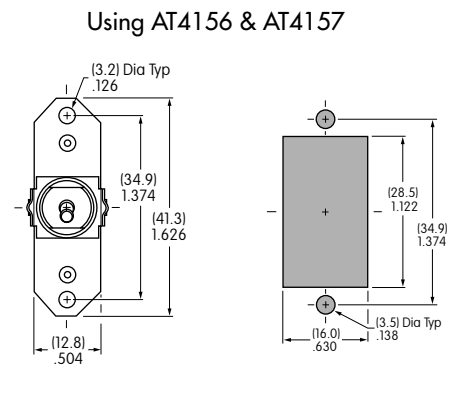
## ROCKER/PADDLE FRAMES

### N Frame for Small Actuator



Maximum Panel Thickness: .126" (3.2mm)

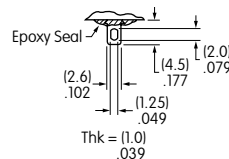
### Y Frame for Large Actuator



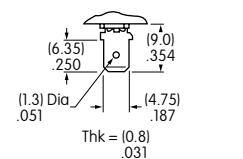
Maximum Panel Thickness: .126" (3.2mm)

## TERMINALS

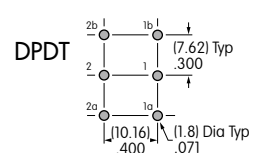
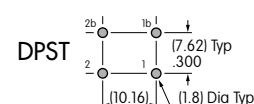
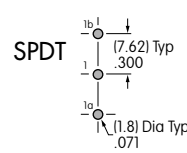
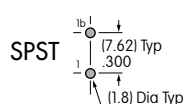
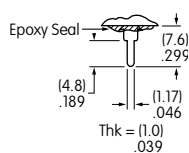
### No Code Solder Lug



### Z .187" (4.75mm) Quick Connect



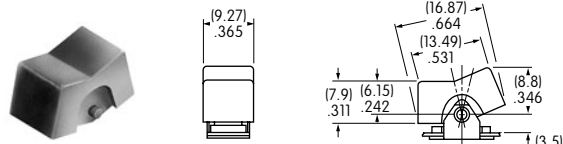
### P Straight PC



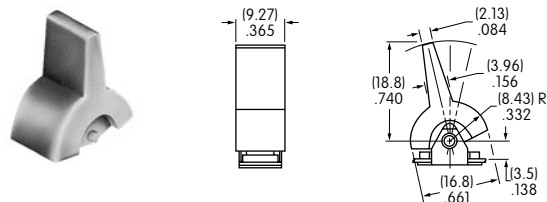
### ROCKER/PADDLE CAPS

For N Frame

**D** AT4148  
.365" (9.27mm) Wide Rocker

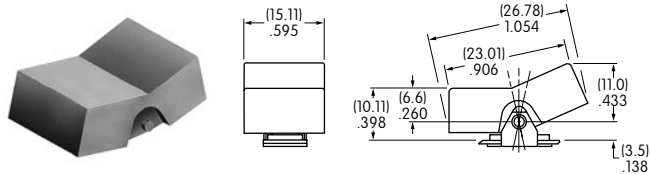


**E** AT4149  
.365" (9.27mm) Wide Paddle

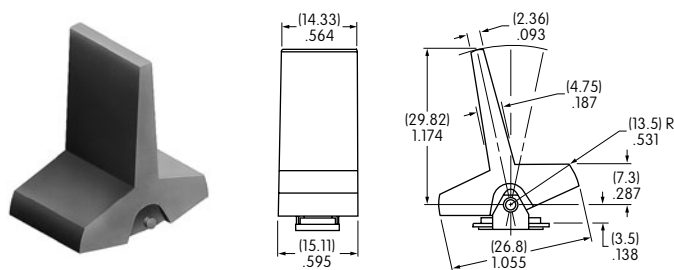


For Y Frame

**J** AT4156  
.595" (15.11mm) Wide Rocker



**H** AT4157  
.595" (15.11mm) Wide Paddle



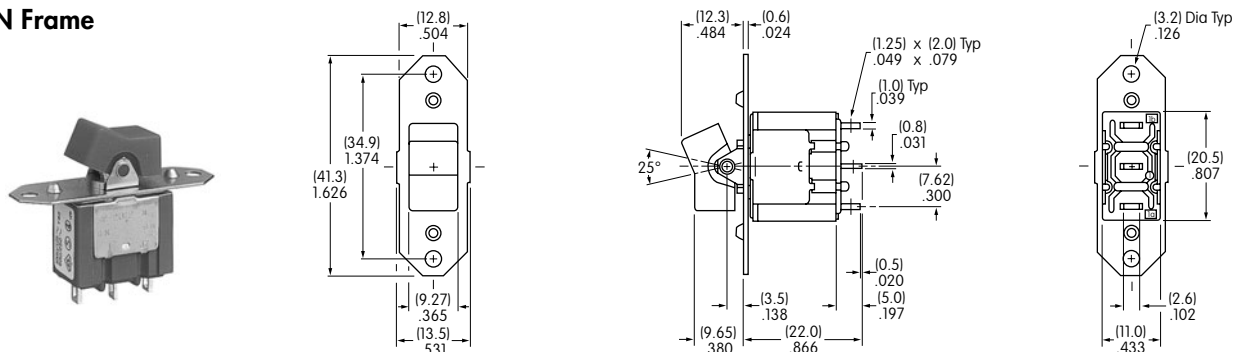
Cap Colors Available:

**A** Black **B** White **C** Red **E** Yellow **F** Green **G** Blue **H** Gray

Material: Polyamide Finish: Matte

### TYPICAL SWITCH DIMENSIONS

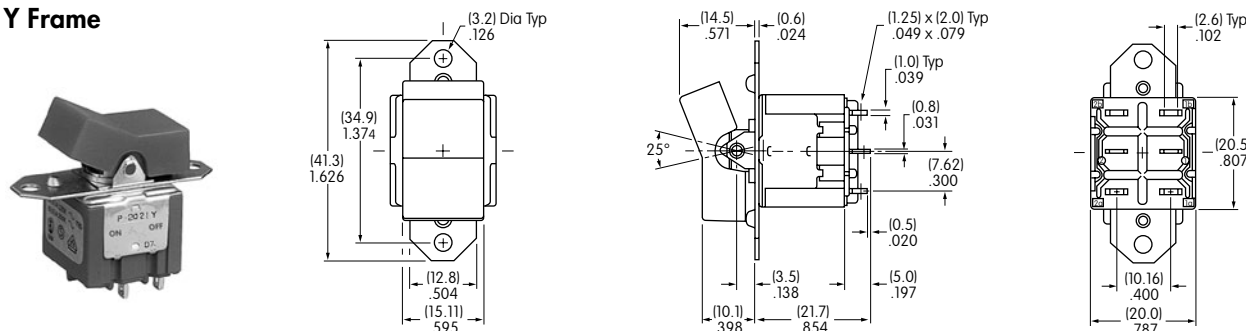
N Frame



P2012N-DC

P2011 & P2021 models do not have terminals 1a & 2a.

Y Frame



P2022Y-JC

P2011 & P2021 models do not have terminals 1a & 2a.