

Distinctive Characteristics

Subminiature size saves space on PC boards.

Specifically developed for logic-level applications.

Antistatic superstructure, consisting of the carbon impregnated bushing and the support bracket, prevents static discharge to the contacts. Static electricity from an operator's touch travels from actuator through the bushing and bracket to the PC board.

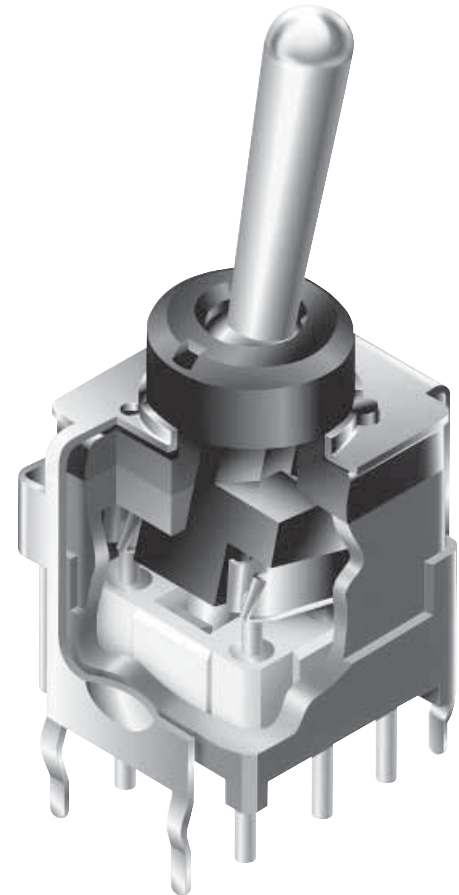
Locking lever mechanism offered as a toggle option. Smooth, 6mm diameter bushing simplifies panel layout.

Optional threaded, 6mm diameter bushing for panel seal mounting meets IP65 of IEC529 specifications (similar to NEMA 4 & 13).

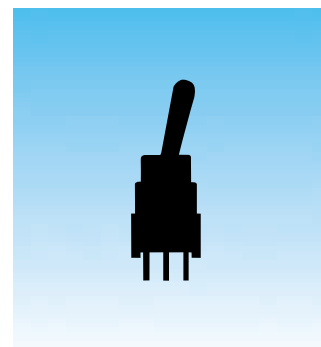
Totally sealed body construction prevents contact contamination and allows time- and money-saving soldering and washing. Ultrasonically welded terminals lock out flux and other contaminants.

Award-winning STC contact mechanism with benefits unavailable in conventional mechanisms: smoother, positive detent actuation, increased contact stability and unparalleled logic-level reliability. (Additional STC details in Terms & Acronyms; see page Z2.)

.100" x .100" terminal spacing conforms to standard PC board grids.



Actual Size



General Specifications

Electrical Capacity (Resistive Load)

Logic Level: 0.4VA maximum @ 28V AC/DC maximum
 (Applicable Range 0.1mA ~ 0.1A @ 20mV ~ 28V)
 Note: See Supplement Index (page Z2) to find explanation of operating range.

Other Ratings

Contact Resistance: 50 milliohms maximum
Insulation Resistance: 500 megohms minimum @ 500V DC
Dielectric Strength: 500V AC minimum for 1 minute minimum
Mechanical Life: 100,000 operations minimum for On-None-On & On-Off-On
 50,000 operations minimum for other circuits
 50,000 operations minimum for locking lever models
Electrical Life: 50,000 operations minimum
Nominal Operating Force: Toggles A, A1, E & K w/Long Paddle: 150 grams (momentary); 120 grams (maintained)
 Toggles J & H & K w/Short Paddle: 278 grams (momentary); 188 grams (maintained)
 Toggle L: 60 grams
Contact Timing: Nonshorting
Angle of Throw: 26°

Materials & Finishes

Toggle: Nickel plated brass
Bushing: Carbon blended polyamide; nickel plated zinc alloy for locking levers & threaded bushing
Gasket: Nitrile butadiene rubber
Case Housing: Glass fiber reinforced polyamide
Support Bracket: Tin plated phosphor bronze
Movable Contact: Phosphor bronze with gold plating
Stationary Contacts: Phosphor bronze or brass with gold plating
Terminals: Phosphor bronze with gold plating

