General Specifications

Electrical Capacity (Resistive Load)

Power Level (silver): 3A @ 125V AC or 3A @ 250V AC or 3A @ 30V DC
Logic Level (gold): 0.4VA maximum @ 28V AC/DC maximum
(Applicable Range 0.1mA ~ 0.1A @ 20mV ~ 28V)
Note: Find additional explanation of operating range in Supplement section.

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 circuit
200,000 operations minimum for maintained circuit
Electrical Life: 100,000 operations minimum
Nominal Operating Force: Single pole: 1.47N for nonsealed; 1.67N for sealed
Double pole: 2.75N for nonsealed; 2.94N for sealed
Contact Timing: Nonshorting (break-before-make)
Travel: Pretravel .059" (1.5mm); Overtravel .059" (1.5mm); Total Travel .118" (3.0mm)

Materials & Finishes

Housing/Bezel: Glass fiber reinforced polyamide (UL94V-0)
Snap-in Frame: Stainless steel
Base: Diallyl phthalate resin (UL94V-0)
Movable Contactor: Phosphor bronze with silver or gold plating
Movable Contacts: Silver alloy with silver plating or brass with gold plating
Stationary Contacts: Silver alloy or copper with gold plating
Switch Terminals: Phosphor bronze with tin plating
Lamp Terminals: Phosphor bronze with tin plating

Environmental Data

Operating Temperature Range: –25°C through +50°C (–13°F through +122°F) for Illuminated
–25°C through +70°C (–13°F through +158°F) for Nonilluminated
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)
Sealing: IP65 of IEC60529 standard for panel seal models

Installation

Mounting Torque: 0.785Nm (6.95 lb•in) maximum
Quick Connect Force: 24.5N maximum downward force on connector
Soldering Time & Temperature: Manual Soldering: See Profile A in Supplement section.

Standards & Certifications

Flammability Standards: UL94V-0 housing & base
UL: **File No. E44145 - Recognized only when ordered with marking on switch.**
Add "/U" or "/CUL" before first dash in part number to order UL recognized switch.
All solder lug models recognized at 3A @ 125/250V AC or 0.4VA @ 28V AC/DC maximum.
CSA: **File No. 023535_0_000 - Certified only when ordered with marking on switch.**
Add "/C" before first dash in part number to order CSA certified switch.
All solder lug models certified at 3A @ 125/250V AC or 0.4VA @ 28V AC/DC maximum.

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 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 IEC60529 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.

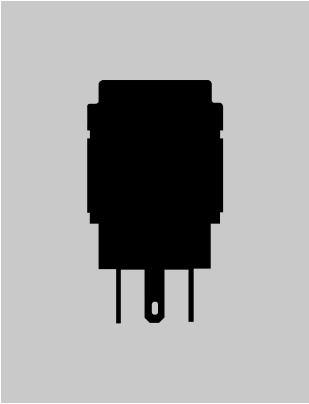
High density design to give behind panel depth of less than one inch.

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.

Matching indicators available.

Actual Size



TYPICAL SWITCH ORDERING EXAMPLE

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

Poles

1	SPDT
2	DPDT

Panel Seal

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

Housing

K	Black only

Terminals

01	Solder Lug/.110" (2.8mm) Quick Connect*
03	Straight PC

Circuits

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

Shapes

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

Contact Materials & Ratings

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

Lamps

Incandescent Lamp	
05	5-volt
12	12-volt
No Code	Nonilluminated

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			
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

IMPORTANT:

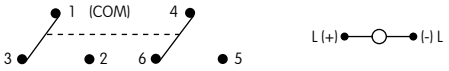
Switches are supplied without UL, cULus & CSA marking unless specified. **UL, cULus & CSA recognized only when ordered with marking on the switch.** Specific models, ratings, & ordering instructions are noted on General Specifications page.

