

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. |

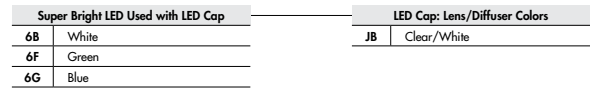
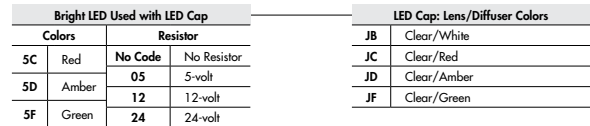
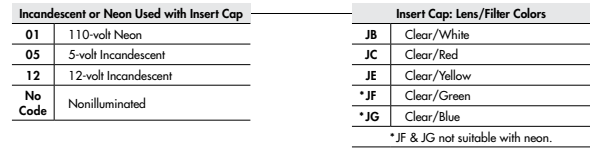
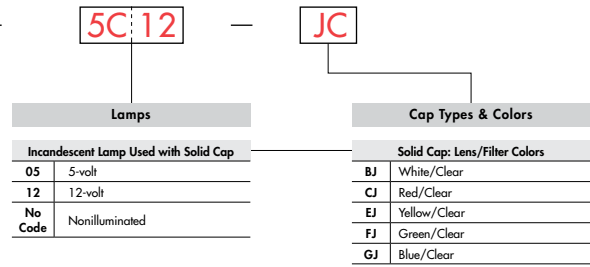
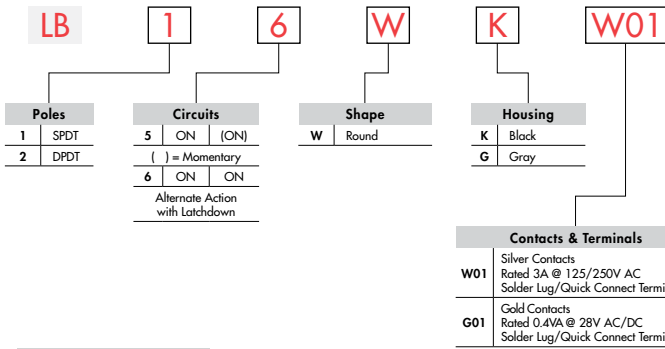
Standards & Certifications

| | |
|--------------------------------|---|
| Flammability Standards: | UL94V-0 housing & base |
| UL: | File No. E44145 All models recognized at 3A @ 125V or 250V AC or 0.4VA @ 28V AC/DC maximum. Add "/U" to end of part number to order UL mark on switch. Add "/CUL" to end of part number to order cULus mark on switch. |
| CSA: | File No. 023535_0_000 All models certified at 3A @ 125V or 250V AC or 0.4VA @ 28V AC/DC maximum. Add "/C" to end of part number to order CSA mark on switch. |

Series LB

Standard Size Panel Seal Pushbuttons

TYPICAL SWITCH ORDERING EXAMPLE



IMPORTANT:
Switches are supplied without UL, cULus, & CSA markings unless specified. Specific models & ratings noted on General Specifications page.

* Wire harness & cable assemblies offered only in Americas

DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

LB16WKW01-5C12-JC



Toggles

Rockers

Pushbuttons

Illuminated PB

Programmable

Keylocks

Rotaries

Slides

Tactiles

Tilt

Touch

Indicators

Accessories

Supplement

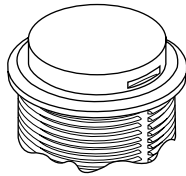
POLES & CIRCUITS

| Pole | Model | Plunger Position () = Momentary | | Connected Terminals | | Throw & Switch/Lamp Schematics |
|------|---------------|-------------------------------------|------------|---------------------|---------|---|
| | | Normal | Down | Normal | Down | |
| SP | LB15 *LB16 | ON ON | (ON) ON | 1-3 | 1-2 | Notes: Switch is marked with NC, NO, COM, L+, L-. Lamp circuit is isolated and requires external power source. |
| DP | LB25 *LB26 | ON ON | (ON) ON | 1-3 4-6 | 1-2 4-5 | |

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

SHAPE & PANEL CUTOUT

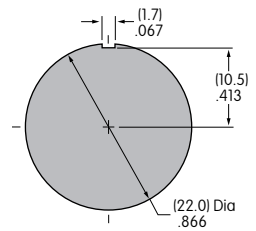
W .866" (22.0mm)
Round



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

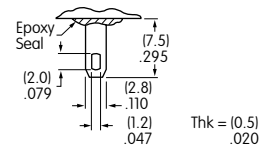
Power Level
3A @ 125V AC & 250V AC

Solder Lug/Quick Connect

G01 Gold Contacts

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

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



Complete explanation of operating range in Supplement section.

