

# Distinctive Characteristics

Bright or super bright LEDs (an integral part of the switch) of red, amber, green, blue, or white, in full face or spot illumination plus square or rectangular models.

Combination of PCB mountability and short body allows use in compact applications.

Small behind panel dimension for snap-in mounting in tight spaces.

Snap-acting contact mechanism provides sensitive actuation with audible feedback; quick-make, quick-break characteristic limits arcing and prolongs electrical life.

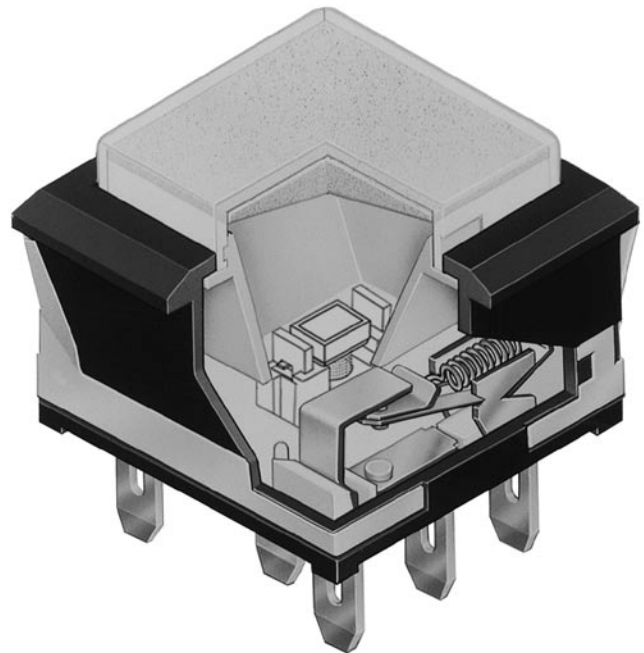
Latchdown mechanism, independent of switching mechanism, gives visible and tactile indication of circuit status.

Terminals are epoxy sealed to lock out flux, solvents, and other contaminants.

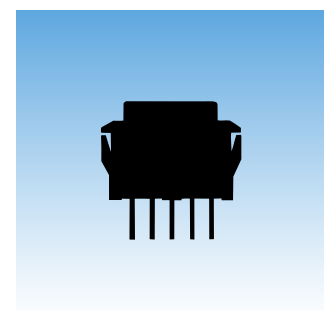
Momentary and alternate action circuits available in the same space-saving body size.

Nonilluminated models available and shown in Pushbutton section.

Matching indicators available and shown at the end of Section M.



Actual Size



# General Specifications

## Electrical Capacity (Resistive Load)

**Power Level (code W):** 5A @ 125/250V AC or 5A @ 30V DC  
**Logic Level (code G):** 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;  
 200,000 operations minimum for alternate action  
**Electrical Life:** 10,000 operations minimum for silver;  
 100,000 operations minimum for silver with resistive load of 3A @ 125V AC  
 200,000 operations minimum for gold  
**Nominal Operating Force:** Single Pole: 1.9N for Square & 1.9N for Rectangular  
 Double Pole: 2.55N for Square & 3.1N for Rectangular  
**Contact Timing:** Break before make  
**Travel:** Pretravel .067" (1.7mm); Overtravel .024" (0.6mm); Total Travel .091" (2.3mm)

## Materials & Finishes

**Housing/Bezel:** Glass fiber reinforced polyamide (UL94V-0)  
**Snap-in Frame:** Stainless steel  
**Movable Contactor:** Phosphor bronze  
**Movable Contacts:** Silver alloy or copper with gold plating  
**Stationary Contacts:** Silver alloy or copper with gold plating  
**Switch Terminals:** Phosphor bronze with silver or gold plating  
**Lamp Terminals:** Brass with silver plating  
**Base:** Glass fiber reinforced liquid crystal polymer (UL94V-0)

## Environmental Data

**Operating Temp Range:** -25°C through +50°C (-13°F through +122°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<sup>2</sup>) acceleration (tested in 6 right angled directions, with 5 shocks in each direction)

