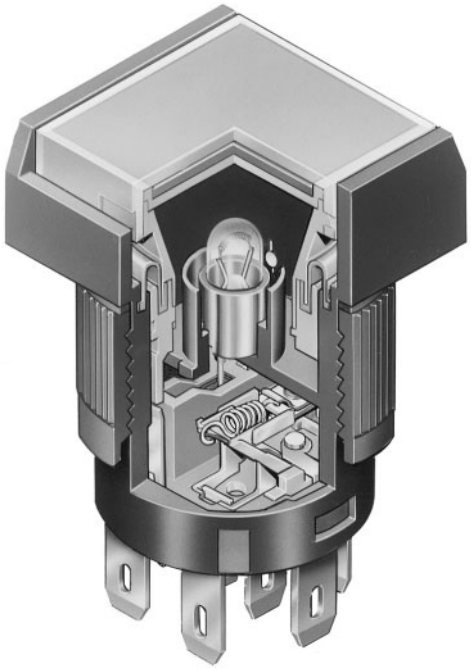
Distinctive Characteristics

Full face or spot illumination with incandescent lamps or multi-element LEDs, with or without resistors.

Choice of super bright LEDs in white, green, and blue as well as bright LEDs in red, amber, and green.

Combination bezel-barrier is an integral part of the switch and prevents accidental actuation.



Unique, patented thermoplastic elastomer seal inside caps plus rolled sleeve of nitrile butadiene rubber at joining of housing and inner case, all for added protection to interior mechanism.

Dust and oil tight as well as splashproof panel seal models qualify to IP65 of IEC529 Standards (similar to NEMA 4 and 13). Panel seal models provided with exterior o-ring.

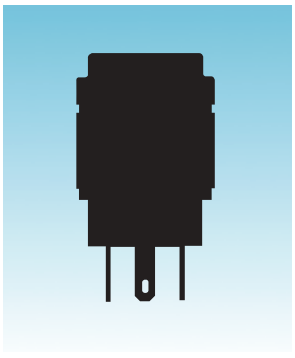
Distinctive design of snap-action contacts for shock resistance, long life, and sensitive actuation.

High density design to give behind panel depth of less than one inch.

Tin-lead plated terminals are epoxy sealed to lock out flux, dust, solvents, and other contaminants.

Latchdown for indication of circuit status, plus audible, tactile feedback with smooth, responsive operation.

Actual Size



Nonilluminated models available and shown in the Pushbutton section.

Matching indicators available and shown in the Indicator section.

General Specifications

Electrical Capacity (Resistive Load)

Power Level (code W): 3A @ 125V AC or 3A @ 250V AC or 3A @ 30V DC
Logic Level (code G): 0.4VA maximum @ 28V AC/DC maximum
Note: See Supplement Index (page Z1) to find explanation of operating range.

Other Ratings

Contact Resistance: 50 milliohms maximum for silver; 100 milliohms maximum for gold
Insulation Resistance: 200 megohms minimum @ 500V DC
Dielectric Strength: 1,000V AC minimum between contacts for 1 minute minimum;
1,500V AC minimum between contacts & case for 1 minute minimum
Mechanical Life: 1,000,000 operations minimum for momentary action
200,000 operations minimum for alternate action
Electrical Life: 100,000 operations minimum
Nominal Operating Force: Single pole: 150 grams for nonsealed; 170 grams for sealed
Double pole: 280 grams for nonsealed; 300 grams for sealed
Contact Timing: Nonshorting (break-before-make)
Travel: 1.5mm (.059") pretravel; 1.5mm (.059") overtravel; 3.0mm (.118") total travel

Materials & Finishes

Housing/Bezel: Glass fiber reinforced polyamide
Snap-in Frame: Stainless steel
Base: Diallyl phthalate resin
Movable Contactor: Phosphor bronze with silver plating or gold plating
Movable Contacts: Silver alloy with silver plating or brass with gold plating
Stationary Contacts: Silver alloy or copper with gold plating
Power Terminals: Phosphor bronze with tin-lead plating
Lamp Terminals: Phosphor bronze with tin-lead plating

Environmental Data

Operating Temp Range: -25°C through +50°C (-13°F through +122°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/s^2) acceleration (tested in 6 right angled directions, with 5 shocks in each direction)
Sealing: IP65 of IEC529 standard for panel seal models

Installation

Mounting Torque: .80Nm (7.08 lb•in) maximum
Soldering Time & Temperature: 3 seconds @ 350°C
Process Seal: Not available

Standards & Certifications

Flammability Standards: UL94V-0 housing & base
UL Recognized: All solder lug models recognized at 3A @ 125/250V AC or
0.4VA @ 28V AC/DC; UL File No. WOYR2.E44145;
add "/U" to end of part number to order UL mark on switch.
CSA Certified: All solder lug models recognized at 3A @ 125/250V AC or
0.4VA maximum @ 28V AC/DC maximum; CSA File No. 023535-0-000;
add "/C" to end of part number to order CSA mark on switch.

