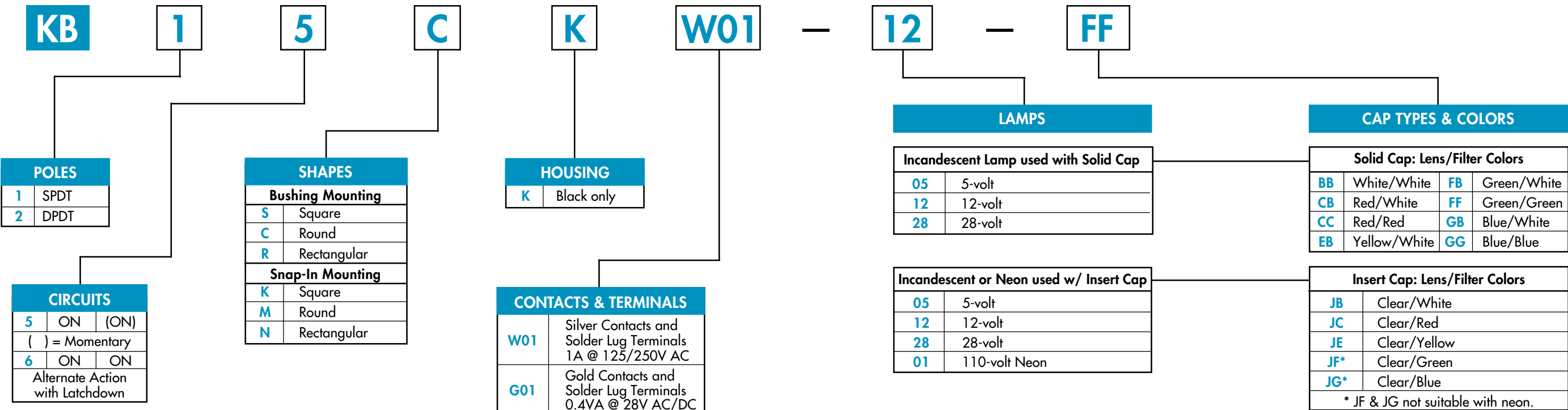


TYPICAL SWITCH ORDERING EXAMPLE



K

W01

HOUSING

K	Black only
---	------------

CONTACTS & TERMINALS

W01	Silver Contacts and Solder Lug Terminals 1A @ 125/250V AC
G01	Gold Contacts and Solder Lug Terminals 0.4VA @ 28V AC/DC

12

FF

LAMPS

Incandescent Lamp used with Solid Cap

05	5-volt
12	12-volt
28	28-volt

Incandescent or Neon used w/ Insert Cap

05	5-volt
12	12-volt
28	28-volt
01	110-volt Neon

Standard LED used with Cap for LED

C	Red
D	Amber
F	Green

Bright LED used with Cap for LED

5C	Red
5D	Amber
5F	Green

Super Bright LED used with Cap for LED

6B	White
6F	Green
6G	Blue

Nonilluminated Cap

00	No Lamp
----	---------

CAP TYPES & COLORS

Solid Cap: Lens/Filter Colors

BB	White/White	FB	Green/White
CB	Red/White	FF	Green/Green
CC	Red/Red	GB	Blue/White
EB	Yellow/White	GG	Blue/Blue

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

AB	Black Cap/White Window (Square only)
JB	Clear/White
JC	Clear/Red
JD	Clear/Amber
JF	Clear/Green

LED Cap: Lens/Diffuser Colors

AB	Black Cap/White Window (Square only)
JB	Clear/White
JC	Clear/Red
JD	Clear/Amber
JF	Clear/Green

