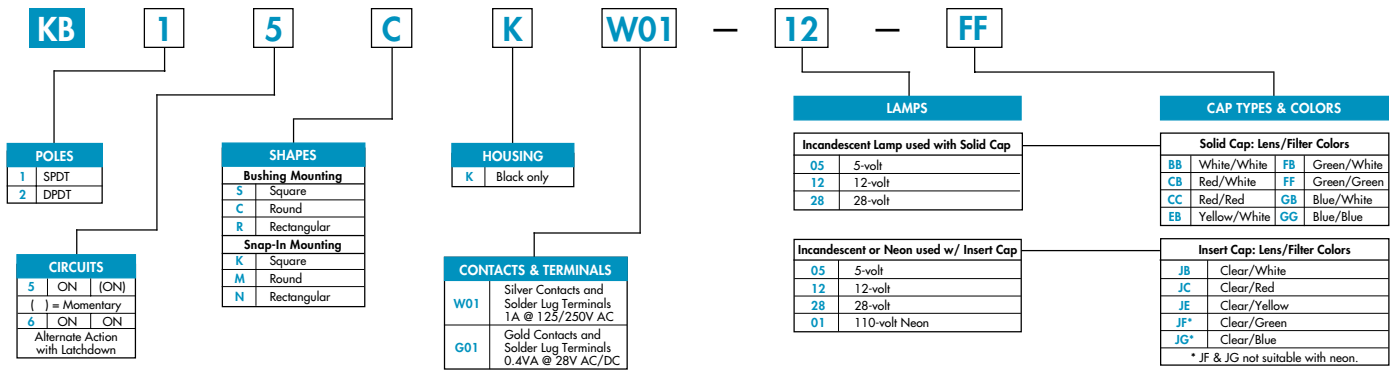
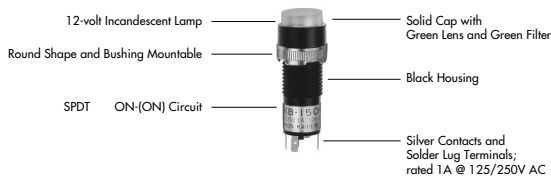


TYPICAL SWITCH ORDERING EXAMPLE



DESCRIPTION FOR TYPICAL ORDERING EXAMPLE  
KB15CKW01-12-FF



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

LAMPS		CAP TYPES & COLORS	
<b>Incandescent Lamp used with Solid Cap</b>		<b>Solid Cap: Lens/Filter Colors</b>	
05	5-volt	BB	White/White
12	12-volt	CB	Red/White
28	28-volt	CC	Red/Red
		EB	Yellow/White
		FB	Green/White
		FF	Green/Green
		GB	Blue/White
		GG	Blue/Blue
<b>Incandescent or Neon used w/ Insert Cap</b>		<b>Insert Cap: Lens/Filter Colors</b>	
05	5-volt	JB	Clear/White
12	12-volt	JC	Clear/Red
28	28-volt	JE	Clear/Yellow
01	110-volt Neon	JF*	Clear/Green
		JG*	Clear/Blue
		* JF & JG not suitable with neon.	
<b>Standard LED used with Cap for LED</b>		<b>LED Cap: Lens/Diffuser Colors</b>	
C	Red	AB	Black Cap/White Window (Square only)
D	Amber	JB	Clear/White
F	Green	JC	Clear/Red
		JD	Clear/Amber
		JF	Clear/Green
<b>Bright LED used with Cap for LED</b>		<b>LED Cap: Lens/Diffuser Colors</b>	
5C	Red	AB	Black Cap/White Window (Square only)
5D	Amber	JB	Clear/White
5F	Green	JC	Clear/Red
		JD	Clear/Amber
		JF	Clear/Green
<b>Super Bright LED used with Cap for LED</b>		<b>LED Cap: Lens/Diffuser Colors</b>	
6B	White	JB	Clear/White
6F	Green		
6G	Blue		
<b>Nonilluminated Cap</b>		<b>Nonilluminated Cap: Lens/Filter Colors</b>	
00	No Lamp	A	Black/None
		BB	White/White
		CC	Red/Red
		EB	Yellow/White
		FF	Green/Green
		GG	Blue/Blue

## GENERAL SPECIFICATIONS

### Electrical Capacity (Resistive Load)

**Power Level (code W):** 1A @ 125/250V AC or 1A @ 30V DC  
**Logic Level (code G):** 0.4VA maximum @ 28V AC/DC maximum  
 Note: See [Supplement Index](#) to find explanation of operating range.