* Wire harness & cable assemblies offered only in Americas

DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

YB15CKW01-6F-JB

POLES & CIRCUITS

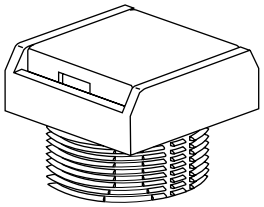
Pole	Model	Plunger Position ( ) = Momentary: Normal	Plunger Position ( ) = Momentary: Down	Connected Terminals: Normal	Connected Terminals: Down	Throw & Switch/Lamp Schematics
						Notes: Switch is marked with NC, NO, COM, L+, L–. Lamp circuit is isolated and requires external power source.
SP	**YB15** ***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 .020" (0.5mm) above the built-in bezel.

PANEL SEAL

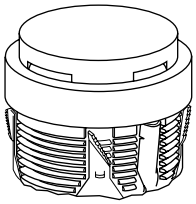
No Code **Without Panel Seal**

Bushing Mounting



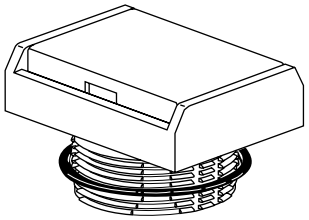
Supplied with mounting nut.

Snap-in Mounting



W **With Panel Seal**

Bushing Mounting only

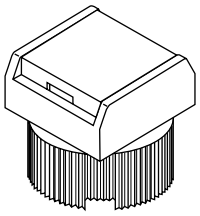


Supplied with mounting nut and o-ring AT089.

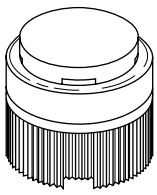
SHAPES & MOUNTING TYPES

Bushing Mounting

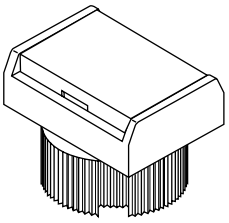
S **Square**



C **Round**

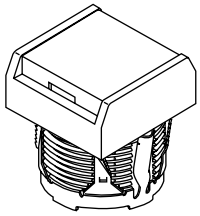


R **Rectangular**

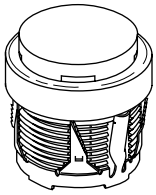


Snap-in Mounting

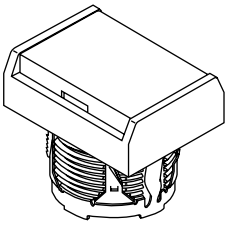
K **Square**



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**

G **Gold Contacts**

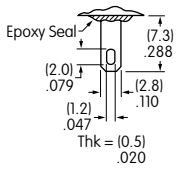
Power Level **3A @ 125/250V AC**

Logic Level **0.4VA max. @ 28V AC/DC max.**

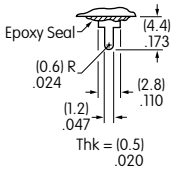
Complete explanation of operating range in Supplement section.

TERMINALS

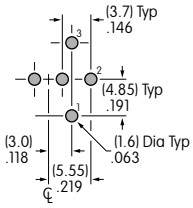
01 **Solder Lug/ .110" (2.8mm) Quick Connect**



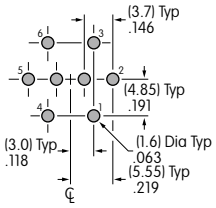
03 **Straight PC**



Single Pole



Double Pole



INCANDESCENT LAMP & SOLID CAP

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 section.

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	

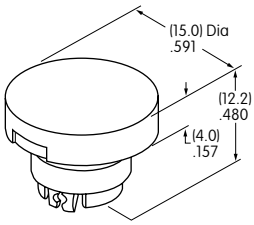
No Code **No Lamp**

Solid Cap for Incandescent Lamp & Nonilluminated

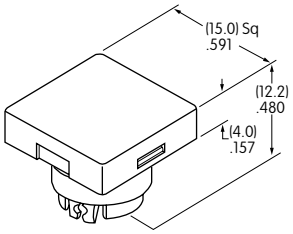
Lens/Insert Colors Available:

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

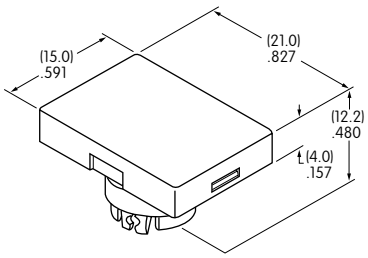
AT3002 Round

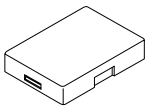


AT3001 Square

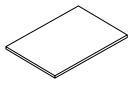


AT3003 Rectangular

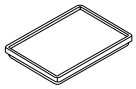




Translucent Colored Lens



Translucent White Insert



Translucent White Seal/Filter

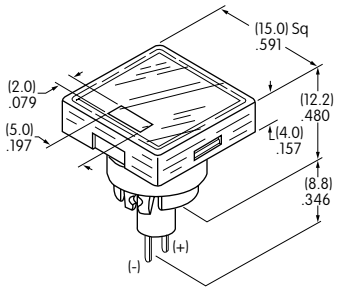
Incandescent Lamp AT611

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

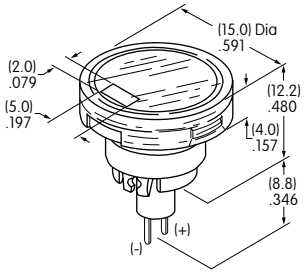
SPOT ILLUMINATED CAP WITH BUILT-IN LED

This spot-illuminated cap is factory assembled.

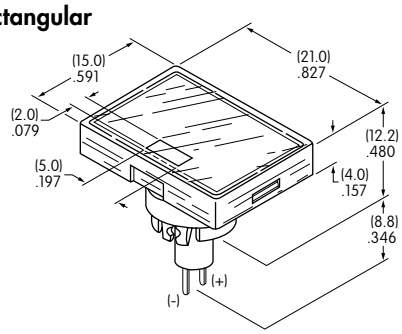
AT3010
Square



AT3011
Round

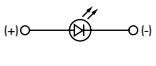


AT3012
Rectangular

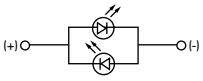


Colors Available: 1C Red	1D Amber	1F Green	1CF Red/Green	02 Without Resistor	05 With Resistor	12 With Resistor	24 With Resistor	Unit
Forward Peak Current			I_{FM}	20	15	15	12	mA
Typical Forward Current			I_F	15	12.5	12.5	10	mA
Forward Voltage			V_F	2.1	5	12	24	V
Reverse Peak Voltage (not applicable to bicolor)			V_{RM}	5	5	5	5	V
Current Reduction Rate Above 25°C			ΔI_F	0.27	——	——	——	mA/°C
Ambient Temperature Range				−25 ~ +50				°C

Without Resistor 2-volt

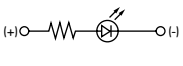


Single Color

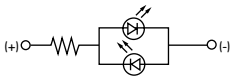


Bicolor

With Resistor 5, 12, 24-volt



Single Color



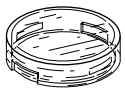
Bicolor

The electrical specifications shown are determined at a basic temperature of 25°C. LED circuit is isolated and requires external power source. Single color LEDs are colored in OFF state. Bicolor LED is translucent white in OFF state.

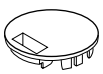
If the source voltage exceeds the rated voltage, a ballast resistor is required.
The resistor value can be calculated by using the formula in the Supplement section.

Lens/Insert Colors Available:

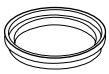
- JA **Clear/Black**
- JB **Clear/White**
- JC **Clear/Red**
- JE **Clear/Yellow**
- JF **Clear/Green**



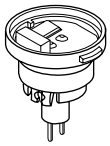
Clear Lens



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

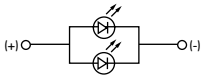
Materials:
Lens & Insert: Polycarbonate
Seal: Thermoplastic Elastomer

BRIGHT LED & LED CAPS

The electrical specifications shown are determined at a basic temperature of 25°C.
LED circuit is isolated and requires external power source.
If the source voltage exceeds the rated voltage, a ballast resistor is required.
The resistor value can be calculated by using the formula in the Supplement section.