TYPICAL SWITCH ORDERING EXAMPLE

YB | 1 | 5 | □ | C | K | W | 01 — 6 | F — JB

POLES

1	SPDT
2	DPDT

CIRCUITS

5	ON	(ON)
( ) = Momentary		
6	ON	ON
Alternate Action with Latchdown		

PANEL SEAL

No Code	Without Panel Seal
W	With Panel Seal (Bushing Mount only)

SHAPES

Bushing Mounting	
S	Square
C	Round
R	Rectangular
Snap-In Mounting	
K	Square
M	Round
N	Rectangular

HOUSING

K	Black only

CONTACT MATERIALS & RATINGS

W	Silver Rated 3A @ 125V AC
G	Gold Rated 0.4VA max @ 28V AC/DC max

TERMINALS

01	Solder Lug/ .110" Quick Connect
03	Straight PC

IMPORTANT:

Switches are supplied without UL & CSA marking unless specified. Specific models & ratings noted on General Specifications page.

LAMPS

Incandescent Lamp

05	5-volt
12	12-volt

LED for Spot Illuminated Cap

LED Colors		Forward Voltage	
1C	Red	02	2-volt (no resistor)
1D	Amber	05	5-volt
1F	Green	12	12-volt
1CF	Red/Green	24	24-volt

Bright LED

Colors		Resistor	
5C	Red	No Code	No Resistor
5D	Amber	05	5-volt
5F	Green	12	12-volt
		24	24-volt

Super Bright LED

6B	White
6F	Green
6G	Blue

Bicolor LED for Full Face Illuminated

LED Colors		Forward Voltage	
2CF	Red/Green	02	2-volt (no resistor)
		05	5-volt
		12	12-volt
		24	24-volt

CAP TYPES & COLORS

Solid Cap: Lens/Insert Colors

BB	White/White
CB	Red/White
EB	Yellow/White
FB	Green/White
GB	Blue/White

Spot Illuminated Cap Lens/Insert Colors

JA	Clear/Black
JB	Clear/White
JC	Clear/Red
JE	Clear/Yellow
JF	Clear/Green

LED Cap: Lens/Insert Colors

JB	Clear/White
JC	Clear/Red
JD	Clear/Amber
JF	Clear/Green

LED Cap: Lens/Insert Colors

JB	Clear/White

LED Cap: Lens/Insert Colors

JB	Clear/White

DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

YB15CKW01-6F-JB

NKK Switches • email: sales@nkkswitches.com • Phone (480) 991-0942 • Fax (480) 998-1435 www.nkkswitches.com

POLES & CIRCUITS

Pole	Model	Plunger Position ( ) = Momentary: Normal	Plunger Position ( ) = Momentary: Down	Connected Terminals: Normal	Connected Terminals: Down	Throw & Power/Lamp Schematics
						Notes: Switch is marked with NO, NC, COM, L+, and L-. Lamp circuit is isolated and requires external power source.
SP	YB15 YB16*	ON ON	(ON) ON	1-3	1-2	SPDT 
DP	YB25 YB26*	ON ON	(ON) ON	1-3 4-6	1-2 4-5	DPDT 

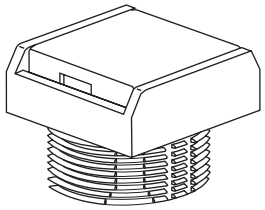
* When in latchdown position for the alternate circuit, cap position is 0.5mm (.020") above the built-in bezel.

PANEL SEAL

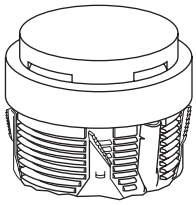
No Code **Without Panel Seal**

Bushing Mounting

Supplied with mounting nut.



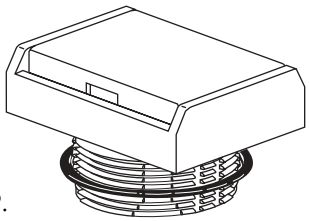
Snap-in Mounting



W **With Panel Seal**

Bushing Mounting only

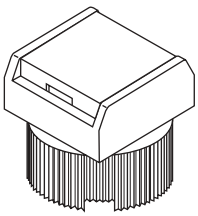
Supplied with mounting nut and o-ring AT089.



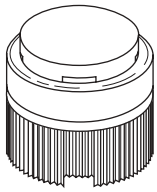
SHAPES & MOUNTING TYPES

Bushing Mounting

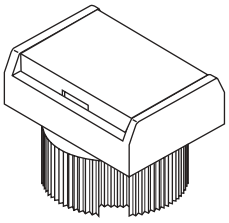
S **Square**



C **Round**

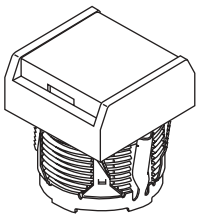


R **Rectangular**

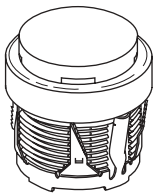


Snap-In Mounting

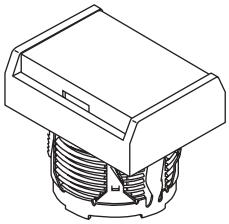
K **Square**



M **Round**



N **Rectangular**



Bezel-barrier is an integral part of the switch body.