### Other Ratings

**Contact Resistance:** 50 milliohms maximum  
**Insulation Resistance:** 1,000 megohms minimum @ 500V DC  
**Dielectric Strength:** 1,000V AC minimum between contacts & 1,500 minimum between contacts & case (silver); 750V AC minimum between contacts & 1,500 minimum between contacts & case (gold);  
**Mechanical Life:** 100,000 operations minimum  
**Electrical Life:** 50,000 operations minimum for silver; 100,000 operations minimum for gold  
**Nominal Operating Force:** Single pole 100 ~ 250 grams for maintained & 100 ~ 200 grams for momentary; Double pole 150 ~ 350 grams for maintained & 150 ~ 300 grams for momentary  
**Contact Timing:** Nonshorting (break-before-make)  
**Travel:** 2.2mm (.087") pretravel; 0.80mm (.031") overtravel; 3.0mm (.118") total travel

### Materials & Finishes

**Housing:** Polyamide  
**Movable Contactor:** Silver for power circuit; copper with gold plating for logic level circuit  
**Stationary Contacts:** Silver for power circuit; copper with gold plating for logic level circuit  
**Housing Base:** Polyamide  
**Terminal Base:** Polyester  
**Common Terminal:** Phosphor bronze with silver flash plating for power circuit; Phosphor bronze with gold flash plating for logic level circuit  
**End Terminals:** Brass with silver flash plating for power circuit; Brass with gold flash plating for logic level circuit  
**Lamp Terminals:** Phosphor bronze with nickel flash plating

### Environmental Data

**Operating Temp 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 acceleration (tested in 6 right angled directions, with 3 shocks in each direction)





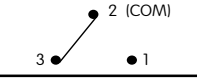
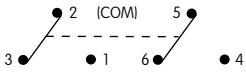
### Installation

**Mounting Torque:** 8.0 kgf/cm (6.9 lb/in) downward force on actuator  
**Cap Installation Force:** 0.46 kg (1.0 lb)  
**Soldering Time & Temperature:** 3 seconds @ 350°C or 5 seconds @ 270°C  
**Process Seal:** Not available

### Standards & Certifications

**Flammability Standards:** UL94V-0 housing and base  
**UL Recognized:** Single & double pole models recognized at 1A @ 125/250V AC, 1A @ 30V DC, & 0.4VA @ 28V AC/DC; UL File No. E44145  
**CSA Certified:** Single & double pole models recognized at 1A @ 125/250V AC, 1A @ 30V DC, & 0.4VA @ 28V AC/DC; CSA File No. LR23535

### POLES & CIRCUITS

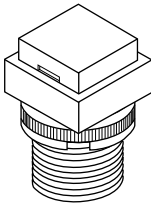
		Plunger Position ( ) = Momentary		Connected Terminals		Throw & Power/Lamp Schematics
Pole	Model	Normal 	Down 	Normal 	Down 	Notes: Switch is marked with "+" and "-". Lamp circuit is isolated and requires external power source.
SP	KB15 KB16*	ON ON	(ON) ON	2-3	2-1	SPDT  L(+)-O-(-)L
DP	KB25 KB26*	ON ON	(ON) ON	2-3 5-6	2-1 5-4	DPDT  L(+)-O-(-)L

\* When in latchdown position for the alternate circuit, cap position is 1.4mm (.055") above the built-in shroud.

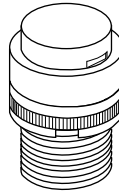
### SHAPES & MOUNTING TYPES

#### Bushing Mounting

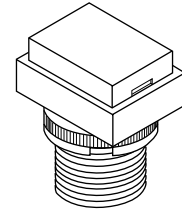
**S** .551" Square Shroud



**C** .551" Diameter Round Shroud

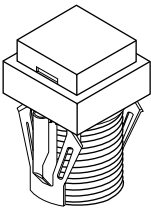


**R** .551" x .728" Rectangular Shroud

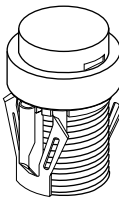


#### Snap-In Mounting

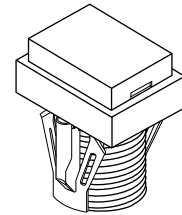
**K** .551" Square Shroud



**M** .551" Diameter Round Shroud



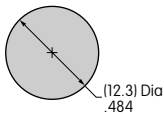
**N** .551" x .728" Rectangular Shroud



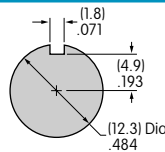
#### Panel Cutouts

##### Bushing Mounting

Without Keyway



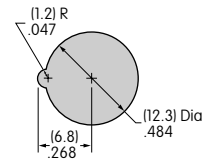
Panel Thickness:  
0.5 ~ 8mm  
(.020 ~ .315")



With Keyway

##### Snap-In Mounting

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



Panel thicknesses for optional accessories.