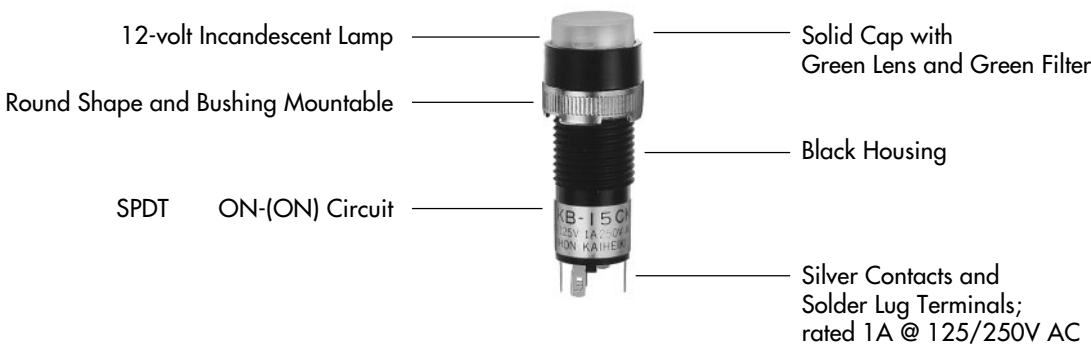
LED Cap: Lens/Diffuser Colors

JB	Clear/White
----	-------------

Nonilluminated Cap: Lens/Filter Colors

A	Black/None	EB	Yellow/White
BB	White/White	FF	Green/Green
CC	Red/Red	GG	Blue/Blue

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.

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)






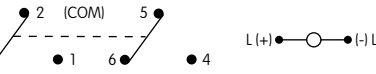
Installation

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 	
SP	KB15 KB16*	ON ON	(ON) ON	2-3	2-1	SPDT Notes: Switch is marked with "+" and "-". Lamp circuit is isolated and requires external power source. 
DP	KB25 KB26*	ON ON	(ON) ON	2-3 5-6	2-1 5-4	DPDT 

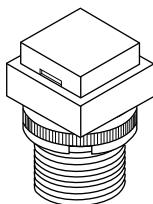
* When in latchdown position for the alternate circuit, cap position is 1.4mm (.055") above the built-in shroud.

SHAPES & MOUNTING TYPES

Bushing Mounting

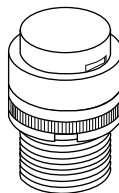
S

.551" Square Shroud



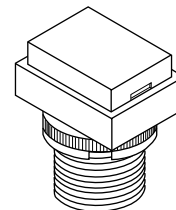
C

.551" Diameter Round Shroud



R

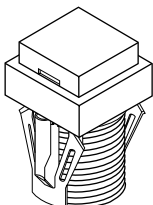
.551" x .728" Rectangular Shroud



Snap-In Mounting

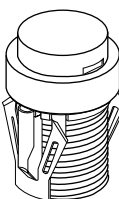
K

.551" Square Shroud



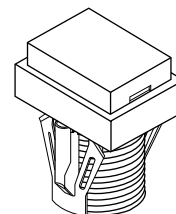
M

.551" Diameter Round Shroud



N

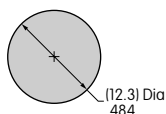
.551" x .728" Rectangular Shroud



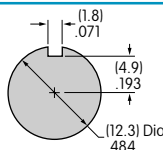
Panel Cutouts

Bushing Mounting

Without Keyway



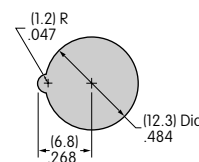
Panel Thickness:
0.5 ~ 8mm
(.020 ~ .315")



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

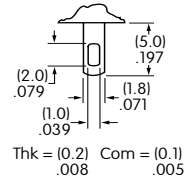
G Gold Contacts

Logic Level
0.4VA maximum @ 28V AC/DC

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

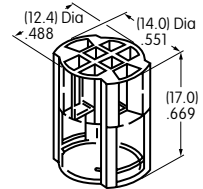
01 Solder Lug

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](#).


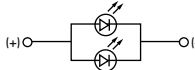
Incandescent & Neon Lamps

<div>AT611</div> <div></div> <div>T-1 Bi-pin</div>	<div>AT615</div> <div></div>		<div>05</div>	<div>12</div>	<div>28</div> *	<div>01</div>	* 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	
		Voltage	V	5V AC	12V AC	28V AC		110V AC
		Current	I	115mA	60mA	22mA		1.5mA
		Endurance	Hours	7,000 average				10,000