## Installation

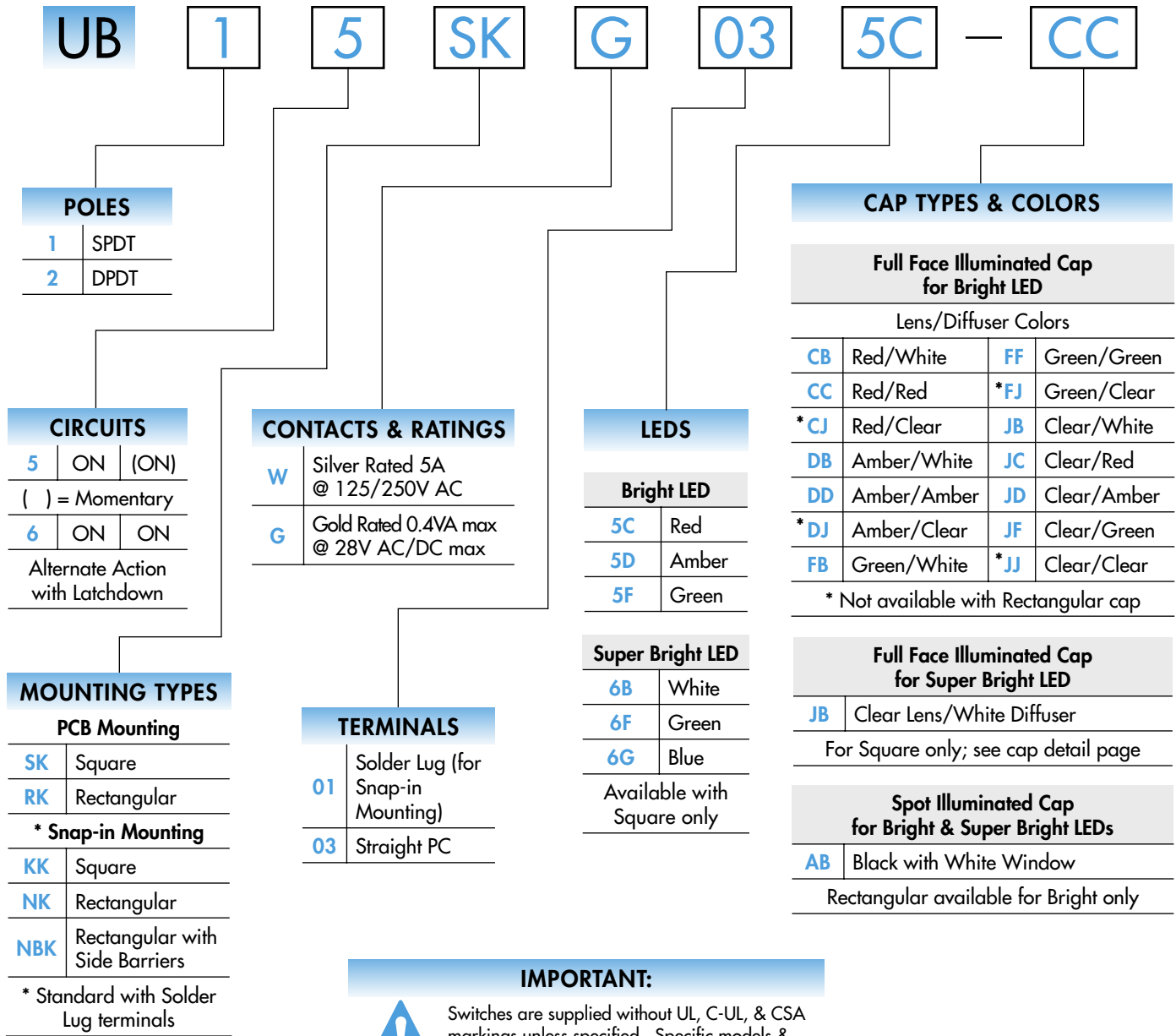
**Cap Installation Force:** 7.55N (1.70 lbf) maximum downward force on cap  
**Soldering Time & Temp:** Wave Soldering (PC version): See Profile A in Supplement section.  
 Manual Soldering: See Profile A in Supplement section.  
**Cleaning:** These devices are not process sealed. Hand clean locally using alcohol based solution.

## Standards & Certifications

**Flammability Standards:** UL94V-0 housing/bezel & base  
**UL & C-UL Recognized:** All single & double pole models recognized at 5A @ 125/250V AC or 0.014A @ 28V DC;  
 UL File No. WOYR2.E44145; add "/U" to end of part number to order UL mark on switch.  
 C-UL File No. WOYR8.E44145; add "/C-UL" to end of part number to order C-UL mark on switch  
**CSA Certified:** All single & double pole models certified at 5A @ 125/250V AC or 5A @ 30V DC or  
 0.4VA maximum @ 28V AC/DC maximum; CSA File No. 023535-0-000;  
 add "/C" to end of part number to order CSA mark on switch.