### HOUSING

**K** Housing available in black only. Shroud is an integral part of the switch body.

### CONTACT MATERIALS, RATINGS, & TERMINALS

**W** Silver Contacts

**Power Level**  
1A @ 125V AC & 250V AC

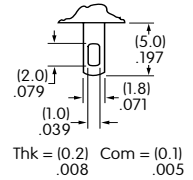
**G** Gold Contacts

**Logic Level**  
0.4VA maximum @ 28V AC/DC

See [Supplement Index](#) for complete explanation of operating range.

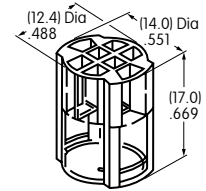
**01** Solder Lug

The .039" x .079" oblong hole accommodates one solid 20-gauge wire or two solid or stranded 22-gauge wires.



A partitioned plastic guard is supplied with each switch to provide insulation between terminals. Installation steps:

- (1) Identify wire-to-terminal connections.
- (2) Thread wires through the guard.
- (3) Solder the connections.
- (4) Push the guard fully onto the switch body.





### LAMP CODES & SPECIFICATIONS


Electrical specifications are determined at a basic temperature of 25°C. Lamp circuit is independent of switch operation. For dimension drawings of lamps see the [Accessories & Hardware Index](#).

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](#).


#### Incandescent & Neon Lamps

			<b>05</b>	<b>12</b>	<b>28</b> *	<b>01</b>	* Lamp life is significantly reduced in applications with DC current, high shock, vibration, or continuous illumination. Recommended Resistors for Neon: 33K ohms for 110V AC; 100K ohms for 220V AC
<b>AT611</b>	<b>AT615</b>	Voltage	5V AC	12V AC	28V AC	110V AC	
		Current	115mA	60mA	22mA	1.5mA	
T-1 Bi-pin		Endurance	7,000 average			10,000	

#### Standard Single Element LED

<b>AT614</b>			<b>C</b>	<b>D</b>	<b>F</b>
		LEDs are colored in OFF state.	Red	Amber	Green
		Forward Peak Current	50mA	50mA	50mA
		Continuous Forward Current	40mA	40mA	40mA
		Forward Voltage	1.75V	2.35V	2.35V
		Reverse Peak Voltage	4V	4V	4V
		Current Reduction Rate Above 25°C	0.67mA/°C	0.67mA/°C	0.67mA/°C

#### Bright Dual Element LED

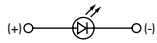
<b>AT628</b>			<b>5C</b>	<b>5D</b>	<b>5F</b>
		LEDs are colored in OFF state.	Red	Amber	Green
		Forward Peak Current	40mA	40mA	40mA
		Continuous Forward Current	26mA	26mA	26mA
		Forward Voltage	1.9V	2.0V	2.2V
		Reverse Peak Voltage	4V	4V	4V
		Current Reduction Rate Above 25°C	0.50mA/°C	0.50mA/°C	0.50mA/°C

**00** **No Lamp** Code 00 indicates that no lamp is used with the solid cap.

### LAMP CODES & SPECIFICATIONS

#### Super Bright Single Element LED

AT625 Blue  
AT631 White  
AT632 Green



T-1 Bi-pin



Color

**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

$\Delta I_F$

0.50mA/°C

0.50mA/°C

0.50mA/°C

**00**

**No Lamp** Code 00 indicates that no lamp is used with the solid cap.

### CAP TYPES & COLOR COMBINATIONS

#### Solid Cap for Incandescent Lamp

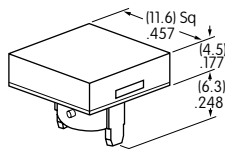
Color Codes: **A** Black **B** White **C** Red **E** Yellow **F** Green **G** Blue **J** Clear

Lens/Filter

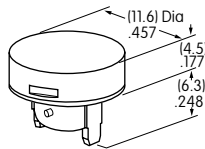
Colors Available:

- BB**
- FB**
- CB**
- FF**
- CC**
- GB**
- EB**
- GG**

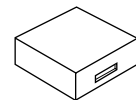
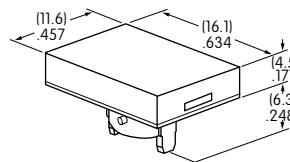
**AT485**  
Square



**AT486**  
Round



**AT4021**  
Rectangular



Translucent Colored Lens



Translucent Colored Filter



Lamp AT611

Material: Polycarbonate

Finish: Glossy

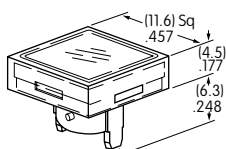
#### Insert Cap for Incandescent or Neon Lamp

Lens/Filter

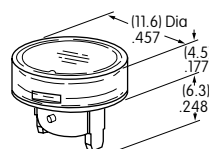
Colors Available:

- JB**
- JC**
- JE**
- JF**
- JG**

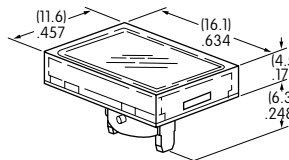
**AT487**  
Square



**AT488**  
Round



**AT4022**  
Rectangular



Transparent Clear Lens



Translucent Colored Filter



Lamp AT611 Lamp AT615

JF and JG not suitable with neon lamp.

Material: Polycarbonate

Finish: Glossy

## CAP TYPES & COLOR COMBINATIONS

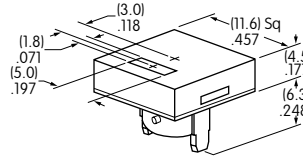
Color Codes: A Black B White C Red D Amber E Yellow F Green G Blue J Clear

### Cap for Standard & Bright LEDs

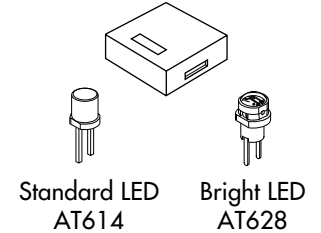
Cap/Window  
Colors Available:

**AB** Opaque Black Cap with  
Translucent White Window  
for Spot Illumination

**AT4051**  
Square



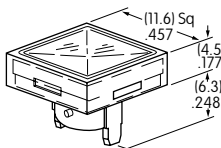
Material: Polycarbonate Finish: Matte



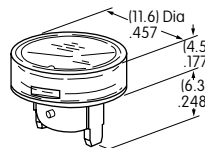
Lens/Diffuser  
Colors Available:

**JC**

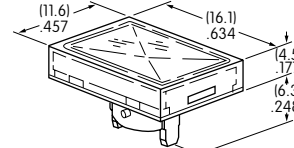
**AT489** for Standard  
**AT4158** for Bright  
Square



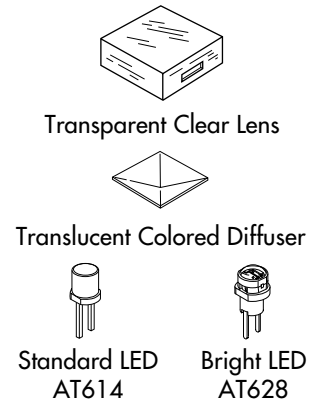
**AT490** for Standard  
**AT4160** for Bright  
Round



**AT4023** for Standard  
**AT4159** for Bright  
Rectangular



Material: Polycarbonate Finish: Glossy

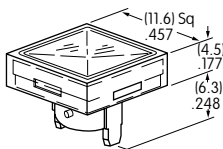


### Cap for Bright & Super Bright LEDs

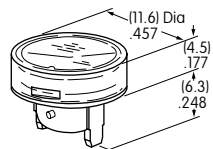
Lens/Diffuser  
Colors Available:

**JB**

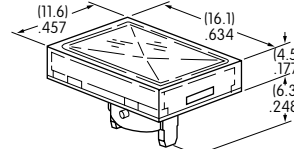
**AT4133**  
Square



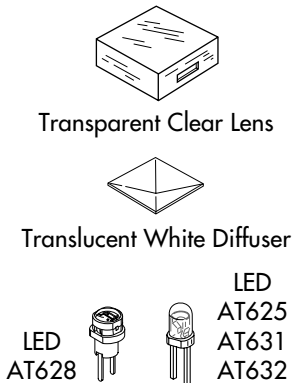
**AT4132**  
Round



**AT4134**  
Rectangular



Material: Polycarbonate Finish: Glossy



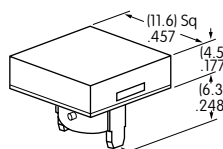
### Nonilluminated Cap

Lens/Filter  
Colors Available:

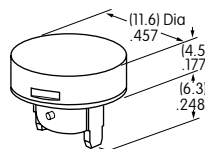
**A**

**EB**

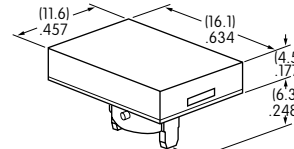
**AT485**  
Square



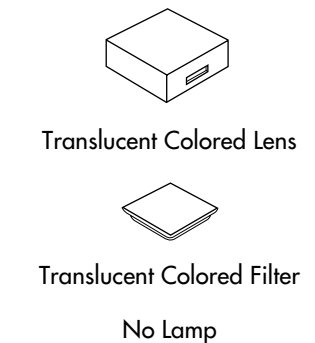
**AT486**  
Round



**AT4021**  
Rectangular



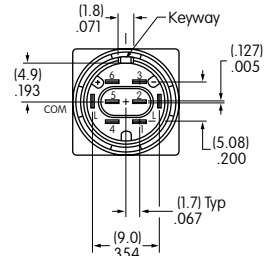
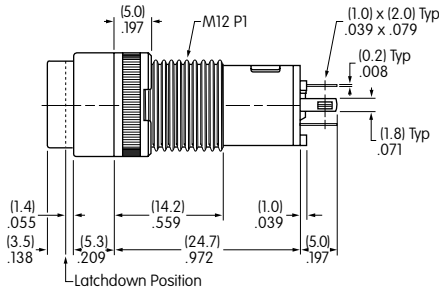
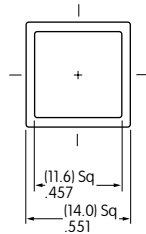
Material: Polycarbonate Finish: Glossy; black is matte  
Rectangular not available in black.



**TYPICAL SWITCH DIMENSIONS**

**Square • Bushing Mounting**

**Single & Double Pole**

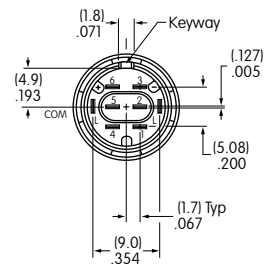
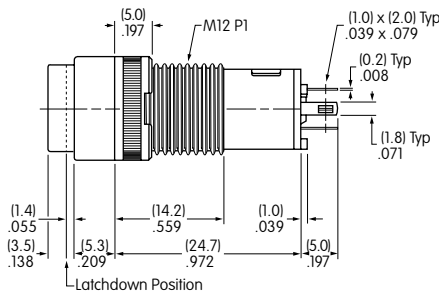
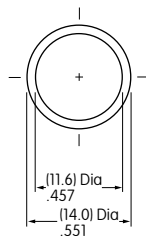


**KB15KW01-05-GG**

Terminals 4, 5, & 6 are not on single pole models.

**Round • Bushing Mounting**

**Single & Double Pole**

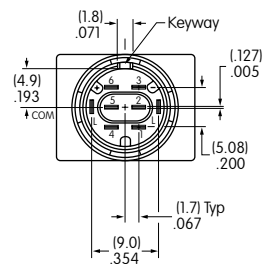
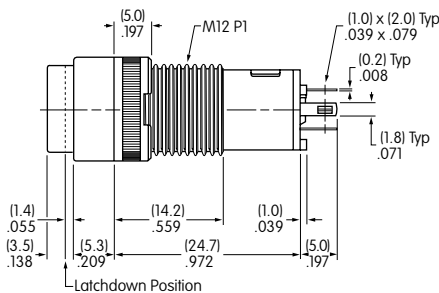
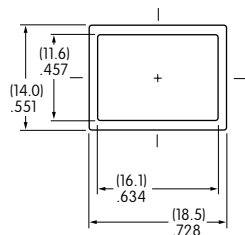


**KB25CKW01-05-GG**

Terminals 4, 5, & 6 are not on single pole models.