HOUSING

K **Black**

Housing available in black only. The 1-piece body and bezel-barrier have a matte finish.

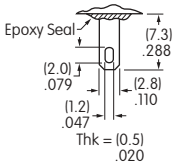
CONTACT MATERIALS & RATINGS

W	**Silver Contacts**	**Power Level**	**3A @ 125/250V AC**
G	**Gold Contacts**	**Logic Level**	**0.4VA @ 28V AC/DC**

See Supplement Index (page Z1) for complete explanation of operating range.

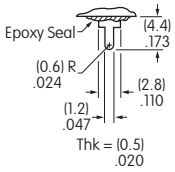
TERMINALS

01 **Solder Lug/ .110" Quick Connect**

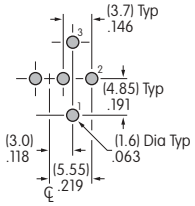


Wiring
The .047" x .079" oblong hole accommodates one solid 18-gauge wire or two solid or stranded 20-gauge wires.

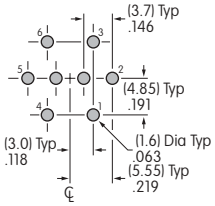
03 **Straight PC**



Single Pole



Double Pole



INCANDESCENT LAMP & SOLID CAP

Electrical Specifications

Electrical specifications are determined at a basic temperature of 25°C. Lamp circuit is independent of switch operation.
For dimension drawing of lamp see the Accessories & Hardware Index (page Y1).
If the source voltage is greater than rated voltage, a ballast resistor is required.
The ballast resistor calculation and more lamp detail are shown in the Supplement; see Supplement Index (page Z1).

AT611

T-1 Bi-pin

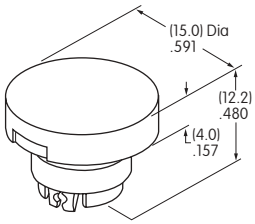
		05	**12**
Voltage	V	5V AC	12V AC
Current	I	115mA	60mA
MSCP		.150	.150
Endurance	Hours	7,000 average	
Ambient Temperature Range		-25°C ~ +50°C	

Solid Cap for Incandescent Lamp

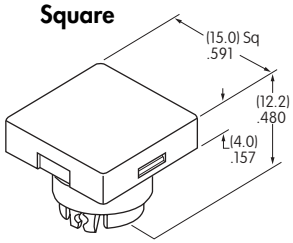
Lens/Insert Colors Available:

- **BB** White/ White
- **CB** Red/ White
- **EB** Yellow/ White
- **FB** Green/ White
- **GB** Blue/ White

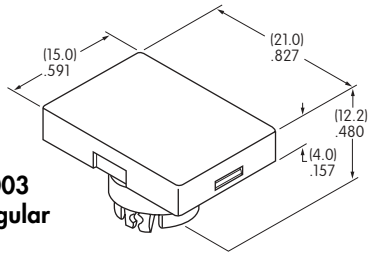
AT3002 Round

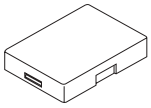


AT3001 Square

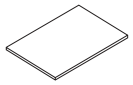


AT3003 Rectangular

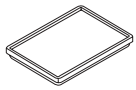




Translucent Colored Lens



Translucent White Insert



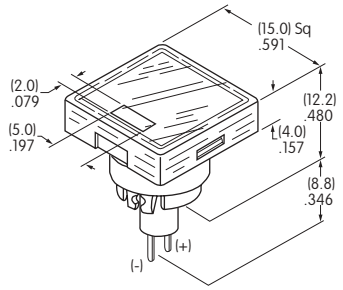
Translucent White Seal/Filter

Incandescent Lamp AT611

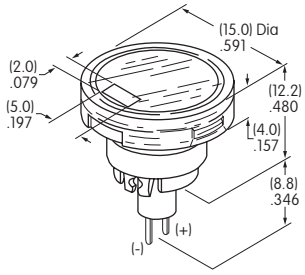
Materials: Polycarbonate (Lens & Insert)
Thermoplastic Elastomer (Seal/Filter)

SPOT ILLUMINATED CAP WITH BUILT-IN LED

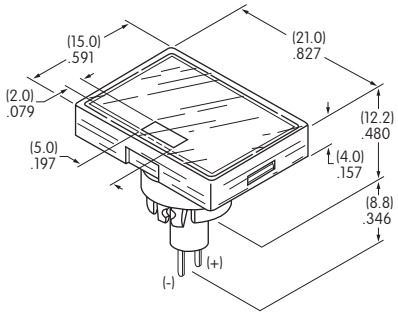
This spot-illuminated cap is factory assembled.