## TYPICAL SWITCH ORDERING EXAMPLE



### DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

#### UB15SKG035C-CC



## POLES & CIRCUITS

Pole	Model	Plunger Position ( ) = Momentary		Connected Terminals		Throw & Switch/Lamp Schematics
		Normal	Down	Normal	Down	
SP	UB15 *UB16	ON ON	(ON) ON	1-3 1-2		Notes: Switch is marked with NC, NO, COM, L+ & L-. Lamp circuit is isolated and requires an external power source.
DP	UB25 *UB26	ON ON	(ON) ON	1-3 4-6 1-2 4-5		

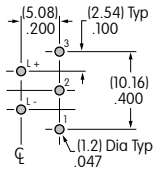
\* When in latchdown position for the alternate circuit, cap position is .039" (1.0mm) above the housing.

## MOUNTING TYPES & SHAPES

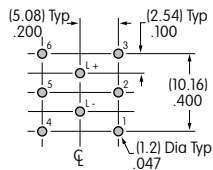
### PCB Mounting

**SK**

Square



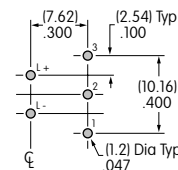
Single Pole



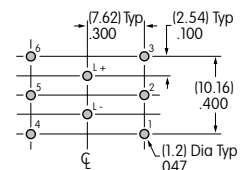
Double Pole

**RK**

Rectangular



Single Pole

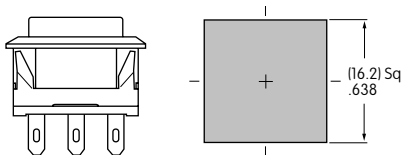


Double Pole

### Snap-in Mounting (Solder Lug)

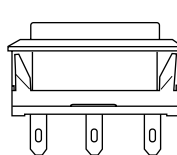
**KK**

Square with Built-in Bezel



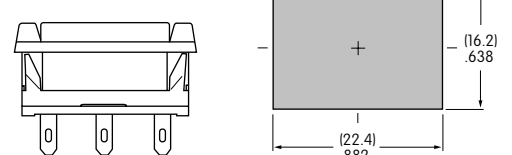
**NK**

Rectangular with Built-in Bezel



**NBK**

Rectangular with Built-in Side Barriers



Snap-in Mounting with Solder Lug terminals is the standard combination. Panel Thickness: .039 ~ .126" (1.0 ~ 3.2mm)

## CONTACT MATERIALS & RATINGS

**W**

Silver Contacts

Power Level

5A @ 125V AC & 250V AC

**G**

Gold Contacts

Logic Level

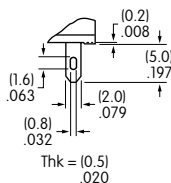
0.4VA maximum @ 28V AC/DC maximum

Complete explanation of operating range in Supplement section.

## TERMINALS

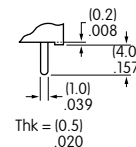
**01**

Solder Lug



**03**

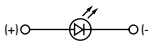

Straight PC



## 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 bottom of 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.

The LED is an integral part of the switch and not available separately.

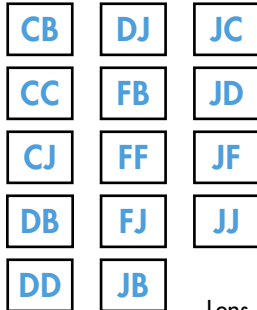
Super Bright LEDs are Electrostatic Sensitive			Bright			Super Bright			Unit
			<b>5C</b>	<b>5D</b>	<b>5F</b>	<b>6B</b>	<b>6F</b>	<b>6G</b>	
	Color		Red	Amber	Green	White	Green	Blue	
Forward Peak Current	$I_{FM}$		30	30	25	25	25	25	mA
Continuous Forward Current	$I_F$		20	20	20	20	20	20	mA
Forward Voltage	$V_F$		1.85	2.0	2.1	3.8	3.8	3.8	V
Reverse Peak Voltage	$V_{RM}$		5	5	5	5	5	5	V
Current Reduction Rate Above 25°C	$\Delta I_F$		0.40	0.42	0.46	0.47	0.47	0.47	mA/°C
Ambient Temperature Range			-25° ~ +50°C			-25° ~ +50°C			

## CAP TYPES & COLOR COMBINATIONS

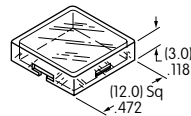
### Full Face Illuminated Cap for Bright LED