INCANDESCENT & NEON LAMP CODES & SPECIFICATIONS

AT607 & AT607N

AT607 Incandescent 5-volt or
12-volt; AT607N Neon 110-volt

05

12

01 *



T-1 Bi-pin

| Property | 5V AC | 12V AC | 110V AC |
|----------------------|---------------|--------|---------|
| Voltage | 5V AC | 12V AC | 110V AC |
| Current | 115mA | 60mA | 1.5mA |
| Endurance Avg. Hours | 10,000 | | 10,000 |
| Ambient Temp. Range | -25°C ~ +50°C | | |


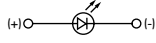
The electrical specifications shown are
determined at a basic temperature of
25°C. Lamp circuit is isolated and
requires external power source.

* 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.

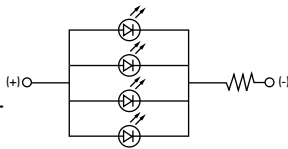
Bright LED without Resistor

| | | | | | | | |
|---|-----------------------------------|------------------|--------------------|--------------------|----------------------------|-------|-------|
| AT635 LEDs are colored in OFF state.   T-1½ Bi-pin | Color Codes | Red 5C | Amber 5D | Green 5F | No Code No Resistor | | |
| | Forward Peak Current | I_{FM} | | | Red | Amber | Green |
| | Continuous Forward Current | I_F | | | 30mA | 30mA | 30mA |
| | Forward Voltage | V_F | | | 1.9V | 2.0V | 2.1V |
| | Reverse Peak Voltage | V_{RM} | | | 5V | 5V | 5V |
| | Current Reduction Rate Above 25°C | ΔI_F | | | 0.42mA/°C | | |
| | Ambient Temperature Range | | | | -25° ~ +50°C | | |

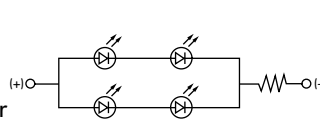
Bright LED with Resistor

| | | | | | | | |
|---|-----------------------------------|------------------|--------------------|--------------------|----------------|-----------|-----------|
| AT627 with Resistor  T-1 Bi-pin | Color Codes: | Red 5C | Amber 5D | Green 5F | Resistor Codes | | |
| | Forward Peak Current | I_{FM} | | | 05 | 12 | 24 |
| | Continuous Forward Current | I_F | | | — | — | — |
| | Forward Voltage | V_F | | | 5V | 12V | 24V |
| | Reverse Peak Voltage | V_{RM} | | | 4V | 8V | 16V |
| | Current Reduction Rate Above 25°C | ΔI_F | | | 0.50mA/°C | | |
| | Ambient Temperature Range | | | | -25° ~ +50°C | | |

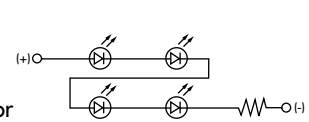
AT627
5-volt
4-element
with Resistor




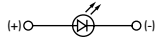

AT627
12-volt
4-element
with Resistor



AT627
24-volt
4-element
with Resistor



Super Bright Single Element LED

| | | | | | | | |
|--|---|--------------|--|--------------|-----------|-----------|------|
| AT625G Blue AT631B White AT632F Green   T-1 Bi-pin |  | | | 6B | 6F | 6G | |
| | Color | | | White | Green | 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 | | |
| Ambient Temperature Range | | | | -25° ~ +50°C | | | |

No Code

No Lamp

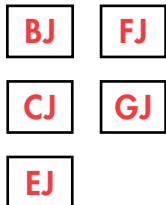
CAP TYPES & COLOR COMBINATIONS

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

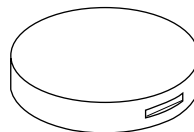
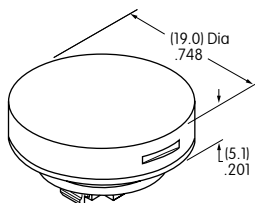
Solid Cap for Incandescent Lamp & Nonilluminated