Environmental Data

Operating Temp Range: -30°C through +85°C (-22°F through +185°F)
Humidity: 90 ~ 95% humidity for 96 hours @ 40°C (104°F)
Vibration: 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
Shock: 50G (490m/s²) acceleration (tested in 6 right angled directions, with 5 shocks in each direction)

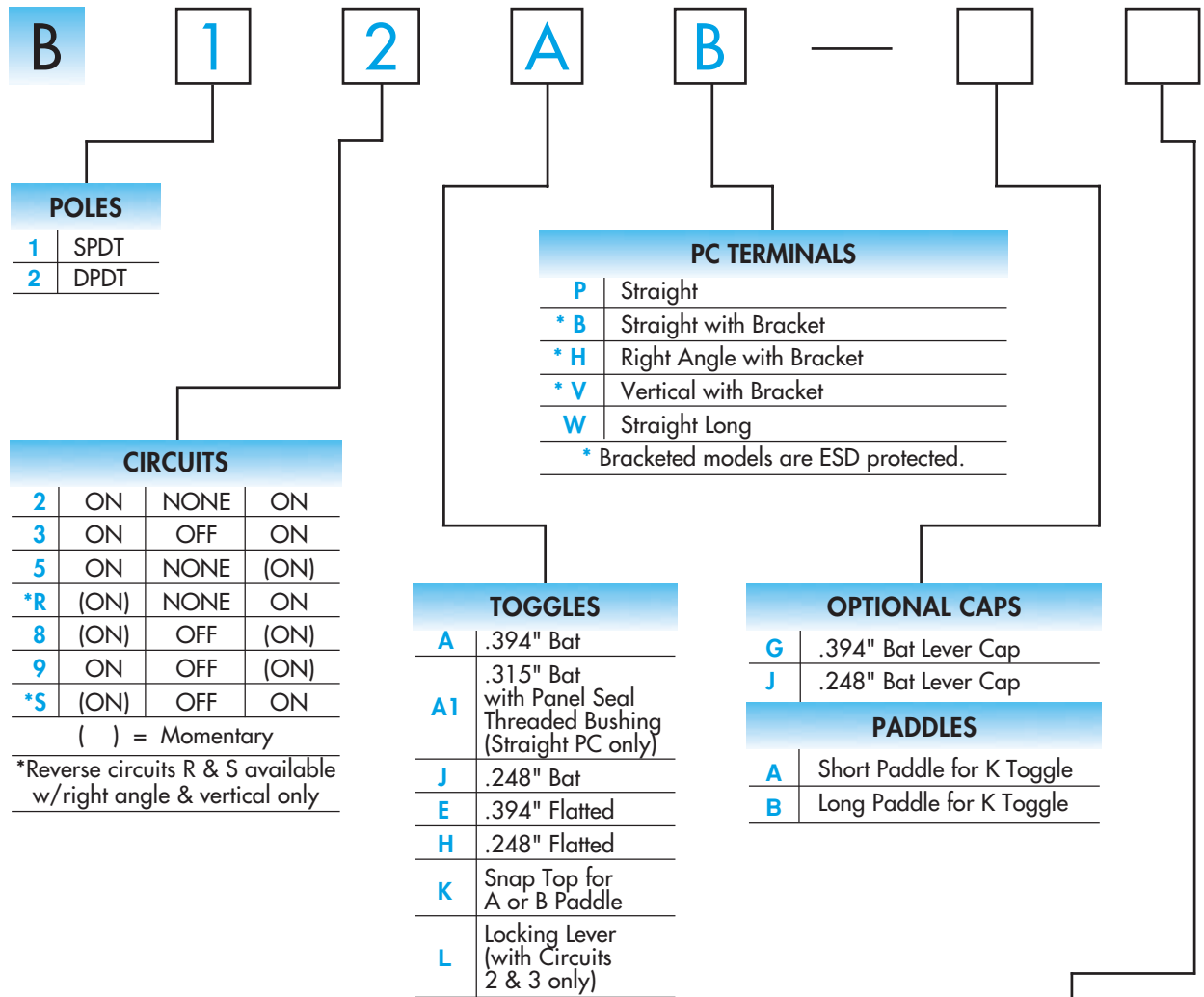
Installation

Mounting Torque: .30 ~ .45Nm (2.65 ~ 3.98 lb•in) for A1 actuator with threaded bushing only
Soldering Time & Temperature: 3 seconds @ 350°C or 5 seconds @ 270°C
Process Seal: See Supplement Index (page Z2) for specific processing data.