**Rectangular • Bushing Mounting**

**Single & Double Pole**



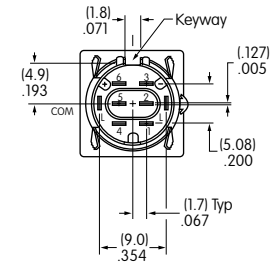
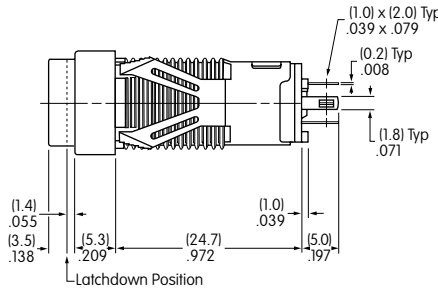
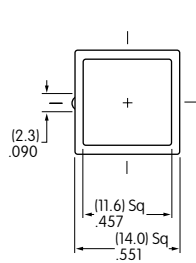
**KB15RKW01-05-GG**

Terminals 4, 5, & 6 are not on single pole models.

### TYPICAL SWITCH DIMENSIONS

#### Square • Snap-In Mounting

#### Single & Double Pole

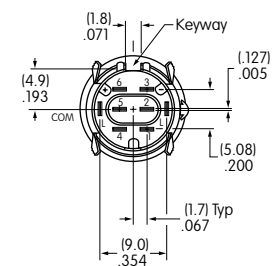
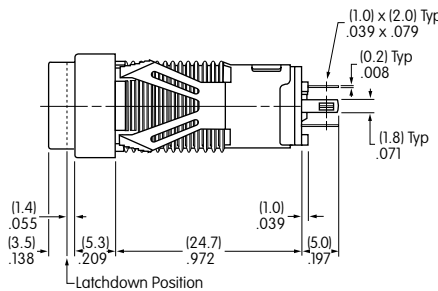
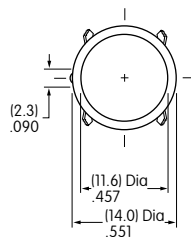


KB16KKW01-05-CB

Terminals 4, 5, & 6 are not on single pole models.

#### Round • Snap-In Mounting

#### Single & Double Pole

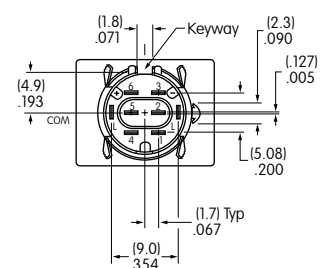
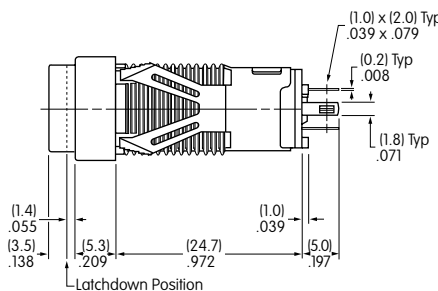
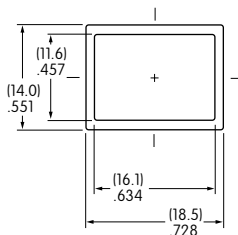


KB26MKW01-05-CB

Terminals 4, 5, & 6 are not on single pole models.

#### Rectangular • Snap-In Mounting

#### Single & Double Pole



KB16NKW01-05-CB

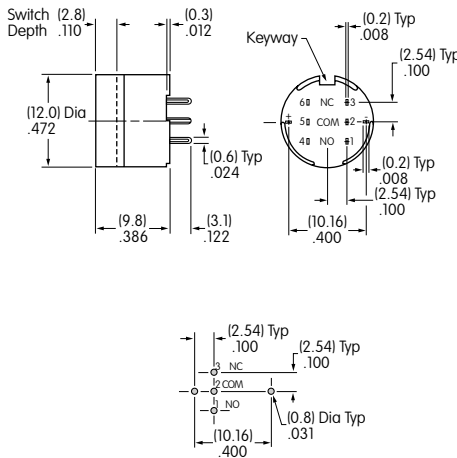
Terminals 4, 5, & 6 are not on single pole models.