#### Lens/Diffuser

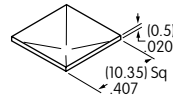
#### Colors Available for Square Cap:



**AT4074**  
Lens



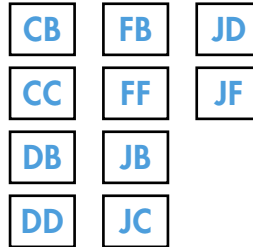
**AT4075**  
Diffuser



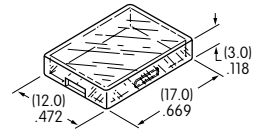
Lens & Diffuser Material: Polycarbonate

#### Lens/Diffuser

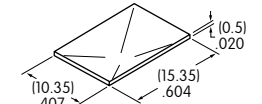
#### Colors Available for Rectangular Cap:



**AT4117**  
Lens



**AT4118**  
Diffuser



Lens Finish: Glossy

Diffuser Finish: Textured

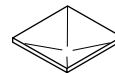
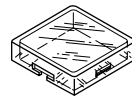
### Full Face Illuminated Cap for Super Bright LED

#### Lens/Diffuser

#### Colors Available for Square Cap:



**AT4074** Lens & **AT4075** Diffuser  
(Dimensioned above)



Rectangular lens & diffuser are not available for combining with super bright LED.

Lens & Diffuser Material: Polycarbonate

Lens Finish: Glossy

Diffuser Finish: Textured

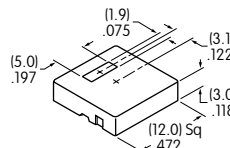
### Spot Illuminated Caps



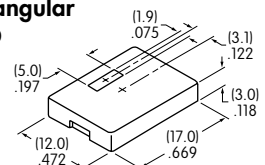
**Black** Cap with Translucent  
**White** Window for LED Display

Material: Polycarbonate  
Finish: Matte

**AT4119** Square  
for Bright and  
Super Bright LED



**AT4120** Rectangular  
for Bright LED



Color Codes:

**A** Black

**B** White

**C** Red

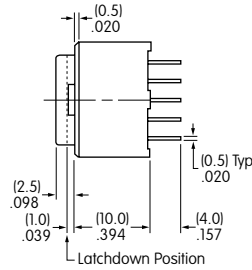
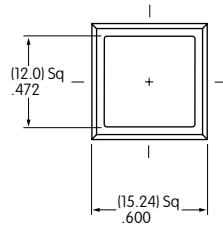
**D** Amber

**F** Green

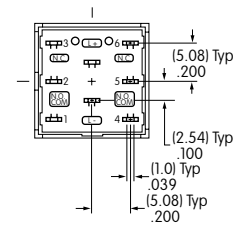
**J** Clear

## TYPICAL SWITCH DIMENSIONS

### Square • PCB Mount



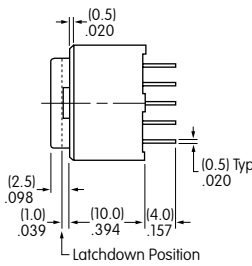
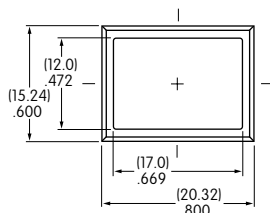
### Single & Double Pole



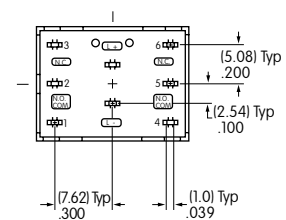
Single pole models do not have terminals 4, 5, & 6.

**UB15SKG035C-CB**

### Rectangular • PCB Mount



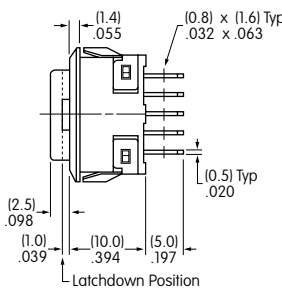
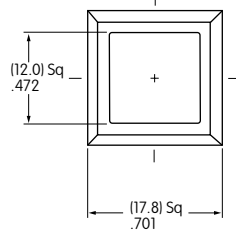
### Single & Double Pole



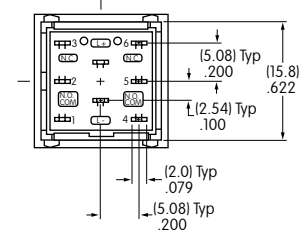
Single pole models do not have terminals 4, 5, & 6.