AT3010
Square



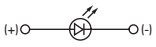
AT3011
Round



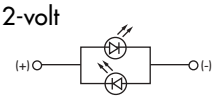
AT3012
Rectangular

Colors Available: 1C Red, 1D Amber, 1F Green, 1CF Red/Green		02 w/o Resistor	05 w/Resistor	12 w/Resistor	24 w/Resistor
Forward Peak Current	I_{FM}	20mA	15mA	15mA	12mA
Continuous Forward Current	I_F	15mA	12.5mA	12.5mA	10mA
Forward Voltage	V_F	2.1V	5V	12V	24V
Reverse Peak Voltage (not applicable to bicolor)	V_{RM}	5V	5V	5V	5V
Current Reduction Rate Above 25°C	ΔI_F	0.27mA/°C	-----	-----	-----
Ambient Temperature Range		-25°C ~ +50°C			

Without Resistor 2-volt



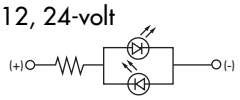
Single Color



Bicolor

With Resistor 5, 12, 24-volt

Single Color



Bicolor

Electrical specifications are determined at a basic temperature of 25°C. Lamp circuit is independent of switch operation.
Single color LEDs are colored in OFF state. Bicolor LED is translucent white in OFF state.
If the source voltage is greater than rated voltage, a ballast resistor is required.
The ballast resistor calculation and more lamp detail are shown in the Supplement; see Supplement Index (page Z1).

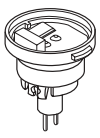
Lens/Insert Colors Available:

- JA **Clear/Black**
- JB **Clear/White**
- JC **Clear/Red**
- JE **Clear/Yellow**
- JF **Clear/Green**

Clear Lens

Colored Insert

Seal



Built-in LED (integral part of the cap)

Example part number
when cap is ordered separate from switch:
AT3010F02JA
for a
Square Spot Illuminated Cap
with Green 2-volt LED without resistor
Clear Lens and Black Insert

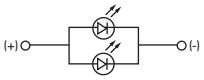
Materials: Polycarbonate (Lens & Insert) and Thermoplastic Elastomer (Seal)

BRIGHT LED & LED CAPS

Electrical specifications are determined at a basic temperature of 25°C.
LED circuit is independent of switch operation.
If the source voltage is greater than rated voltage, a ballast resistor is required. The ballast resistor calculation is shown in the Supplement (see page Z1) & lamp drawings are in Accessories & Hardware (see page Y1).

Electrical Specifications for Bright LED without Resistor

Bright AT628



T-1 Bi-pin

Color Codes: 5C Red, 5D Amber, 5F Green		No Code No Resistor		
Forward Peak Current	I_{FM}	40mA	40mA	40mA
Continuous Forward Current	I_F	26mA	26mA	26mA
Forward Voltage	V_F	1.9V	2.0V	2.2V
Reverse Peak Voltage	V_{RM}	4V	4V	4V
Current Reduction Rate Above 25°C	ΔI_F	0.50mA/°C		
Ambient Temperature Range		-25°C +50°C		

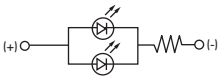
Electrical Specifications for Bright LED with Resistor

Bright AT634

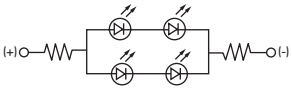
T-1¼ Bi-pin

Color Codes: 5C Red, 5D Amber, 5F Green		Resistor Codes 05	12	24
Forward Peak Current	I_{FM}	—	—	—
Continuous Forward Current	I_F	25mA	20mA	10mA
Forward Voltage	V_F	5V	12V	24V
Reverse Peak Voltage	V_{RM}	4V	8V	16V
Ambient Temperature Range		-25°C +50°C		

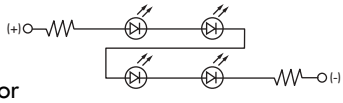
AT634 5-volt, 2-element with Resistor



AT634 12-volt, 4-element with Resistor



AT634 24-volt, 4-element with Resistor

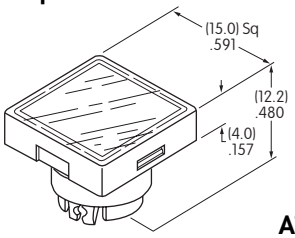


Cap for Bright LED

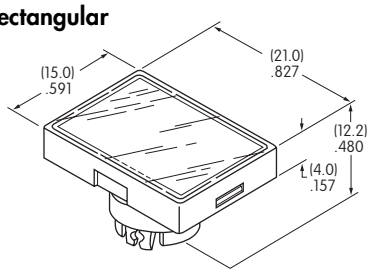
Lens/Insert Color Codes:

- JB **Clear/White**
- JC **Clear/Red**
- JD **Clear/Amber**
- JF **Clear/Green**

