Distinctive Characteristics

Carefully designed light diffusion and filtering system produces bright, full surface illumination with front panel relamping.

Spot illumination available in single and bicolor LEDs.

Choice of super bright LEDs in white, green, and blue in addition to standard or bright red, amber, and green LEDs.

Stainless steel clips provide secure mounting with a wide range of panel thicknesses.

Latchdown feature gives indication of circuit status. Audible and tactile feedback with smooth and responsive operation.

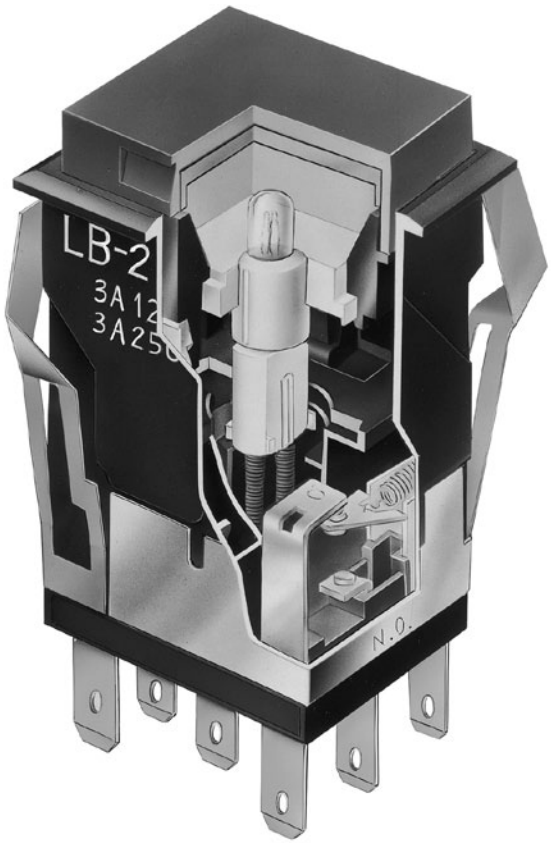
Snap-action contact mechanism gives long electrical life and sensitivity of actuation.

Combination solder lug and .110" quick connect terminals are epoxy sealed to prevent entry of flux, dust, and other contaminants.

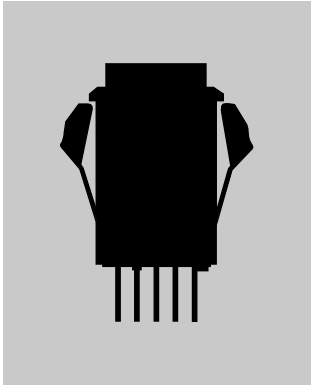
Panel sealed model meets IP65 of IEC60529 specifications (similar to NEMA 4 & 13).

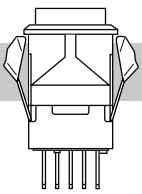
Compact switch design minimizes behind panel depth.

Matching indicators available.

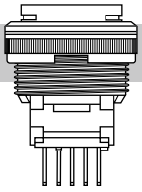


Actual Size





Snap-in Mount Page D46



Panel Seal Page D57

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: 5.39N
Contact Timing: Nonshorting (break-before-make)
Travel: Pretravel .059" (1.5mm); Overtravel .059" (1.5mm); Total Travel .118" (3.0mm)

Materials & Finishes

Housing: Glass fiber reinforced polyamide (UL94V-0)
O-ring: Nitrile butadiene rubber
Inner Seal: Silicone rubber
Movable Contact: Silver alloy or copper with gold plating
Stationary Contacts: Silver alloy or copper with gold plating
Base: Liquid crystal polymer (UL94V-0)
Switch Terminals: Phosphor bronze with silver or gold plating
Lamp Terminals: Brass with silver 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
Note: When used with a polyvinyl chloride splash cover, the lowest limit is 0°C (32°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 IEC60529 standard (similar to NEMA 4 & 13)

Installation

Mounting Torque: 1.96Nm (17.35 lb•in) maximum
Cap Installation Force: 3.92N maximum downward force on cap
Quick Connect Force: 52.95N 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 models recognized at 3A @ 125V or 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 models certified at 3A @ 125V or 250V AC or 0.4VA @ 28V AC/DC maximum.