Electrical Specifications for Bright LED without Resistor

Bright AT628



T-1 Bi-pin

Colors Available: 5C Red, 5D Amber, 5F Green		No Code No Resistor			Unit
	LED Colors	Red	Amber	Green	
Forward Peak Current	I_{FM}	40	40	40	mA
Typical Forward Current	I_F	26	26	26	mA
Forward Voltage	V_F	1.9	2.0	2.0	V
Reverse Peak Voltage	V_{RM}	4	4	4	V
Current Reduction Rate Above 25°C	ΔI_F	0.50			mA/°C
Ambient Temperature Range		−25 ~ +50			°C

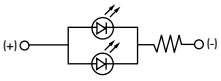
Electrical Specifications for Bright LED with Resistor

Bright AT634

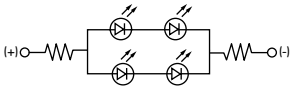
T-1¼ Bi-pin

Colors Available: 5C Red, 5D Amber, 5F Green		05	12	24	Unit
Forward Peak Current	I_{FM}	—	—	—	mA
Typical Forward Current	I_F	25	20	10	mA
Forward Voltage	V_F	5	12	24	V
Reverse Peak Voltage	V_{RM}	4	8	16	V
Current Reduction Rate Above 25°C	ΔI_F	——	——	——	mA/°C
Ambient Temperature Range		−25 ~ +50			°C

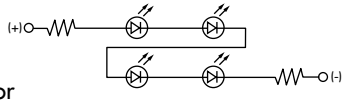
AT634 5-volt, 2-element with Resistor



AT634 12-volt, 4-element with Resistor



AT634 24-volt, 4-element with Resistor

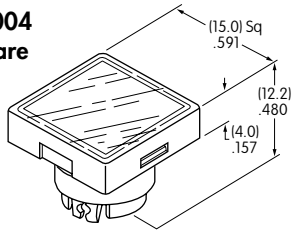


Cap for Bright LED

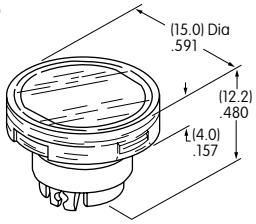
Lens/Insert Colors Available:

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

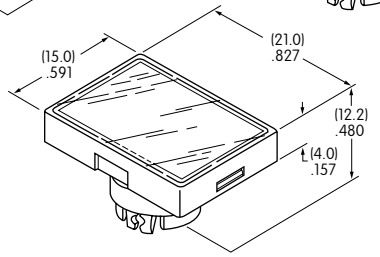
AT3004 Square

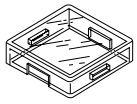


AT3005 Round

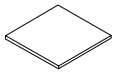


AT3006 Rectangular

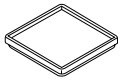




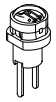
Transparent Clear Lens



Translucent Colored Insert



Translucent White Seal/Diffuser



Bright LEDs
AT628 AT634

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

SUPER BRIGHT LED & LED CAPS

The electrical specifications shown are determined at a basic temperature of 25°C.
LED circuit is isolated and requires external power source.
If the source voltage exceeds the rated voltage, a ballast resistor is required.
The resistor value can be calculated by using the formula in the Supplement section.

Electrical Specifications for Super Bright LED

Super Bright
AT625G Blue
AT631B White
AT632F Green

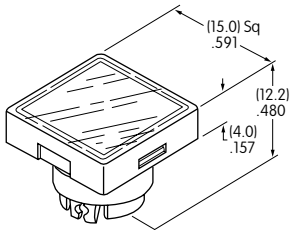
T-1 Bi-pin

ATTENTION ELECTROSTATIC SENSITIVE DEVICES

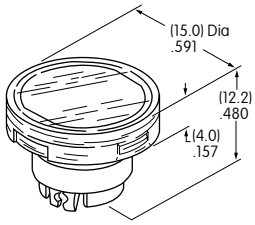
Colors:		6B White	6F Green	6G Blue	Unit
Forward Peak Current	I_{FM}	30	30	30	mA
Typical Forward Current	I_F	20	20	20	mA
Forward Voltage	V_F	3.6	3.5	3.6	V
Reverse Peak Voltage	V_{RM}	5	5	5	V
Current Reduction Rate Above 25°C	ΔI_F	0.50			mA/°C
Ambient Temperature Range		−25 ~ +50			°C