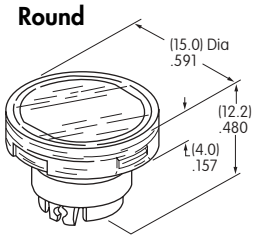
AT3004 Square

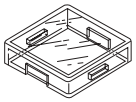


AT3006 Rectangular

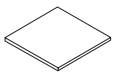


AT3005 Round

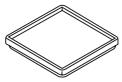




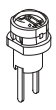
Transparent Clear Lens



Translucent Colored Insert



Translucent White Seal/Diffuser



Bright LEDS
AT628 AT634

Materials: Polycarbonate (Lens & Insert)
Thermoplastic Elastomer (Seal/Diffuser)

SUPER BRIGHT LED & LED CAPS

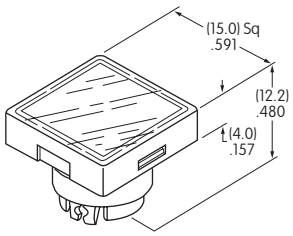
Electrical specifications are determined at a basic temperature of 25°C.
LED circuit is independent of switch operation.
If the source voltage is greater than rated voltage, a ballast resistor is required. The ballast resistor calculation is shown in the Supplement (see page Z1) & lamp drawings are in Accessories & Hardware (see page Y1).

Electrical Specifications for Super Bright LED

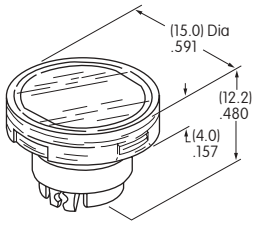
Super Bright **AT625G Blue** **AT631B White** **AT632F Green**	Attention Electrostatic Sensitive Devices (+) (-) Colors:		**6B** White	**6F** Green	**6G** Blue
	Forward Peak Current	I_{FM}	30mA	30mA	30mA
	Continuous Forward Current	I_F	20mA	20mA	20mA
	Forward Voltage	V_F	3.6V	3.5V	3.6V
	Reverse Peak Voltage	V_{RM}	5V	5V	5V
	Current Reduction Rate Above 25°C	ΔI_F	0.50mA/°C		
T-1 Bi-pin	Ambient Temperature Range		-25°C ~ +50°C		

Cap for Super Bright LED

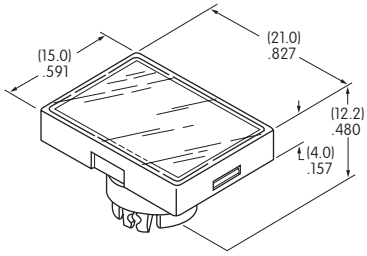
AT3014
Square



AT3015
Round



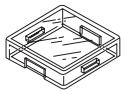
AT3016
Rectangular



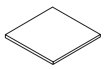
Lens/Insert
Colors Available:

JB **Clear/White**

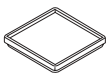
Materials: Polycarbonate (Lens & Insert)
Thermoplastic Elastomer (Seal/Diffuser)



Transparent Clear Lens



Translucent Colored Insert



Translucent White Seal/Diffuser

Super Bright LEDs
AT625 AT631
AT632

BICOLOR LED & LED CAPS

Electrical specifications are determined at a basic temperature of 25°C.
LED circuit is independent of switch operation.
If the source voltage is greater than rated voltage, a ballast resistor is required. The ballast resistor calculation and more lamp detail are shown in the Supplement; see Supplement Index (page Z1).

Electrical Specifications for Bicolor LED

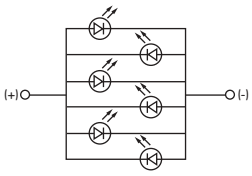
Bicolor
AT621

2CF Red/Green

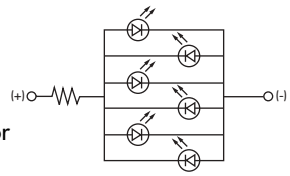
T-1½ Bi-pin

Bicolor LED is translucent white in OFF state.		02	05	12	24
Forward Peak Current	I_{FM}	60mA	60mA	20mA	12mA
Continuous Forward Current	I_F	45mA	45mA	15mA	10mA
Forward Voltage	V_F	2.1V	5V	12V	24V
Current Reduction Rate Above 25°C	ΔI_F	0.80mA°C	-----	-----	-----
Ambient Temperature Range		-25°C ~ +50°C			

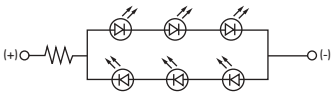
AT621
Bicolor LED
2-volt
6-element
w/o Resistor



AT621
Bicolor LED
5-volt
6-element
with Resistor



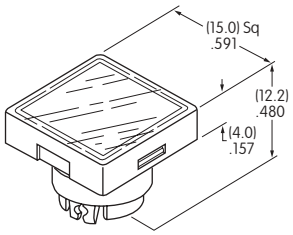
AT621
Bicolor LED
12 & 24-volt
6-element
with Resistor