Standard Single Element LED

<div>AT614</div> <div></div> <div></div> <div>T-1 Bi-pin</div>			<div>C</div>	<div>D</div>	<div>F</div>	
	LEDs are colored in OFF state.		Color	Red	Amber	Green
	Forward Peak Current		I_{FM}	50mA	50mA	50mA
	Continuous Forward Current		I_F	40mA	40mA	40mA
	Forward Voltage		V_F	1.75V	2.35V	2.35V
	Reverse Peak Voltage		V_{RM}	4V	4V	4V
	Current Reduction Rate Above 25°C		ΔI_F	0.67mA/°C	0.67mA/°C	0.67mA/°C

Bright Dual Element LED

<div>AT628</div> <div></div> <div></div> <div>T-1¾ Bi-pin</div>			<div>5C</div>	<div>5D</div>	<div>5F</div>
	LEDs are colored in OFF state.	Color	Red	Amber	Green
	Forward Peak Current	I_{FM}	40mA	40mA	40mA
	Continuous Forward Current	I_F	26mA	26mA	26mA
	Forward Voltage	V_F	1.9V	2.0V	2.2V
	Reverse Peak Voltage	V_{RM}	4V	4V	4V
	Current Reduction Rate Above 25°C	ΔI_E	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

ΔI_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

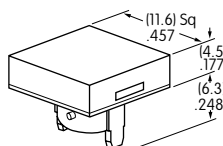
Color Codes: **A** Black **B** White **C** Red **E** Yellow **F** Green **G** Blue **J** Clear

Lens/Filter

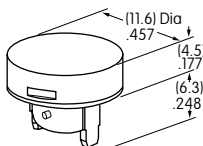
Colors Available:



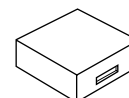
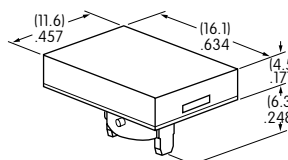
AT485
Square



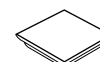
AT486
Round



AT4021
Rectangular



Translucent Colored Lens



Translucent Colored Filter



Lamp AT611

Material: Polycarbonate

Finish: Glossy

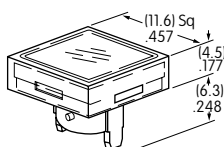
Insert Cap for Incandescent or Neon Lamp

Lens/Filter

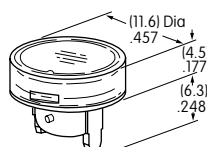
Colors Available:



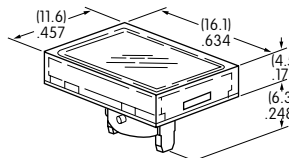
AT487
Square



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

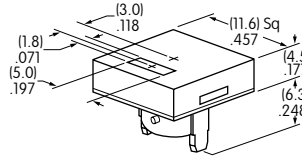
Cap for Standard & Bright LEDs

Cap/Window
Colors Available:

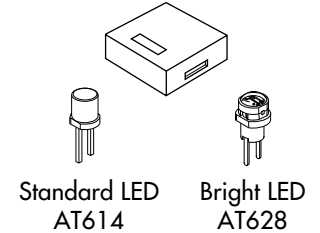
AB

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

**AT4051
Square**



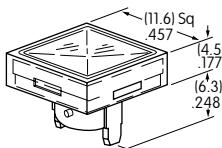
Material: Polycarbonate Finish: Matte



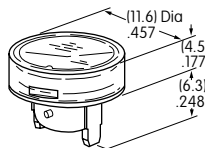
Lens/Diffuser
Colors Available:

JC

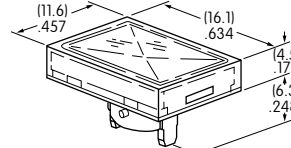
**AT489 for Standard
AT4158 for Bright
Square**



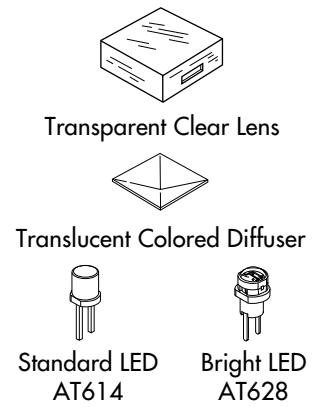
**AT490 for Standard
AT4160 for Bright
Round**