TYPICAL SWITCH

LB 1 6 W K W01

Poles	
1	SPDT
2	DPDT

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

Shape	
W	Round

Housing	
K	Black
G	Gray

Contacts & Terminals	
W01	Silver Contacts Rated 3A @ 125/250V AC Solder Lug/Quick Connect Terminals
G01	Gold Contacts Rated 0.4VA @ 28V AC/DC Solder Lug/Quick Connect Terminals

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 the General Specifications page.

DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

LB16WKW01-5C12-JC

Red, 12-volt, Bright LED with Resistor
Round Shape
Black Housing
Clear Cap with Red Diffuser
SPDT ON-ON Circuit
Silver Contacts
Rated 3A @ 125/250V AC;
Solder Lug/Quick Connect Terminals

ORDERING EXAMPLE

— 5C 12 — JC

Lamps

Incandescent Lamp Used with Solid Cap	
05	5-volt
12	12-volt
No Code	Nonilluminated

Incandescent or Neon Used with Insert Cap	
01	110-volt Neon
05	5-volt Incandescent
12	12-volt Incandescent
No Code	Nonilluminated

Bright LED Used with LED Cap			
Colors		Resistor	
5C	Red	No Code	No Resistor
5D	Amber	05	5-volt
5F	Green	12	12-volt
		24	24-volt

Super Bright LED Used with LED Cap	
6B	White
6F	Green
6G	Blue

Cap Types & Colors

Solid Cap: Lens/Filter Colors	
BJ	White/Clear
CJ	Red/Clear
EJ	Yellow/Clear
FJ	Green/Clear
GJ	Blue/Clear

Insert Cap: Lens/Filter Colors	
JB	Clear/White
JC	Clear/Red
JE	Clear/Yellow
*JF	Clear/Green
*JG	Clear/Blue
*JF & JG not suitable with neon.	

LED Cap: Lens/Diffuser Colors	
JB	Clear/White
JC	Clear/Red
JD	Clear/Amber
JF	Clear/Green

LED Cap: Lens/Diffuser Colors	
JB	Clear/White

Series LB

Standard Size Panel Seal Pushbuttons

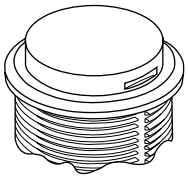
POLES & CIRCUITS

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	**LB15** ***LB16**	ON ON	(ON) ON	1-3	1-2	SPDT 
DP	**LB25** ***LB26**	ON ON	(ON) ON	1-3 4-6	1-2 4-5	DPDT 

* When in latchdown position for the alternate circuit, cap position is .039" (1.0mm) above the built-in bezel.

SHAPE & PANEL CUTOUT

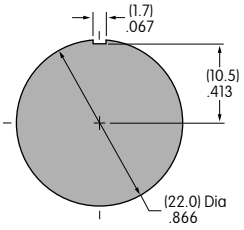
W **.866" (22.0mm) Round**



Recommended Panel Thickness:
.039" ~ .157" (1.0mm ~ 4.0mm)

Recommended Panel Thickness with Splash Cover:
.039" ~ .138" (1.0mm ~ 3.5mm)

Overtightening the mounting nut AT074 may damage the switch housing.



HOUSING

Housing Colors Available: **K** Black **G** Gray

CONTACT MATERIALS, RATINGS & TERMINALS

W01 **Silver Contacts**

Power Level
3A @ 125V AC & 250V AC

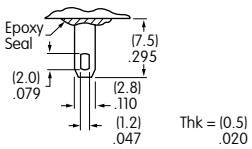
G01 **Gold Contacts**

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

Complete explanation of operating range in Supplement section.

Solder Lug/Quick Connect

Optional PCB adaptors AT711 & AT712 available; illustrated in previous snap-in subsection.



INCANDESCENT & NEON LAMP CODES & SPECIFICATIONS

AT607 & AT607N

T-1 Bi-pin

		05	12	01 *
AT607 Incandescent 5-volt or 12-volt; AT607N Neon 110-volt				
Voltage	V	5V AC	12V AC	110V AC
Current	I	115mA	60mA	1.5mA
Endurance	Avg. Hours	10,000		10,000
Ambient Temp. Range		–25°C ~ +50°C		

The electrical specifications shown are determined at a basic temperature of 25°C. Lamp circuit is isolated and requires external power source.