Standards & Certifications

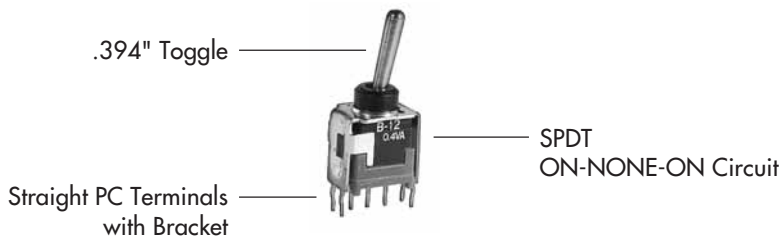
Flammability Standards: UL94V-0 available
UL Recognition or CSA Certification: The B Series toggles have not been tested for UL recognition or CSA certification. These switches are designed for use in a low-voltage, low-current, logic-level circuit. When used as intended in a logic-level circuit, the results do not produce hazardous energy.

TYPICAL SWITCH ORDERING EXAMPLE











DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

B12AB



| CAP COLORS | | PADDLE COLORS |
|------------|--------|---------------|
| A | Black | A |
| B | White | B |
| C | Red | C |
| --- | Yellow | E |
| --- | Green | F |
| --- | Blue | G |
| --- | Gray | H |

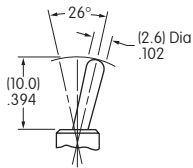
POLES & CIRCUITS

| Pole | Model | Toggle Position () = Momentary | | | Connected Terminals | | | Throw & Schematics |
|------|------------|---|---|---|---|---|---|---|
| | | Up  | Center  | Down  | Up  | Center  | Down  | |
| SP | B12 | ON | NONE | ON | 2-3 | OPEN | 2-1 | Note: Terminal numbers are not actually on the switch.  |
| | B13 | ON | OFF | ON | | | | |
| | B15 | ON | NONE | (ON) | | | | |
| | B1R | (ON) | NONE | ON | | | | |
| | B18 | (ON) | OFF | (ON) | | | | |
| | B19 | ON | OFF | (ON) | | | | |
| | B1S | (ON) | OFF | ON | | | | |
| DP | B22 | ON | NONE | ON | 2-3 5-6 | OPEN | 2-1 5-4 |  |
| | B23 | ON | OFF | ON | | | | |
| | B25 | ON | NONE | (ON) | | | | |
| | B2R | (ON) | NONE | ON | | | | |
| | B28 | (ON) | OFF | (ON) | | | | |
| | B29 | ON | OFF | (ON) | | | | |
| | B2S | (ON) | OFF | ON | | | | |

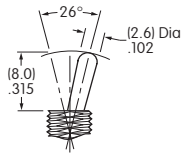
TOGGLES

Standard Material & Finish: Brass with Bright Nickel

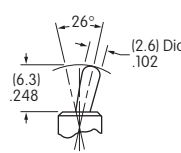
A .394" Bat



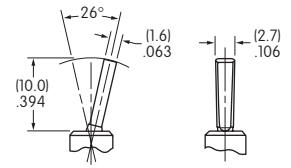
A1 .315" Bat with Panel Seal Threaded Bushing



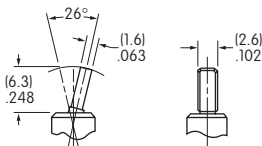
J .248" Bat



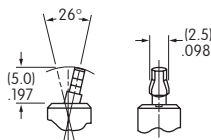
E .394" Flatted



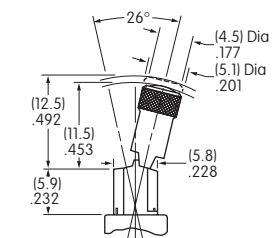
H .248" Flatted



K Snap Top for Paddles



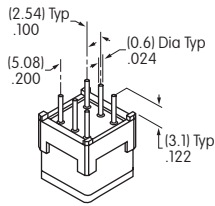
L Locking Lever



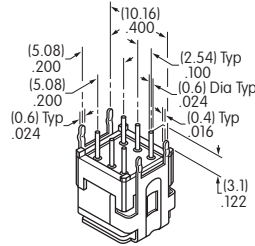
PC TERMINALS

Use of a support bracket or placement of the round bushing in a panel cutout is recommended to increase PCB mounting stability.