**AT4023 for Standard
AT4159 for Bright
Rectangular**



Material: Polycarbonate Finish: Glossy

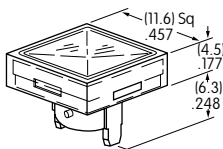


Cap for Bright & Super Bright LEDs

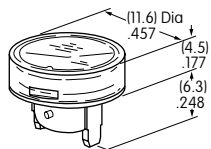
Lens/Diffuser
Colors Available:

JB

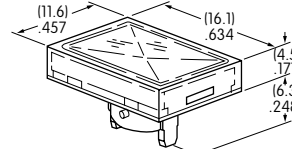
**AT4133
Square**



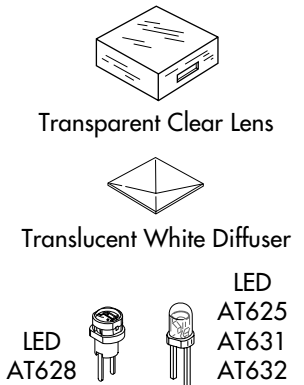
**AT4132
Round**



**AT4134
Rectangular**



Material: Polycarbonate Finish: Glossy



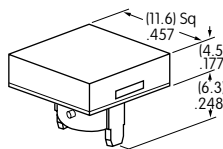
Nonilluminated Cap

Lens/Filter
Colors Available:

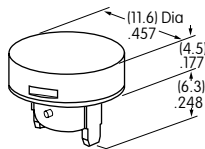
A

EB

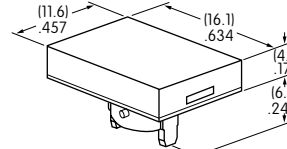
**AT485
Square**



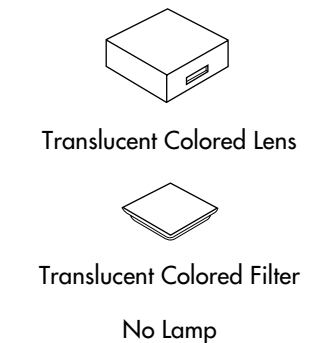
**AT486
Round**



**AT4021
Rectangular**



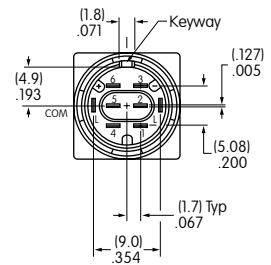
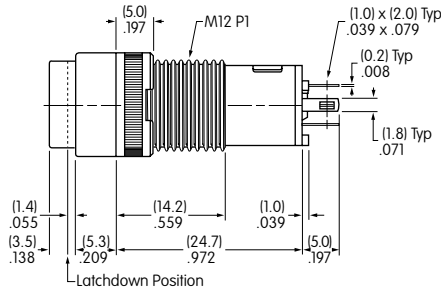
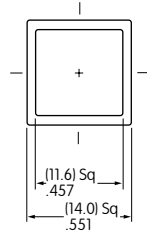
Material: Polycarbonate Finish: Glossy; black is matte
Rectangular not available in black.



TYPICAL SWITCH DIMENSIONS

Square • Bushing Mounting

Single & Double Pole

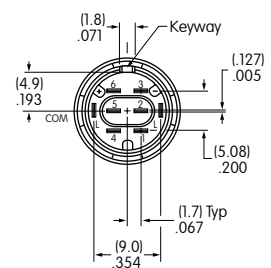
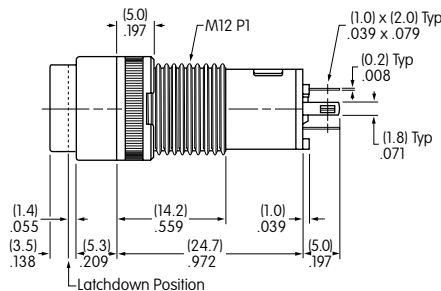
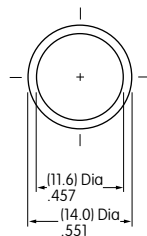