* Recommended Resistors for Neon:
33K ohms for 110V AC;
100K ohms for 220V AC

LED COLORS & SPECIFICATIONS

The electrical specifications shown are determined at a basic temperature of 25°C.
LED circuit is isolated and requires external power source. Polarity marks are on the switch.
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.
Additional lamp detail is shown in the Accessories & Hardware section.

Bright LED without Resistor

AT635

LEDs are colored in OFF state.

T-1½ Bi-pin

Color Codes	Red 5C	Amber 5D	Green 5F	No Code: No Resistor
				Red / Amber / Green
Maximum Forward Current I_{FM}				30mA / 30mA / 30mA
Typical Forward Current I_F				20mA / 20mA / 20mA
Forward Voltage V_F				1.9V / 2.0V / 2.1V
Maximum Reverse Voltage V_{RM}				5V / 5V / 5V
Current Reduction Rate Above 25°C ΔI_F				0.42mA/°C
Ambient Temperature Range				−25° ~ +50°C

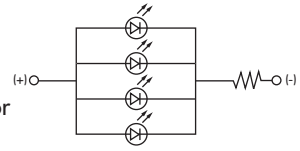
Bright LED with Resistor

AT627 with Resistor

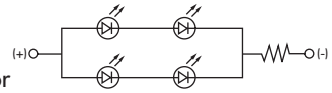
T-1 Bi-pin

Color Codes:	Red 5C	Amber 5D	Green 5F	Resistor Codes 05	12	24
Maximum Forward Current I_{FM}				—	—	—
Typical Forward Current I_F				52mA	26mA	13mA
Forward Voltage V_F				5V	12V	24V
Maximum Reverse Voltage V_{RM}				4V	8V	16V
Current Reduction Rate Above 25°C ΔI_F				0.50mA/°C		
Ambient Temperature Range				−25° ~ +50°C		

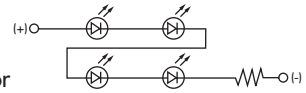
AT627
5-volt
4-element
with Resistor



AT627
12-volt
4-element
with Resistor

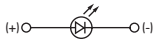


AT627
24-volt
4-element
with Resistor



Super Bright Single Element LED

AT625G Blue
AT631B White
AT632F Green



T-1 Bi-pin

ATTENTION ELECTROSTATIC SENSITIVE DEVICES	Color	6B White	6F Green	6G Blue
Maximum Forward Current	I_{FM}	30mA	30mA	30mA
Typical Forward Current	I_F	20mA	20mA	20mA
Forward Voltage	V_F	3.6V	3.3V	3.3V
Maximum Reverse Voltage	V_{RM}	5V	7V	7V
Current Reduction Rate Above 25°C	ΔI_F	0.50mA/°C	0.40mA/°C	0.40mA/°C
Ambient Temperature Range		−25° ~ +50°C		

No Code **No Lamp**

CAP TYPES & COLOR COMBINATIONS

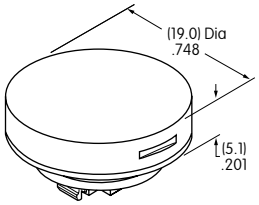
Color Codes: **B** White **C** Red **D** Amber **E** Yellow **F** Green **G** Blue **J** Clear

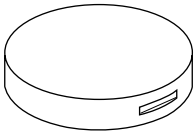
Solid Cap for Incandescent Lamp & Nonilluminated

Lens/Filter Colors Available:

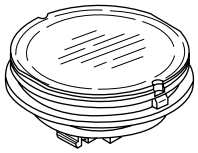
BJ FJ CJ GJ EJ

AT4054

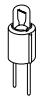




Translucent Colored Lens



Transparent Clear Filter



Lamp AT607

Material: Polycarbonate Finish: Glossy

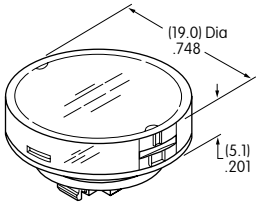
Insert Cap for Incandescent or Neon Lamp & Nonilluminated

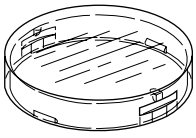
Lens/Filter Colors Available:

JB JF JC JG JE

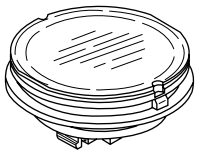
JF and JG not suitable with neon lamp.