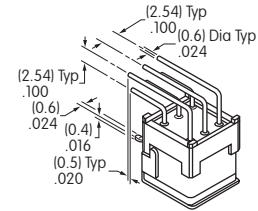
P Straight



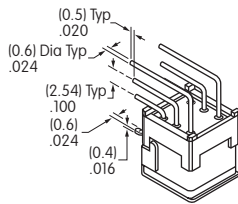
B Straight with Bracket



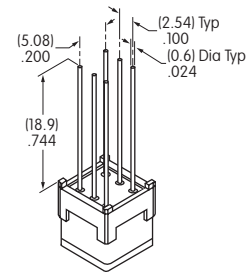
H Right Angle with Bracket



V Vertical with Bracket



W Straight Long

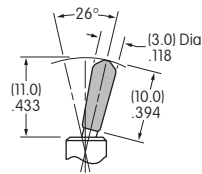


OPTIONAL CAPS

G AT4003
.394" Bat Lever Cap

Material: PVC

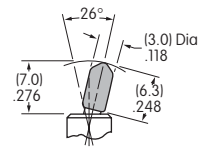
Colors Available:
A, B, C



J AT4064
.248" Bat Lever Cap

Material: PVC

Colors Available:
A, B, C

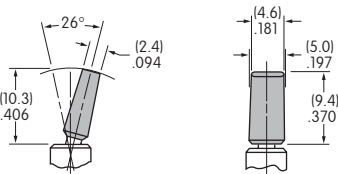


PADDLES

A AT467
Short Paddle

Material: Polyamide

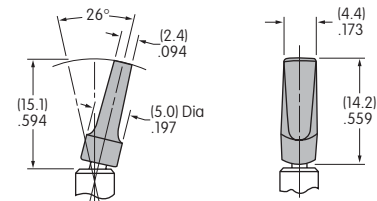
Colors Available:
A, B, C, E, F, G, H



B AT468
Long Paddle

Material: Polyamide

Colors Available:
A, B, C, E, F, G, H



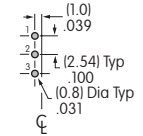
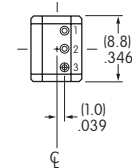
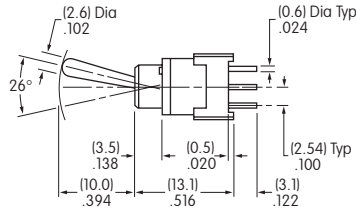
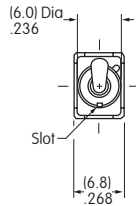
Color Codes: **A** Black **B** White **C** Red **E** Yellow **F** Green **G** Blue **H** Gray

TYPICAL SWITCH DIMENSIONS

Straight PC



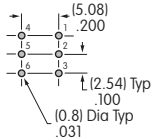
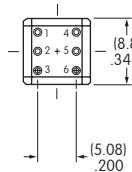
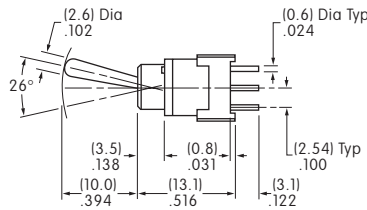
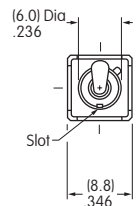
B12AP



Straight PC



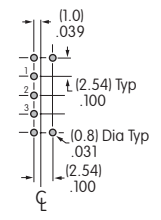
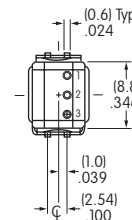
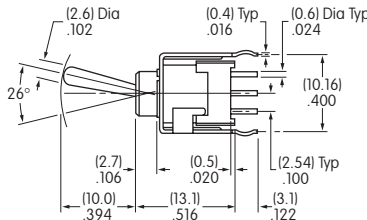
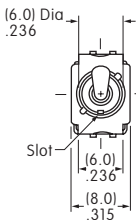
B22AP