KB15KW01-05-GG

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

Round • Bushing Mounting

Single & Double Pole

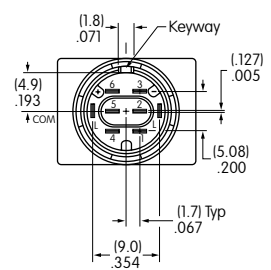
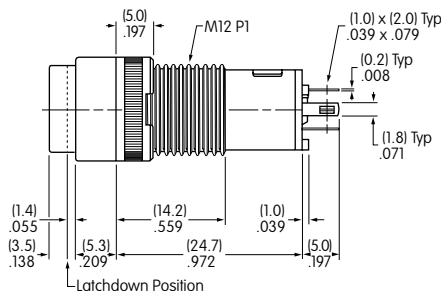
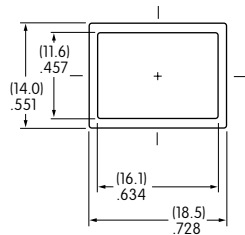


KB25CKW01-05-GG

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

Rectangular • Bushing Mounting

Single & Double Pole



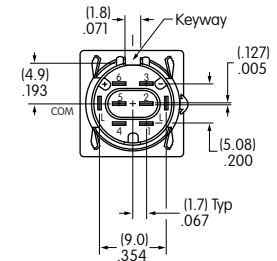
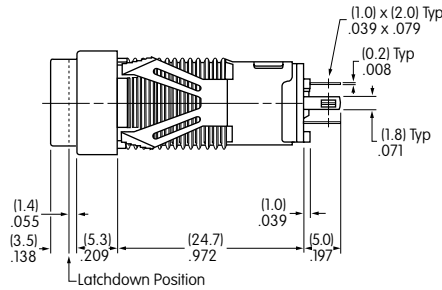
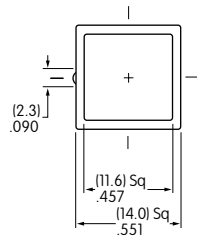
KB15RKW01-05-GG

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

TYPICAL SWITCH DIMENSIONS

Square • Snap-In Mounting

Single & Double Pole

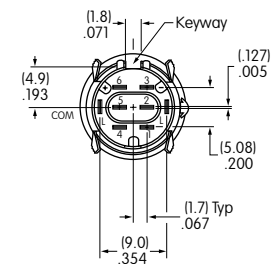
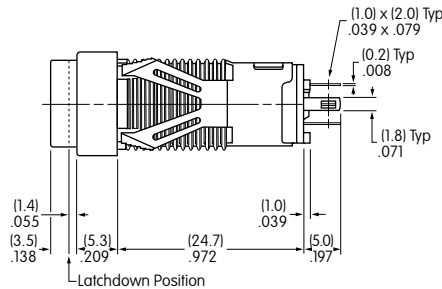
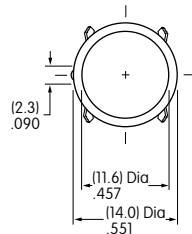


KB16KKW01-05-CB

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

Round • Snap-In Mounting

Single & Double Pole

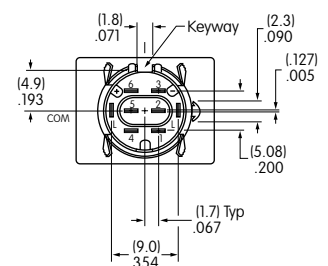
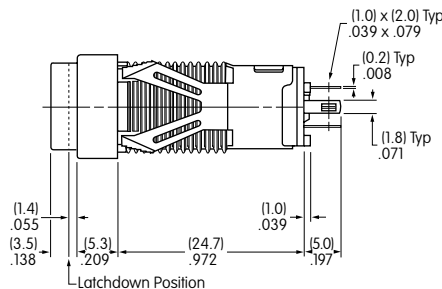
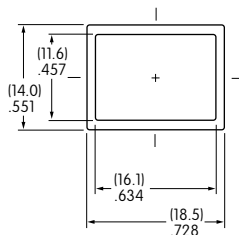