Lens/Filter

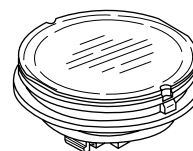
Colors Available:



AT4054



Translucent Colored Lens



Transparent Clear Filter



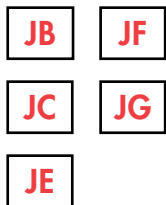
Lamp AT607

Material: Polycarbonate Finish: Glossy

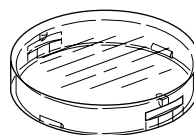
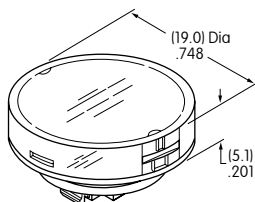
Insert Cap for Incandescent or Neon Lamp & Nonilluminated

Lens/Filter

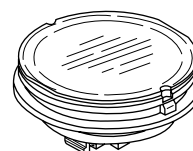
Colors Available:



AT4055



Transparent Clear Lens



Translucent Colored Filter



Lamp AT607



Lamp AT607N

JF and JG not suitable with neon lamp.

Material: Polycarbonate Finish: Glossy

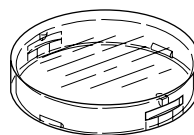
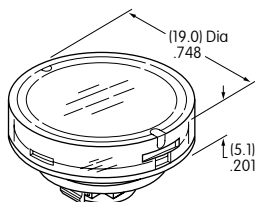
Cap for Bright LED without Resistor

Lens/Diffuser

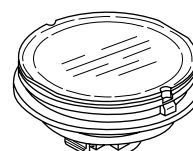
Colors Available:



AT4179



Transparent Clear Lens



Translucent Colored Diffuser



Bright LED AT635

Material: Polycarbonate Finish: Glossy

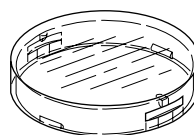
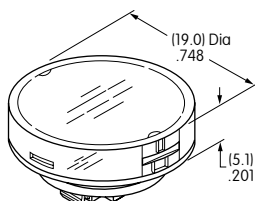
Cap for Bright LED with Resistor

Lens/Diffuser

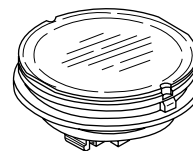
Colors Available:



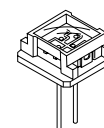
AT4165



Transparent Clear Lens



Translucent Colored Diffuser



Bright LED AT627

Material: Polycarbonate Finish: Glossy

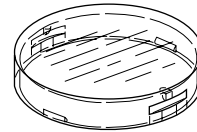
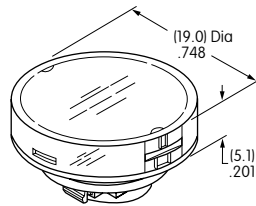
CAP TYPES & COLOR COMBINATIONS

JB

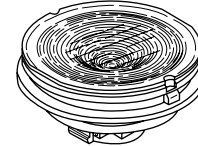
**Clear Lens
White Diffuser**

Material:
Polycarbonate
Finish: Glossy

AT4131



Transparent
Clear Lens



Translucent
Colored Diffuser

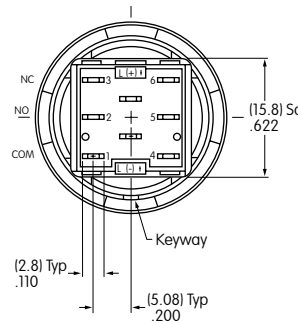
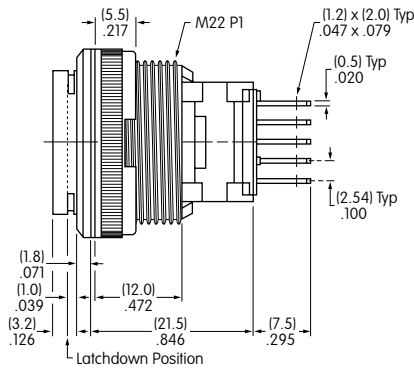
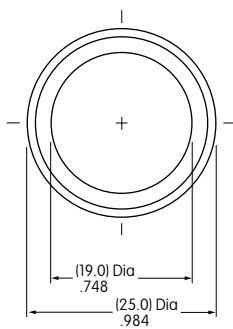