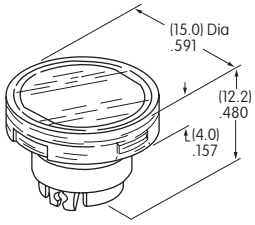
As shown for Red;
Reverse polarity for Green

LED Caps

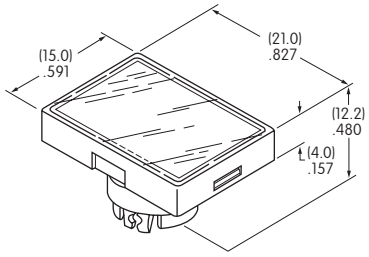
Square
AT3004

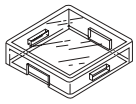


Round
AT3005

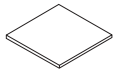


Rectangular
AT3006

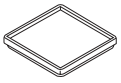




Transparent Clear Lens



Transparent Colored Insert



Translucent White Seal Diffuser

Lens/Insert
Colors Available:

JB **Clear/White**

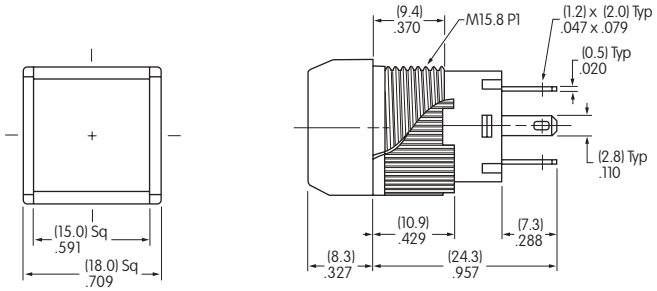
Materials: Polycarbonate (Lens & Insert)
Thermoplastic Elastomer (Seal/Diffuser)

Bicolor AT621

TYPICAL SWITCH DIMENSIONS

Square • Bushing Mounting

Single & Double Pole

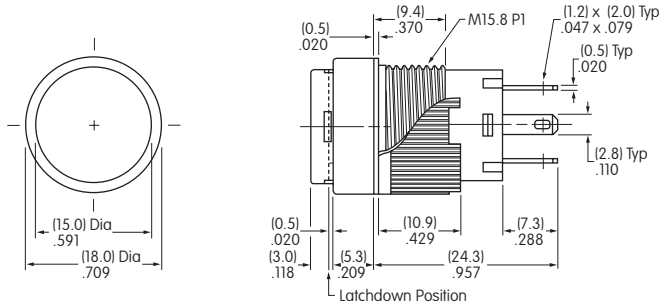


Single pole models do not have terminals 4, 5, & 6.

YB15SKW01-12-CB

Round • Panel Seal

Single & Double Pole

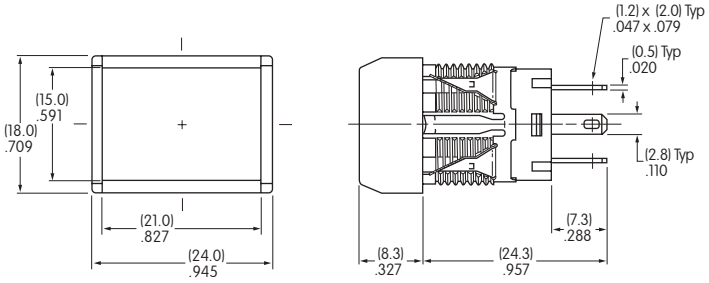


Single pole models do not have terminals 4, 5, & 6.

YB25WCKW01-12-EB

Rectangular • Snap-in Mounting

Single & Double Pole



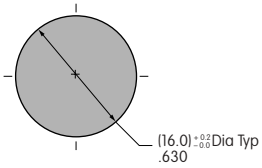
Single pole models do not have terminals 4, 5, & 6.

YB15NKW01-C04-JC

PANEL THICKNESS & CUTOUTS

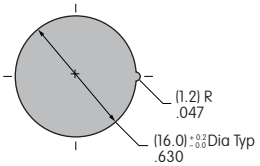
Bushing & Panel Seal Mount

Panel Thickness
0.5mm ~ 5.0mm
(.020" ~ .197")



Snap-in Mount

Panel Thickness
1.0mm ~ 3.5mm
(.039" ~ .138")



OPTIONAL ACCESSORIES

Splash Covers and Protective Guards reduce the depth of switch behind panel by 1.2mm (.047")

Panel Thickness Range with Splash Cover or Protective Guards

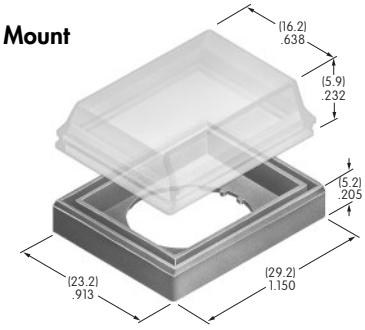
Bushing Mounting	Snap-in Mounting	Panel Seal
0.5 ~ 3.8mm (.020 ~ .150")	0.5 ~ 2.3mm (.020 ~ .091") ;	0.5 ~ 3.0mm (.020 ~ .118")