AT4055

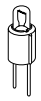




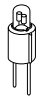
Transparent Clear Lens



Translucent Colored Filter



Lamp AT607



Lamp AT607N

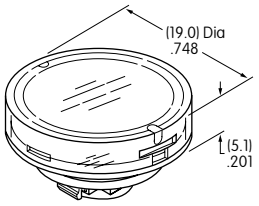
Material: Polycarbonate Finish: Glossy

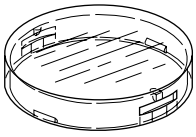
Cap for Bright LED without Resistor

Lens/Diffuser Colors Available:

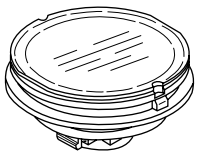
JB JC JD JF

AT4179





Transparent Clear Lens



Translucent Colored Diffuser

Bright LED AT635

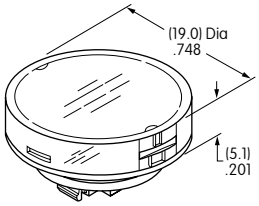
Material: Polycarbonate Finish: Glossy

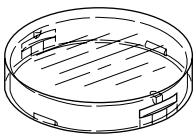
Cap for Bright LED with Resistor

Lens/Diffuser Colors Available:

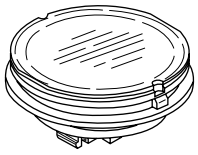
JB JC JD JF

AT4165

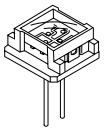




Transparent Clear Lens



Translucent Colored Diffuser



Bright LED AT627

Material: Polycarbonate Finish: Glossy

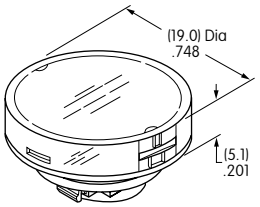
CAP TYPES & COLOR COMBINATIONS

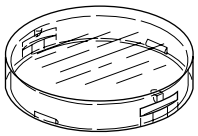
Cap for Super Bright LEDs

JB **Clear Lens**
White Diffuser

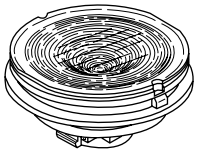
Material:
Polycarbonate
Finish: Glossy

AT4131





Transparent
Clear Lens

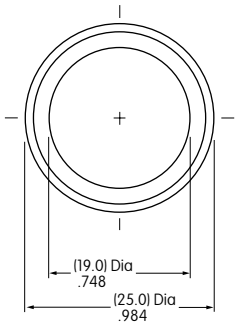


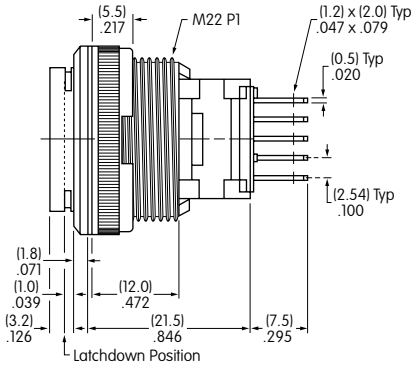
Translucent
Colored Diffuser

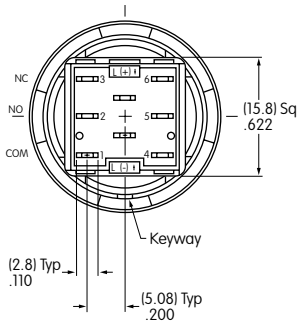
LEDs
AT625
AT631
AT632

TYPICAL SWITCH DIMENSIONS

Single & Double Pole







Panel Seal