LEDs
AT625
AT631
AT632

TYPICAL SWITCH DIMENSIONS

Single & Double Pole

Panel Seal



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

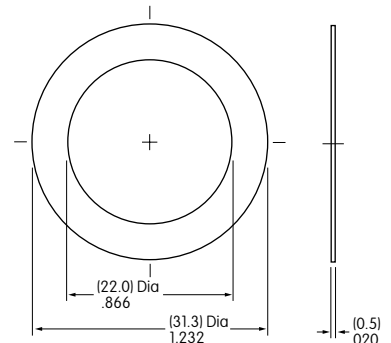
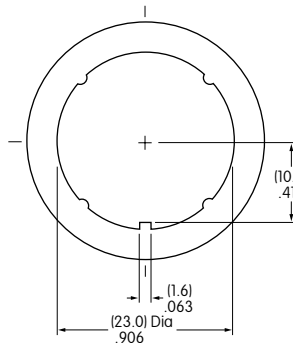
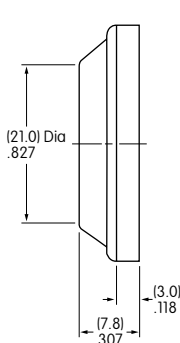
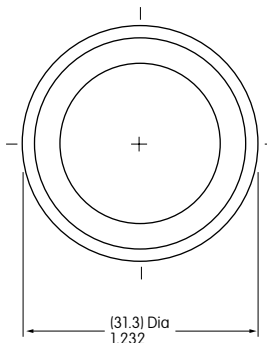
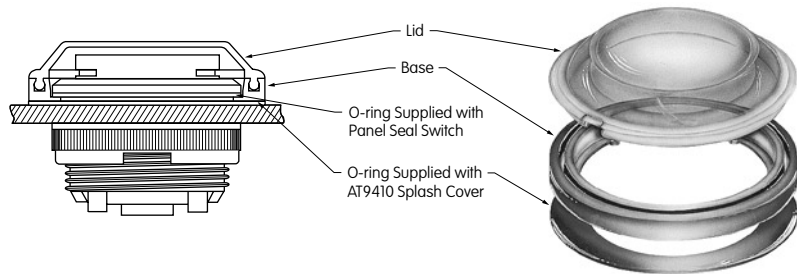
LB25WKW01-12-JC

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)



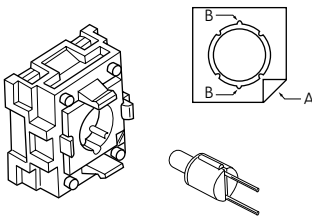
Toggle
Rocker
Pushbutton
Illuminated PB
Programmable
Keylocks
Rotaries
Slides
Tactiles
Tilt
Touch
Indicators
Accessories
Supplement

ASSEMBLY INSTRUCTIONS

Lamp Installation & LED Orientation

Incandescent & Neon Lamps AT607 & AT607N

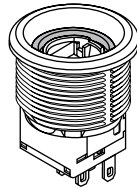
Align projections on lamp with grooves (B) in holder when inserting lamp. To correctly join the lamp holder and cap base, match the cut corners (A).



Bright LED AT627

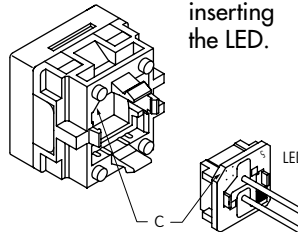
Panel Seal Models

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.



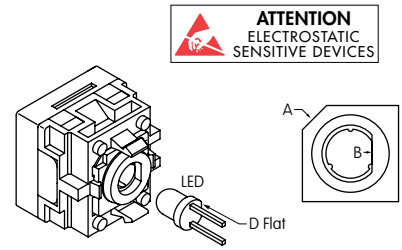
Snap-in Models

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).

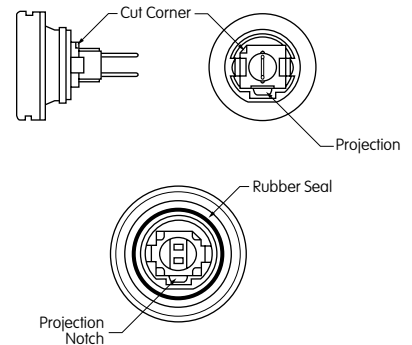
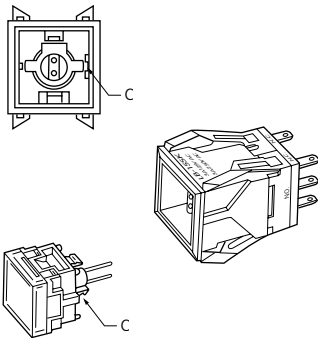