Cap for Super Bright LED

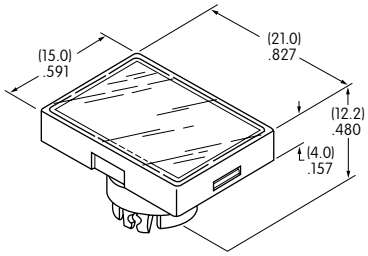
AT3014
Square



AT3015
Round

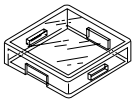


AT3016
Rectangular

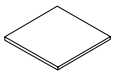


Lens/Insert
Colors Available:

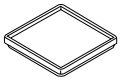
JB **Clear/White**



Transparent Clear Lens



Translucent White Insert



Translucent White Seal/Diffuser

Super Bright LEDs
AT625 AT631
AT632

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

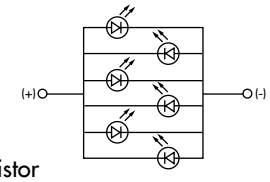
BICOLOR LED & LED CAPS

The electrical specifications shown are determined at a basic temperature of 25°C.
LED circuit is isolated and requires external power source.
If the source voltage exceeds the rated voltage, a ballast resistor is required.
The resistor value can be calculated by using the formula in the Supplement section.

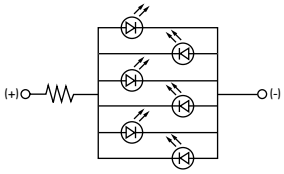
Electrical Specifications for Bicolor LED

Bicolor AT621	Bicolor LED is translucent white in OFF state.		02	05	12	24	Unit
2CF Red/Green	Forward Peak Current	I_{FM}	60	60	20	12	mA
	Typical Forward Current	I_F	45	45	15	10	mA
	Forward Voltage	V_F	2.1	5	12	24	V
	Current Reduction Rate Above 25°C	ΔI_F	0.80	——	——	——	mA/°C
T-1½ Bi-pin	Ambient Temperature Range		−25 ~ +50				°C

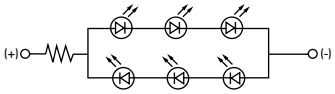
AT621
Bicolor LED
2-volt
6-element
without Resistor



AT621
Bicolor LED
5-volt
6-element
with Resistor



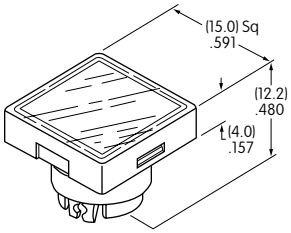
AT621
Bicolor LED
12 & 24-volt
6-element
with Resistor



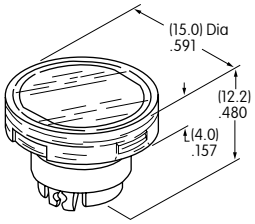
As shown for Red;
Reverse polarity for Green

LED Caps

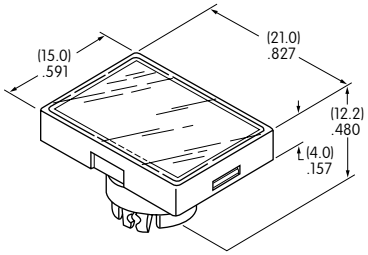
AT3004
Square

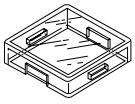


AT3005
Round

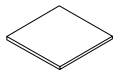


AT3006
Rectangular

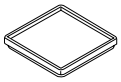




Transparent Clear Lens



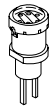
Transparent White Insert



Translucent White Seal/Diffuser

Lens/Insert
Colors Available:

JB **Clear/White**



Bicolor LED AT621

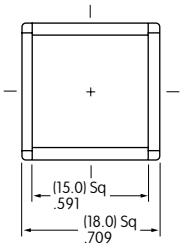
Materials:

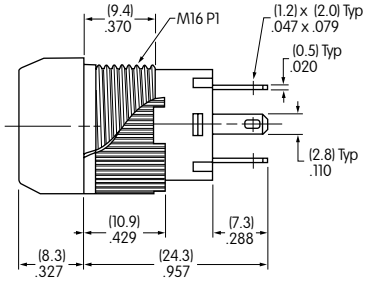
Lens & Insert: Polycarbonate Seal/Diffuser: Thermoplastic Elastomer

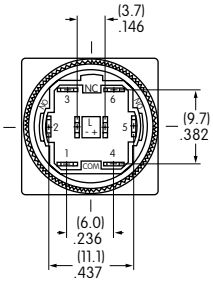
TYPICAL SWITCH DIMENSIONS

Square • Bushing Mounting

Single & Double Pole





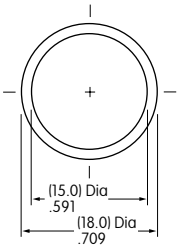


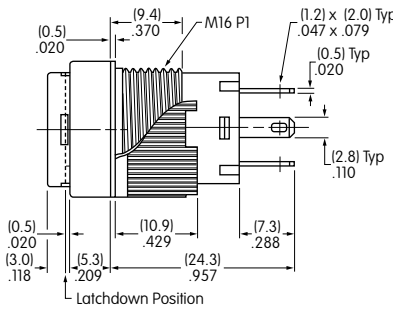
YB15SKW01-12-CB

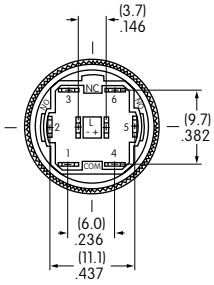
Single pole models do not have terminals 4, 5, & 6.

Round • Panel Seal

Single & Double Pole





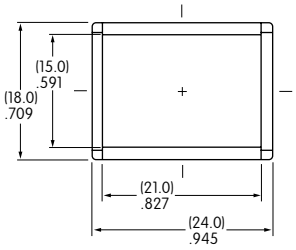


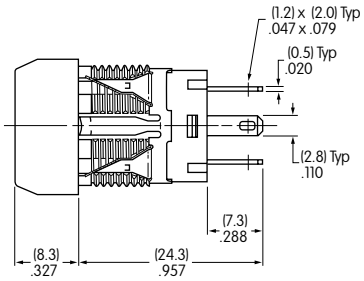
YB26WCKW01-12-EB

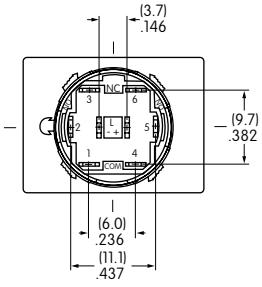
Single pole models do not have terminals 4, 5, & 6.

Rectangular • Snap-in Mounting

Single & Double Pole







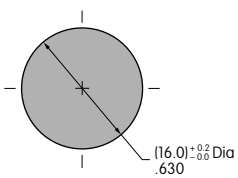
YB15NKW01-5C-JC

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

PANEL THICKNESS & CUTOUTS

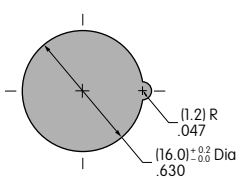
Bushing & Panel Seal Mount

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



Snap-in Mount

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



OPTIONAL ACCESSORIES

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

Panel Thickness Range with Dust Cover or Protective Guards:

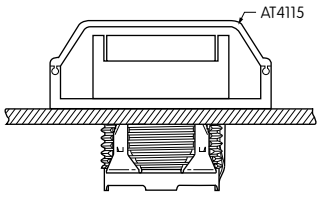
Bushing Mounting	Snap-in Mounting	Panel Seal
.020" ~ .150" (0.5mm ~ 3.8mm)	.020" ~ .091" (0.5mm ~ 2.3mm)	.020" ~ .118" (0.5mm ~ 3.0mm)