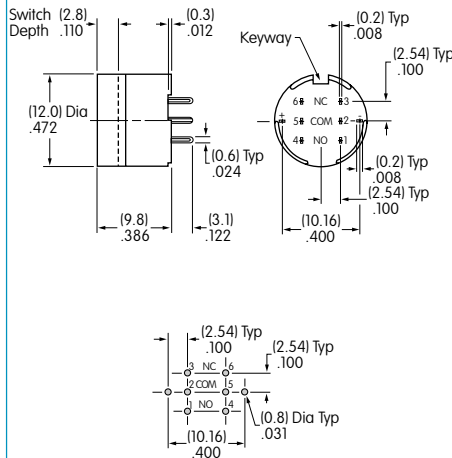
### OPTIONAL ACCESSORIES

#### PCB Adaptors

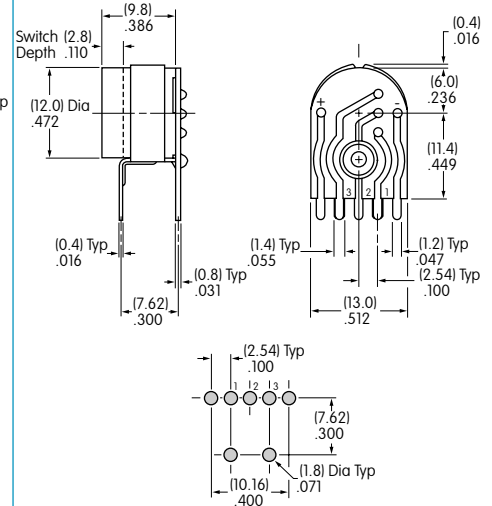
**AT701**  
Single Pole  
Straight PC  
Terminals



**AT702**  
Double Pole  
Straight PC  
Terminals



**AT077**  
Single Pole  
Right Angle PC  
Terminals

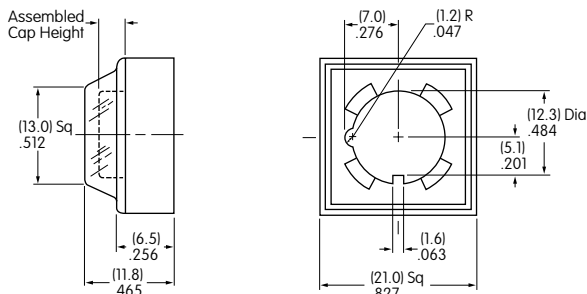
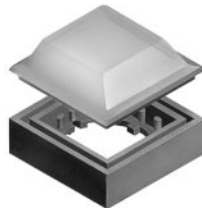


Material: Glass reinforced polyamide  
Note: Order adaptors separately.

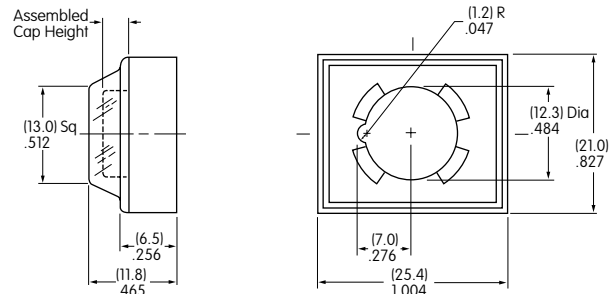
#### Splash Covers

Panel Thickness Range: 0.5 ~ 6.8mm (.020 ~ .268") for Bushing Mounting 0.5 ~ 2.0mm (.020 ~ .079") for Snap-in Mounting  
Splash Covers reduce the depth of switch behind panel by .047".

**AT495**  
For Square & Round



**AT4025**  
For Rectangular



Material: Lid: PVC PVC loses pliability below 0°C (32°F). Base: Polyamide

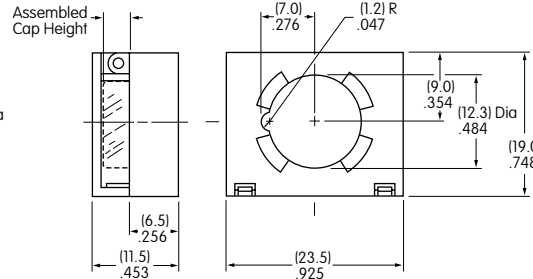
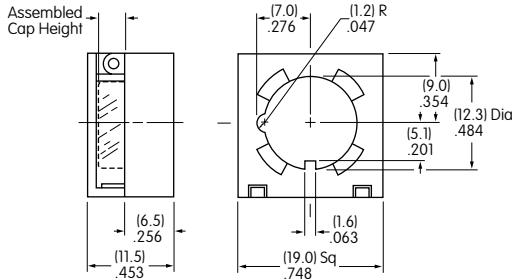
### OPTIONAL ACCESSORIES

#### Protective Guards

**AT494**  
For Square & Round



**AT4024**  
For Rectangular



Panel Thickness Range:

0.5 ~ 6.8mm  
(.020 ~ .268")  
for Bushing Mounting

0.5 ~ 2.3mm  
(.020 ~ .091")  
for Snap-in Mounting

Protective Guards reduce the depth of switch behind panel by .047".