KB26MKW01-05-CB

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

Rectangular • Snap-In Mounting

Single & Double Pole



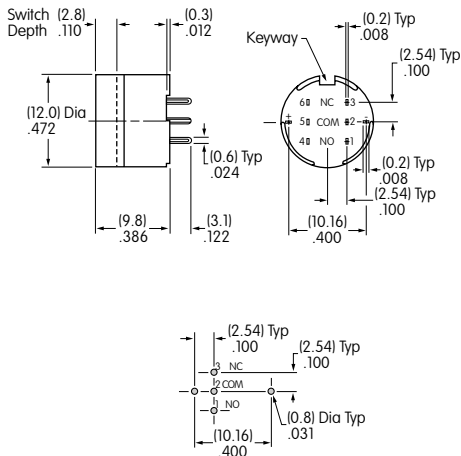
KB16NKKW01-05-CB

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

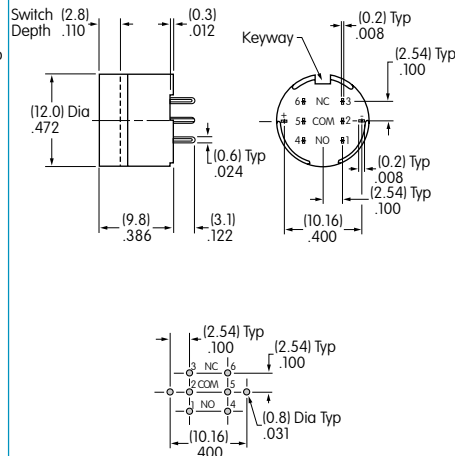
OPTIONAL ACCESSORIES

PCB Adaptors

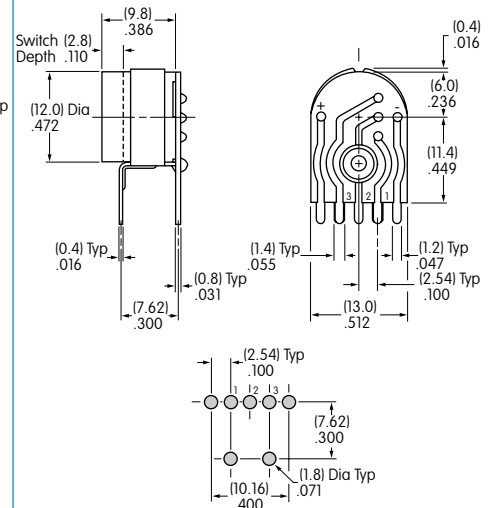
AT701
Single Pole
Straight PC
Terminals



AT702
Double Pole
Straight PC
Terminals



AT077
Single Pole
Right Angle PC
Terminals

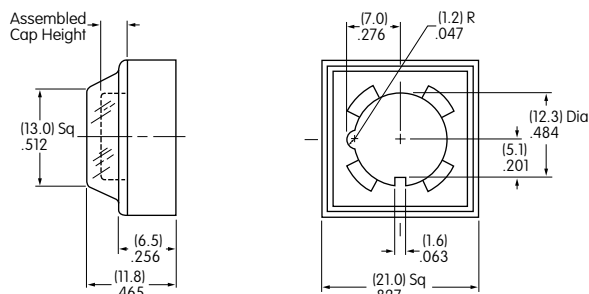
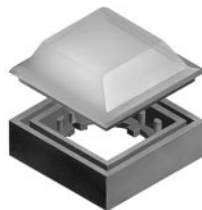


Material: Glass reinforced polyamide
Note: Order adaptors separately.