Dust/Splash Cover

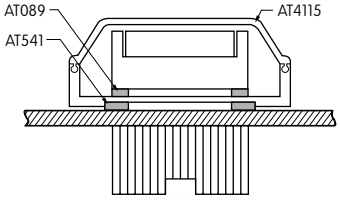
AT4115 Dust Cover for Snap-in or Bushing Mount

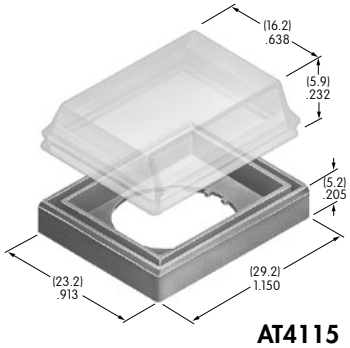
AT4115 Splash Cover and AT541 O-ring for Bushing Mount

Dust Cover

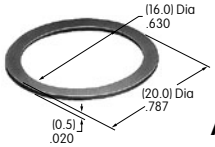


Splash Cover





AT4115



AT541

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

Snap-in Mount

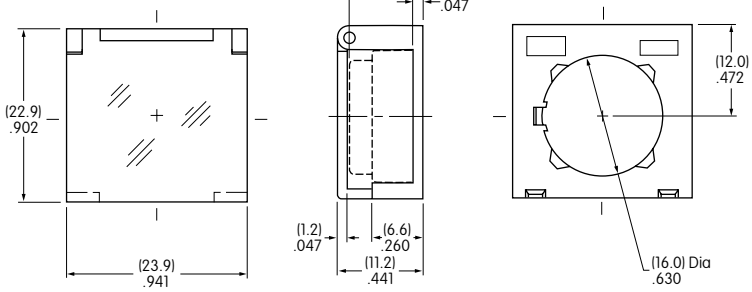
Panel Seal

Note: AT089 o-ring supplied with panel seal model.

Protective Guard

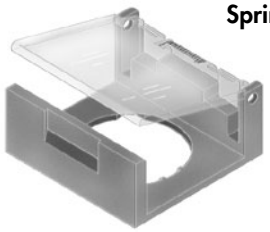
AT4072 Protective Guard
Opens 90°
Closes manually

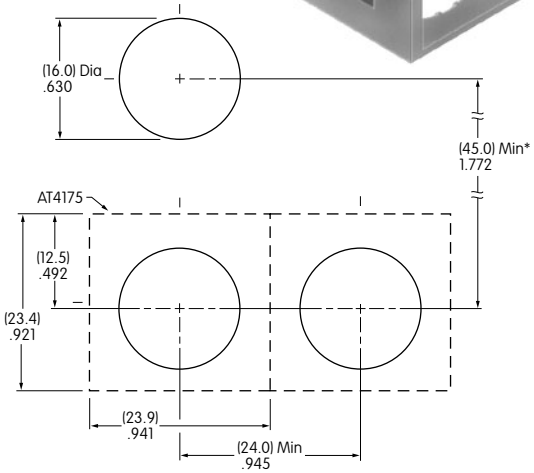
Materials:
Lid: Polycarbonate
Base: Glass Fiber Reinforced Polycarbonate