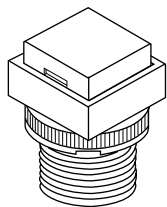
Material: Cover: Polycarbonate

Base: Polyamide

### ASSEMBLY INSTRUCTIONS

#### Cap Removal & Installation

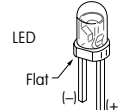
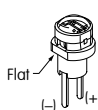
For alternate action models cap must be in UP position for cap removal. Indentations on opposite sides of the cap provide an easy way to lift the cap out of the holder, using either the finger nails, or cap extractor AT109.



#### LED Polarity & Orientation in Lamp Socket

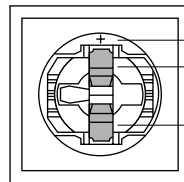


LED AT628



LEDs AT625 AT631 AT632

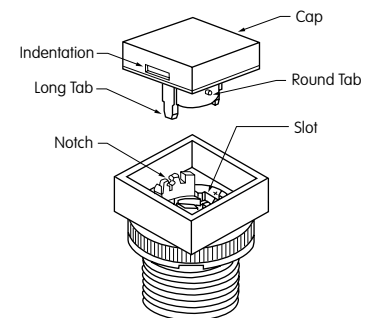
Top View of Switch



(+) Marking  
Positive Lamp Socket  
Negative Lamp Socket

#### Cap Replacement

Note that the cap has a pair of round tabs and a pair of long tabs which should be used for correctly replacing the cap in its holder. Using the long tabs as guides, slide the cap with the long tabs moving into the slots on opposite sides of the cap holder. Then, the round tabs will snap into notches on the other two sides of the holder.



#### AT108 Socket Wrench for Bushing Mounting

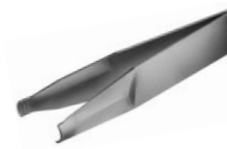
Overtightening the mounting nut may damage the switch housing.



#### AT109 Cap Extractor



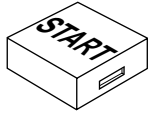
#### AT111 Lamping Tool



### LEGENDS

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

#### Suggested Printable Area for Lens

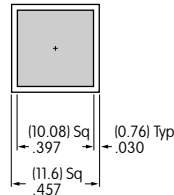


#### Recommended Print Method:

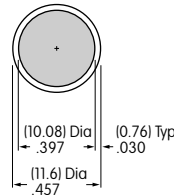
Screen Print or Pad Print

Epoxy based ink is recommended.

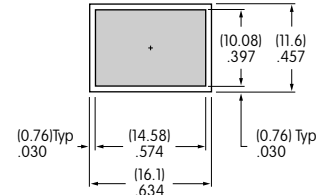
**AT485**



**AT486**

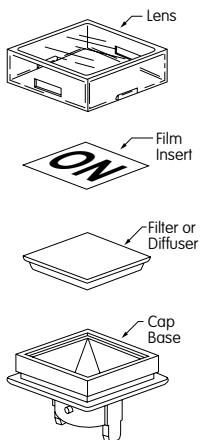


**AT4021**



Shaded areas are printable areas.

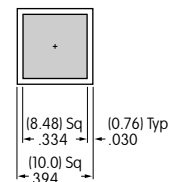
#### Suggested Printable Area for Film Insert



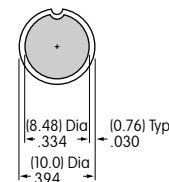
**Film Material and Thickness:**  
Clear Polyester, 4 mil max.

**Recommended Print Method:**  
Screen Print with Epoxy Based Ink

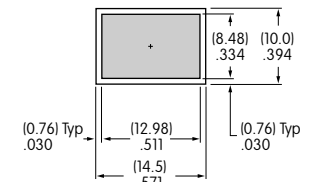
**AT487  
AT489  
AT4133  
AT4158**



**AT488  
AT490  
AT4132  
AT4160**



**AT4022  
AT4023  
AT4134  
AT4159**

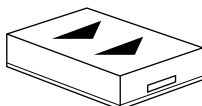


Shaded areas are printable areas.

#### 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 FOR ORDERING CAPS WITH LEGENDS



1. To order caps with legends, contact the factory and request the KB 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.