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

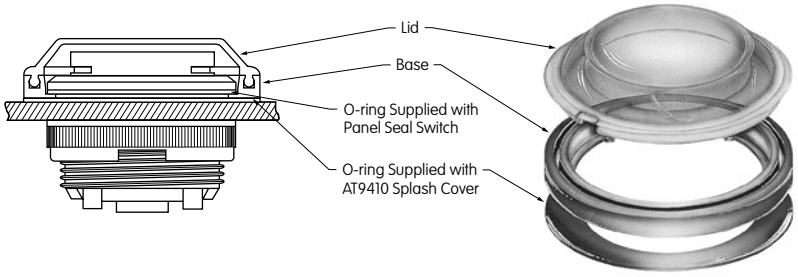
LB25WKW01-12-JC

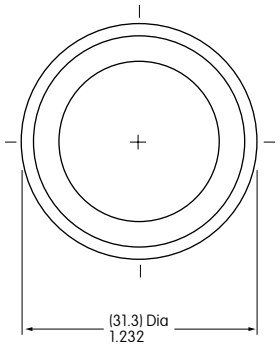
OPTIONAL ACCESSORIES

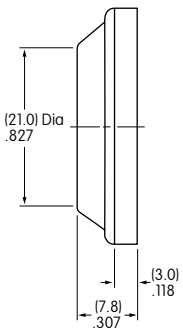
AT9410 Splash Cover for Panel Seal

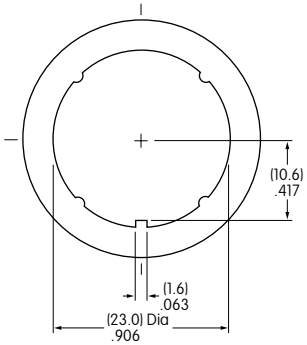
Materials:
Lid: PVC (loses pliability below 0°C/32°F)
Base: Polyethylene
O-ring: NBR

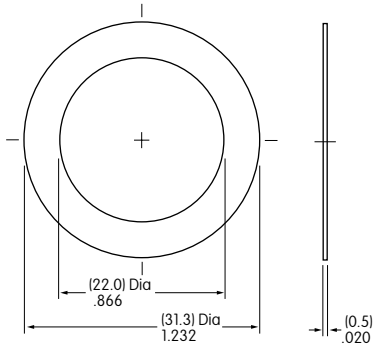
Recommended Panel Thickness:
.039" ~ .138" (1.0mm ~ 3.5mm)









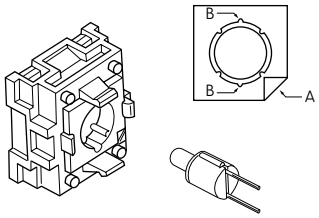


ASSEMBLY INSTRUCTIONS

Lamp Installation & LED Orientation

Incandescent & Neon Lamps AT607 & AT607N

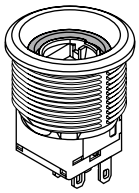
Align projections on lamp with grooves (B) in holder when inserting lamp. To correctly join the lamp holder and cap base, match the cut corners (A).



Bright LED AT627

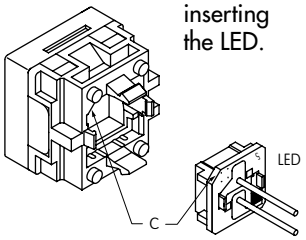
Panel Seal Models

For panel seal models, Bright LED must first be inserted into the lamp socket which is built into the switch. The cap can then be placed on the switch.



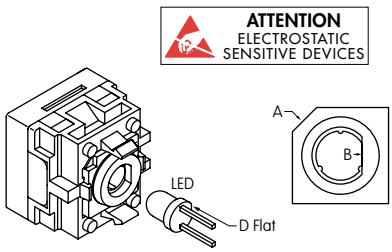
Snap-in Models

For snap-in models, Bright LED must be inserted into the cap first. Align cut corners (C) when inserting the LED.

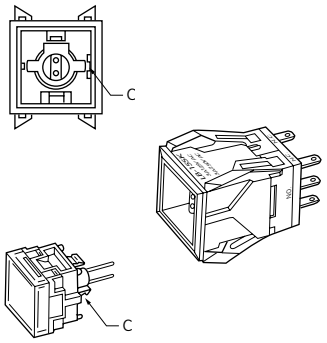


Bright & Super Bright LEDs AT625, AT631, AT632, AT635

Align D-flat on LED with flat (B) in holder when inserting the LED.
To correctly join the lamp holder and cap base, match the cut corners (A).