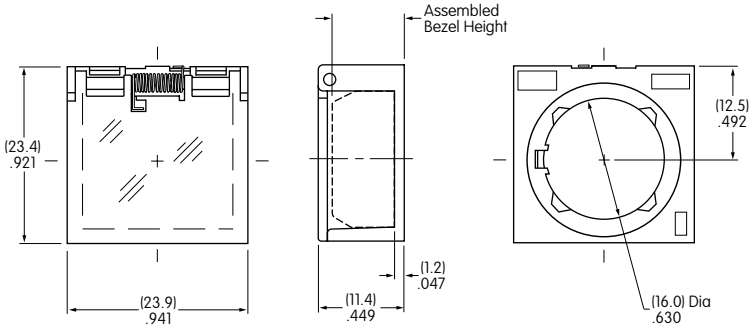


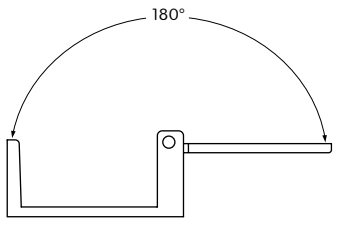
Spring Loaded Protective Guard

AT4175 Spring Loaded Protective Guard
Opens 180°
Closes automatically







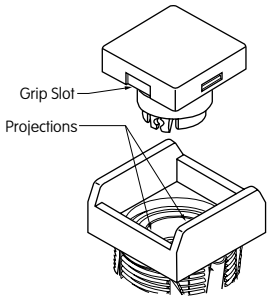


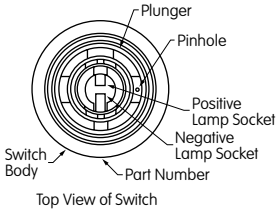
Materials:
Lid: Polycarbonate
Base: Glass Fiber Reinforced Polyamide
Coil Spring: Stainless Steel

* Minimum dimension allows opening of cover to 180°

ASSEMBLY INSTRUCTIONS

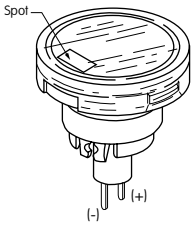
Cap Assembly





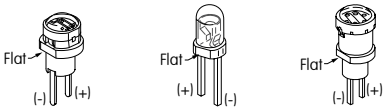
Top View of Switch

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

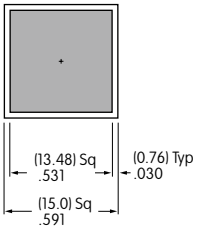
The following installation tools are available: AT106 Socket Wrench for bushing mounting (Overtightening the mounting nut AT092 may damage the switch housing.); AT109 Cap Extractor; AT111 Lamping Tool.
Further details and dimensions are shown in the Accessories and Hardware section.

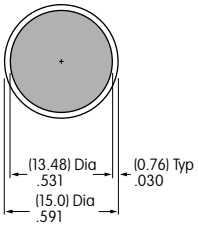
LEGENDS

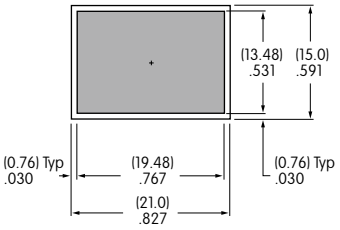
NKK Switches can provide custom legends for caps. Contact factory for more information.

Suggested Printable Area for YB Lens

Recommended Methods: Laser Etch on clear lens, Screen Print or Pad Print on Lens.
Epoxy based ink is recommended.

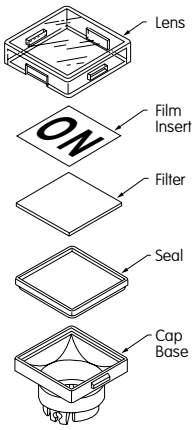




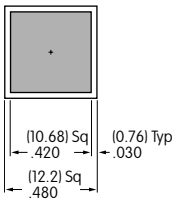


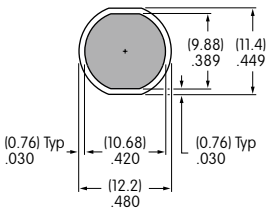
Shaded areas are printable areas.

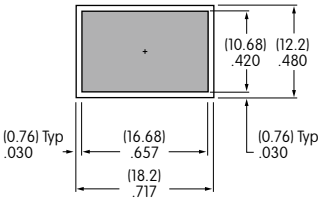
Suggested Printable Area for Film Insert



Recommended Print Method: Laser Print
Film Insert: Clear Polyester, 4 mil max. thickness







Shaded areas are printable areas.