Straight PC • Bracket



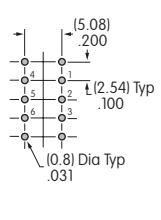
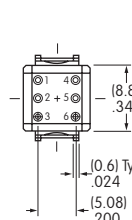
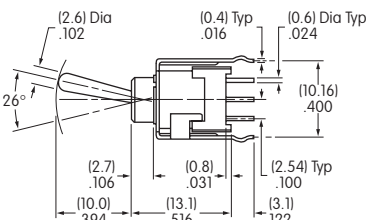
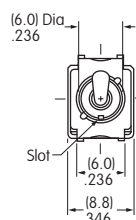
B12AB



Straight PC • Bracket



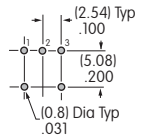
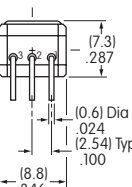
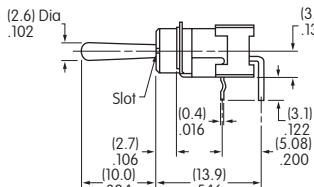
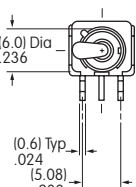
B22AB



Right Angle PC



B12AH

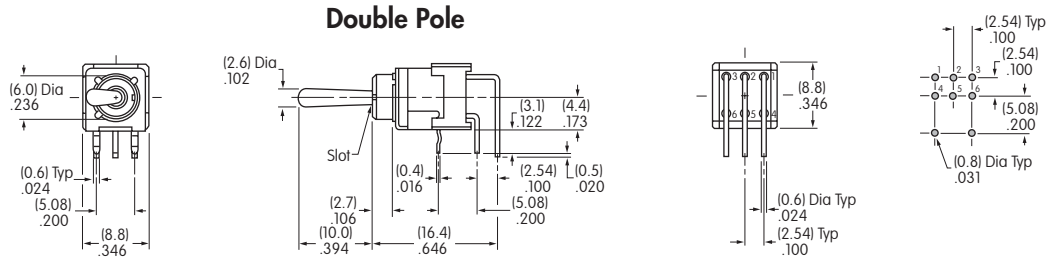


TYPICAL SWITCH DIMENSIONS

Right Angle PC



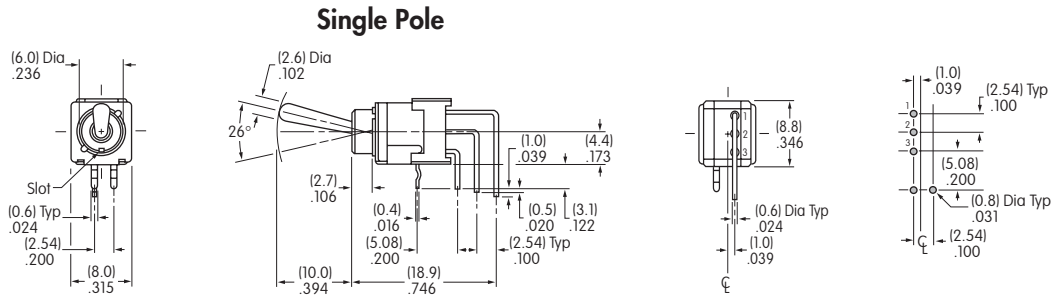
B22AH



Vertical PC



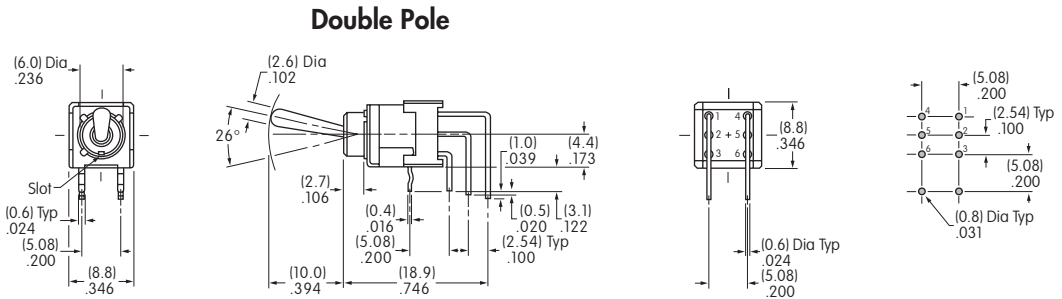
B12AV



Vertical PC



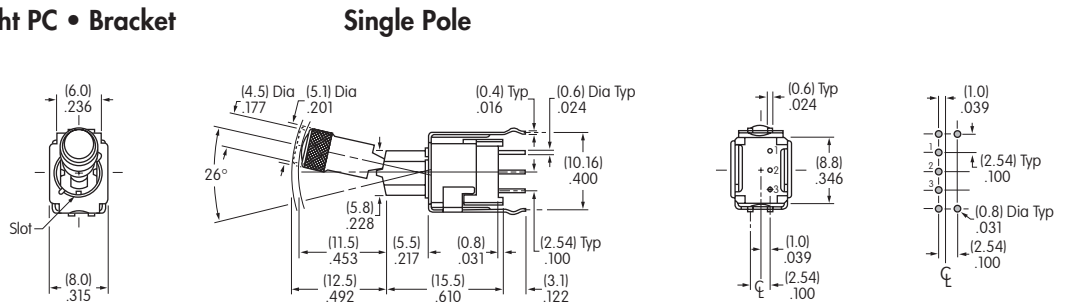
B22AV



Locking Lever • Straight PC • Bracket



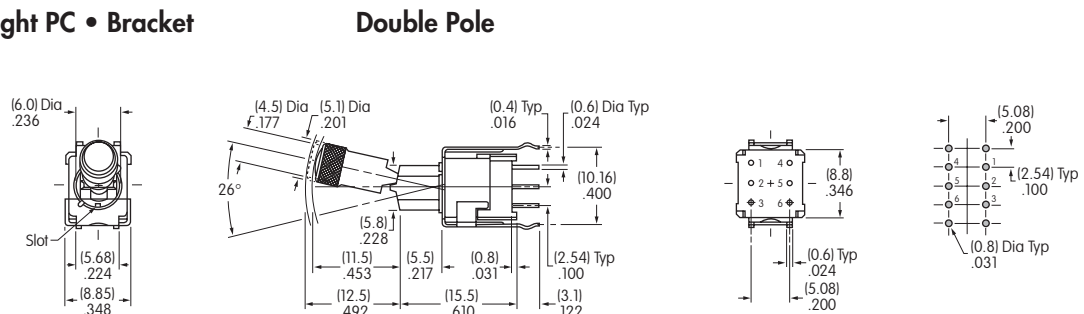
B12LB



Locking Lever • Straight PC • Bracket



B22LB

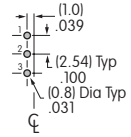