Switch & Cap Assembly

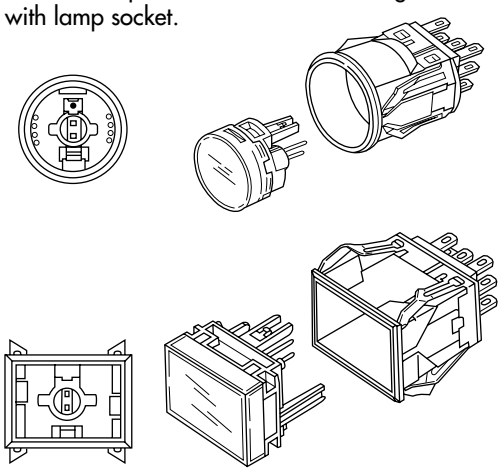


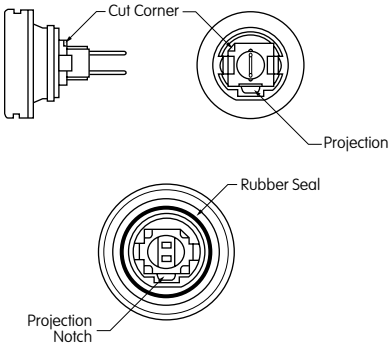
Square

Match projection (C) on cap assembly with groove (C) inside switch. Lamp terminals will then be aligned correctly with lamp socket.

Round & Rectangular

Match clip on cap assembly with receptacle inside switch. Lamp terminals will then be aligned correctly with lamp socket.





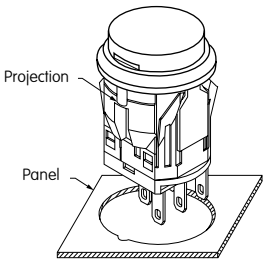
Panel Seal

With Lamps AT607, AT607N, and LEDs AT614, AT625, AT631, AT632: Match projection on cap assembly with notch inside switch. Lamp terminals will then be aligned correctly with lamp socket.

Installation & Maintenance

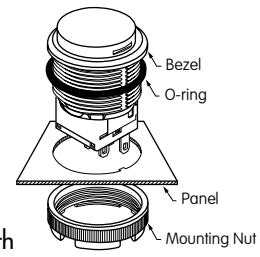
Snap-in Mount

Snap-in clip holds all switches firmly in place.
To mount round switch, match the antirotation projection on switch with guide cut in panel. Snap into panel cutout.



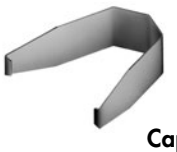
Panel Seal Bushing Mount

Insert switch from the front of the panel with the o-ring between the built-in bezel and the panel. Install mounting nut AT075 (supplied with switch) from the rear of the panel.
Overtightening mounting nut may damage the switch housing.



Lamp Replacement

Actuator must be in UP position. Pull off cap with cap extractor AT109.
Replace lamp and reassemble as shown above.



AT109
Cap Extractor

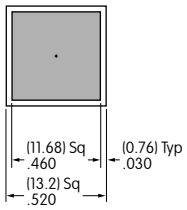
AT112
Socket Wrench

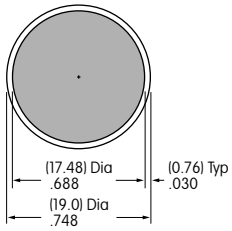
LEGENDS

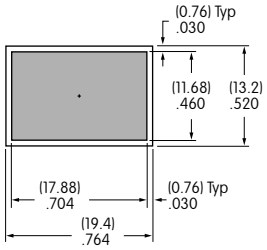
NKK Switches can provide custom legends for caps. Contact factory for more information.

Suggested Printable Area for Lens

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



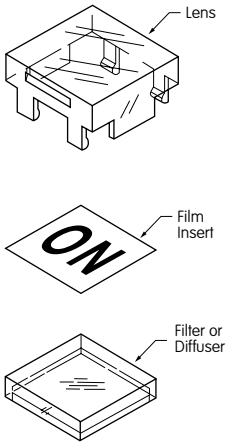




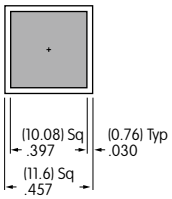
Shaded areas are printable areas.

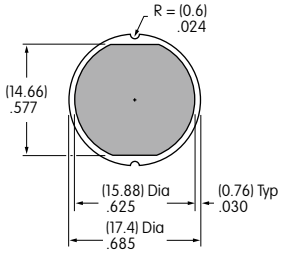
Suggested Printable Area for Film Insert

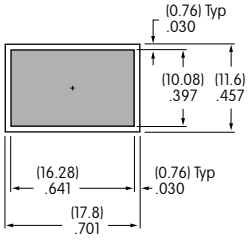
Recommended Print Method: Laser Print or Screen Print with Epoxy based ink



Film Insert: Clear Polyester, 4 mil max. thickness







Shaded areas are printable areas.