ATTENTION
ELECTROSTATIC
SENSITIVE DEVICES

Switch & Cap Assembly

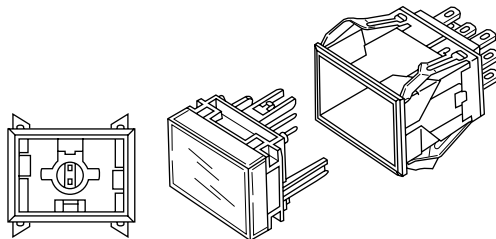
Round & Rectangular

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



Square

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



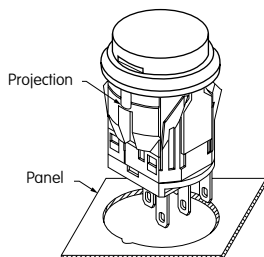
Panel Seal

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

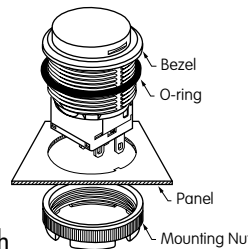
Snap-in Mount

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.



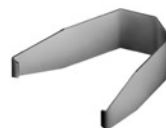
Panel Seal Bushing Mount

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

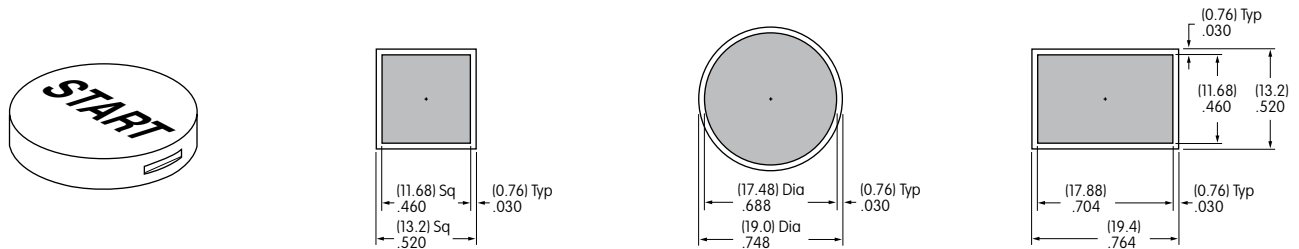
LEGENDS

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.

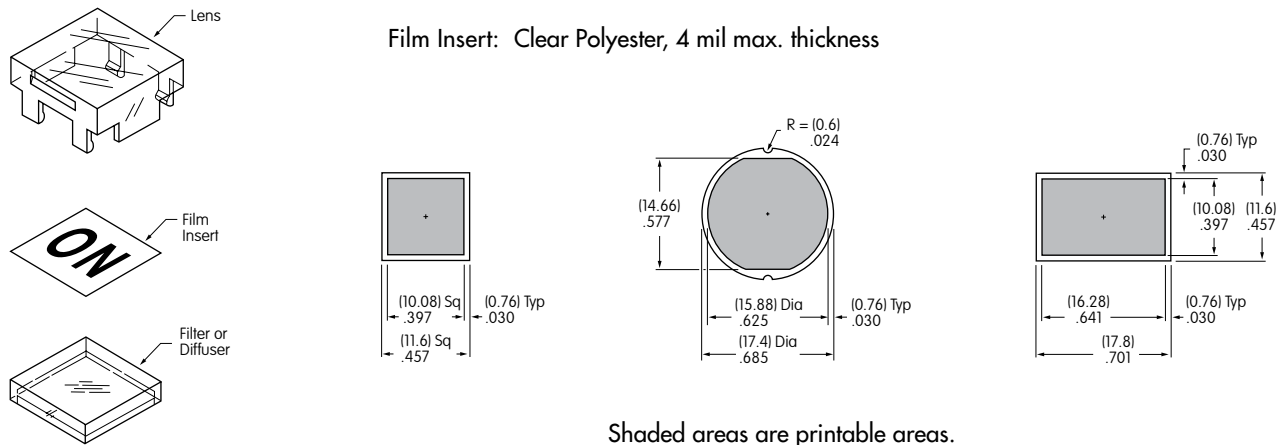


Shaded areas are printable areas.

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.