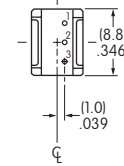
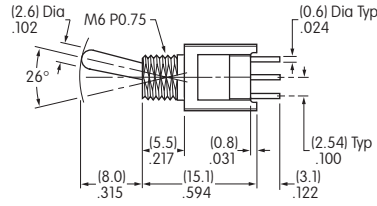
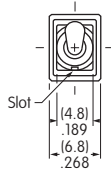


TYPICAL SWITCH DIMENSIONS

Threaded Bushing • Straight PC

Panel Seal

Single Pole

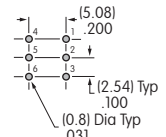
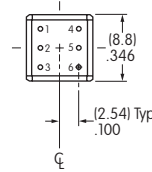
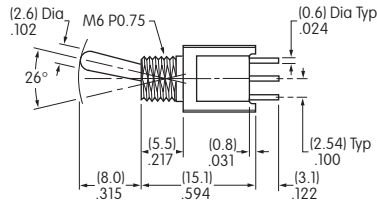
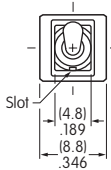


B12A1P

Threaded Bushing • Straight PC

Panel Seal

Double Pole

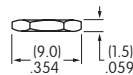
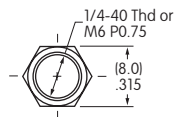


B22A1P

STANDARD HARDWARE & PANEL CUTOUT

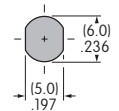
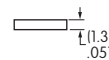
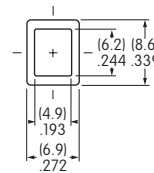
AT513M
Metric Hex Nut

Material:
Brass,
nickel plated



AT063
Gasket

Material:
Nitrile butadiene
rubber



Maximum Panel Thickness
with Standard Hardware:
2.2 mm (.087")