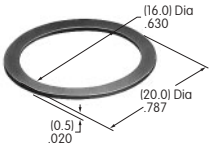
Dust/Splash Cover

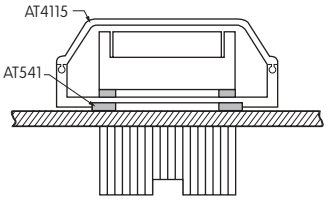
AT4115
Dust Cover for Snap-in or Bushing Mount

AT4115 with AT541 O-ring
Splash Cover for Bushing Mount

Materials:
Lid: Polyvinyl Chloride
Base: Polyamide
O-ring: Nitrile butadiene rubber



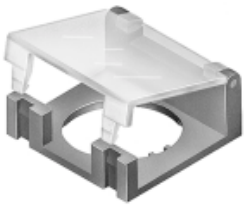


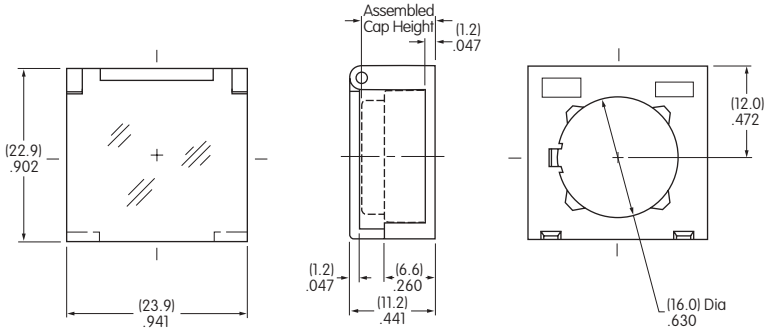


Protective Guard

AT4072 Protective Guard
Opens 90°
Closes manually

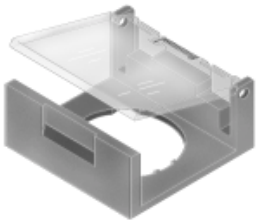
Materials:
Lid: Polycarbonate
Base: Glass Fiber
Reinforced Polycarbonate

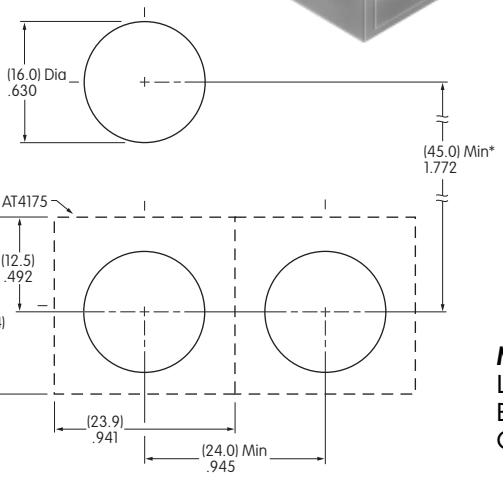


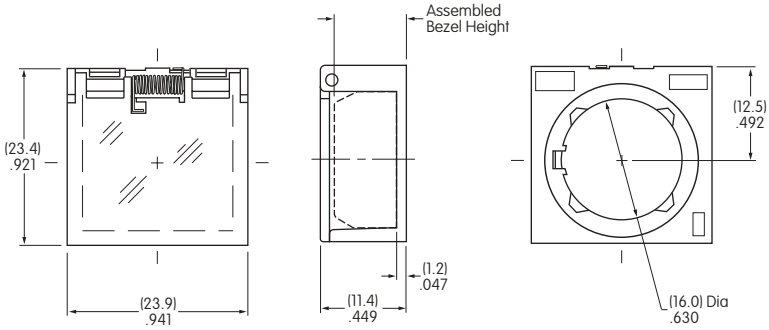


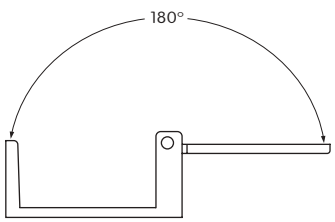
Spring Loaded Protective Guard

AT4175 Spring Loaded
Protective Guard
Opens 180°
Closes automatically







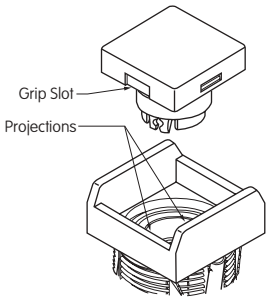


Materials:
Lid: Polycarbonate
Base: Glass Fiber Reinforced Polyamide
Coil Spring: Stainless Steel