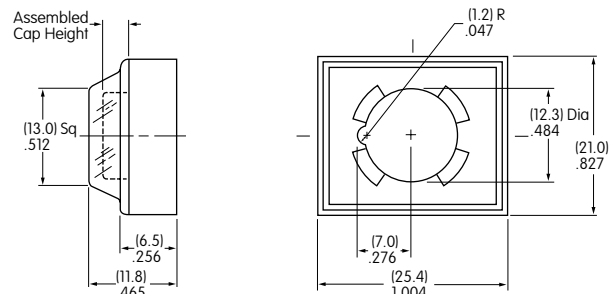
Splash Covers

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

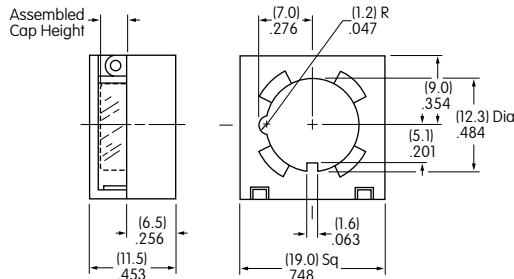


Material: Lid: PVC PVC loses pliability below 0°C (32°F). Base: Polyamide

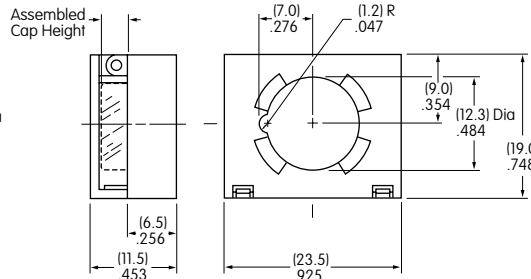
OPTIONAL ACCESSORIES

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".

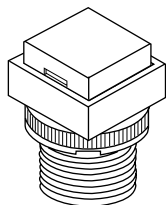
Material: Cover: Polycarbonate

Base: Polyamide

ASSEMBLY INSTRUCTIONS

Cap Removal & Installation

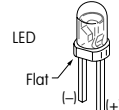
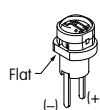
For alternate action models cap must be in UP position for cap removal. Indentations on opposite sides of the cap provide an easy way to lift the cap out of the holder, using either the finger nails, or cap extractor AT109.



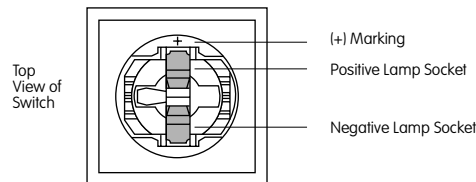
LED Polarity & Orientation in Lamp Socket



LED
AT628

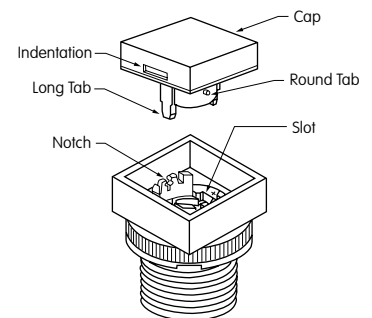


LEDs
AT625
AT631
AT632



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

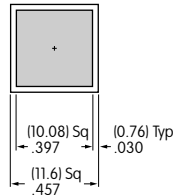


Recommended Print Method:

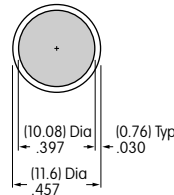
Screen Print or Pad Print

Epoxy based ink is recommended.

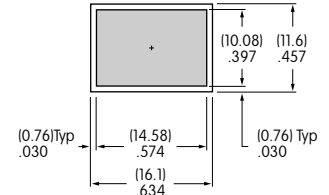
AT485



AT486

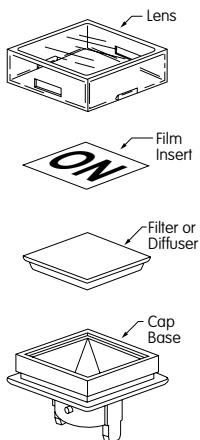


AT4021



Shaded areas are printable areas.

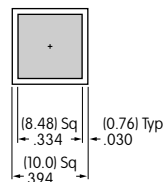
Suggested Printable Area for Film Insert



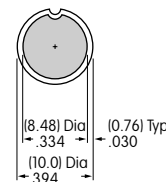
Film Material and Thickness:
Clear Polyester, 4 mil max.

Recommended Print Method:
Screen Print with Epoxy Based Ink

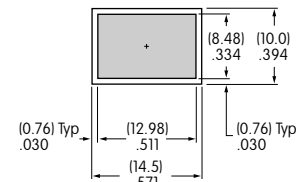
AT487
AT489
AT4133
AT4158



AT488
AT490
AT4132
AT4160



AT4022
AT4023
AT4134
AT4159

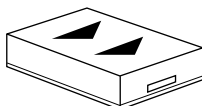


Shaded areas are printable areas.

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.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

NKK Switches:

[AT489JB](#) [AT489JC](#) [AT489JD](#) [AT489JF](#) [AT490JB](#) [AT490JC](#) [AT490JD](#) [AT490JF](#) [AT614C](#) [AT614F](#) [AT614D](#)