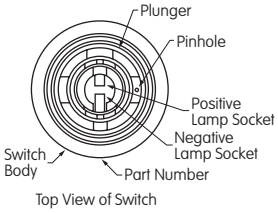
* Minimum dimension allows opening of cover to 180°

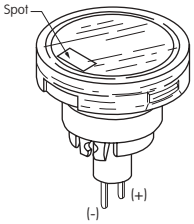
ASSEMBLY INSTRUCTIONS

Cap Assembly



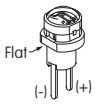
LED Polarity & Orientation in Lamp Socket



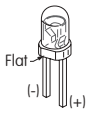


Spot Illuminated Cap with Built-in LED

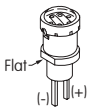
Attention Electrostatic Sensitive Devices



LED
AT628
AT634



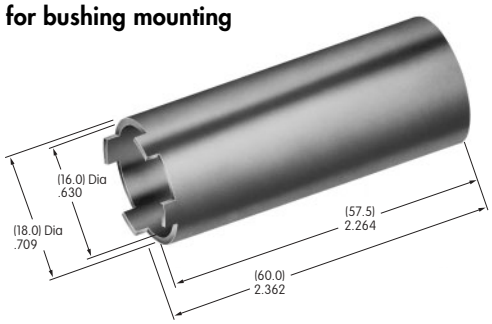
LEDs
AT625G
AT631B
AT632F



LED
AT621

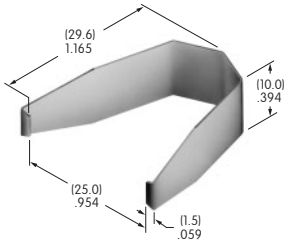
Installation Tools

AT106
Socket Wrench
for bushing mounting

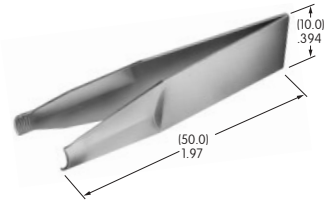


Note: Overtightening the mounting nut AT092 may damage the switch housing.

AT109 Cap Extractor



AT111 Lamping Tool



LEGENDS

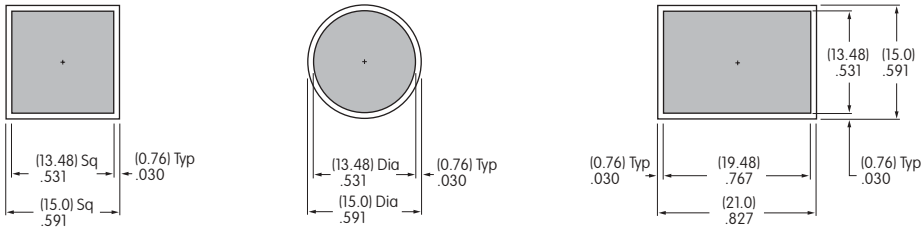
General information and basic specifications are presented here for customers who want to do their own legends.

Suggested Printable Area for Lens

Recommended Print Method:

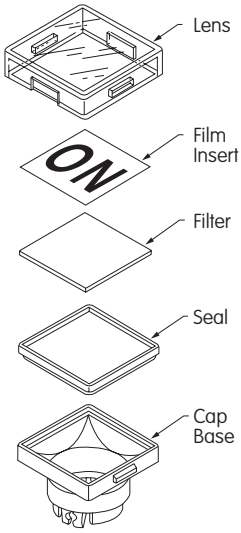
Screen Print or Pad Print

Epoxy based ink
is recommended.



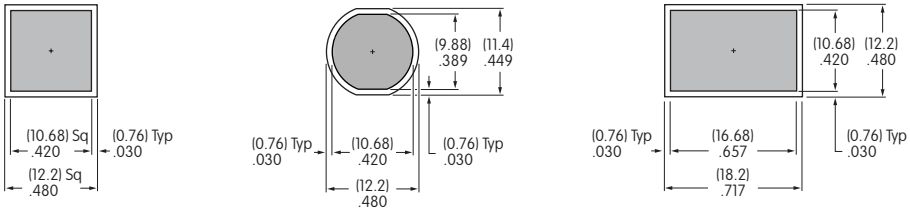
Shaded areas are printable areas.

Suggested Printable Area for Film Insert



Film Material and Thickness:
Clear Polyester, 4 mil max.

Recommended Print Method:
Screen Print
Epoxy based ink is recommended.

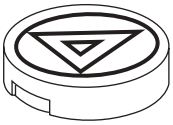


Shaded areas are printable areas.

Additional Methods

Additional methods for legends are engraving the lens and laser printing on film inserts. Maximum depth for engraving is 0.3 mm (.012″) on the cap lens. Enamel paint is recommended to fill the engraved area.

LEGEND PACKET



1. To order caps with legends contact the factory and request the YB Legend Packet.
2. Once you determine your desired legend, fill out the ordering work sheet included in the packet.
3. Return the completed work sheet to receive a quotation.