**UB26RKG035D-DD**

### Square • Snap-in Mount • Built-in Bezel



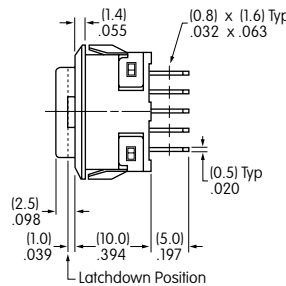
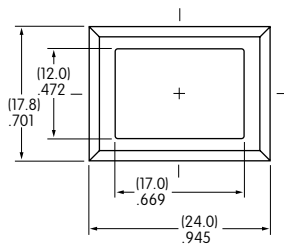
### Single & Double Pole



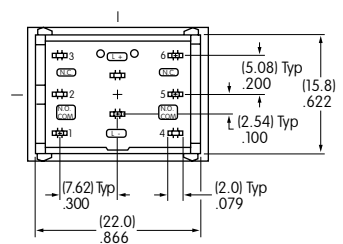
Single pole models do not have terminals 4, 5, & 6.

**UB25KKW015C-CB**

### Rectangular • Snap-in Mount • Built-in Bezel



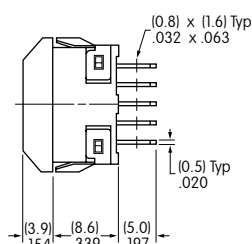
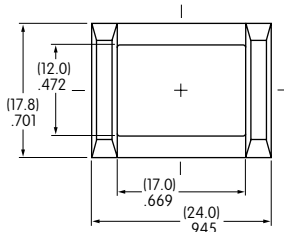
### Single & Double Pole



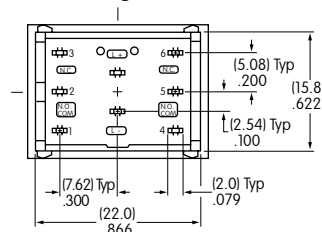
Single pole models do not have terminals 4, 5, & 6.

**UB26NKW015F-FF**

### Rectangular • Snap-in Mount • Built-in Side Barriers



### Single & Double Pole



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

**UB25NBKW015F-FB**

### OPTIONAL ACCESSORIES

#### Spring Loaded Protective Guard for Snap-in Mounting of Square PCB Model

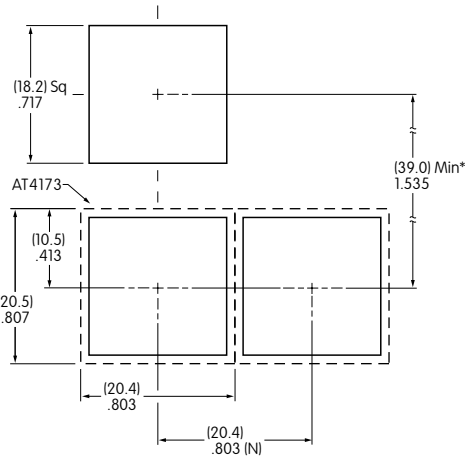
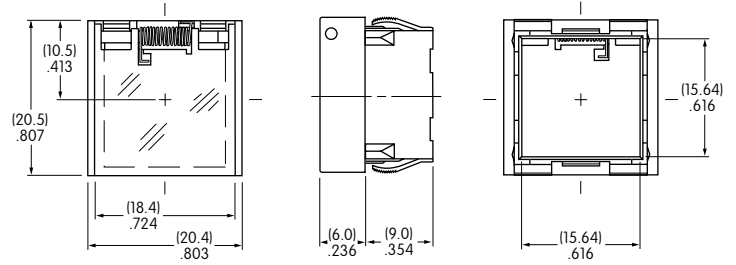
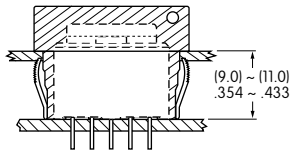
##### AT4173 Square Protective Guard/ Snap-in Frame

Opens 180°  
Closes automatically

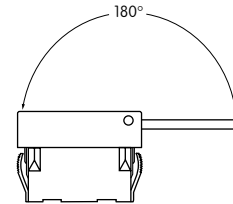
**Materials:**  
Cover: Clear Polycarbonate  
Base: Black Polyamide  
Coil Spring: Stainless Steel

**Recommended  
Panel Thickness:**  
.039" ~ .126"  
(1.0mm ~ 3.2mm)

**Recommended  
Panel-to-PCB Range:**  
.354" ~ .433"  
(9.0mm ~ 11.0mm)

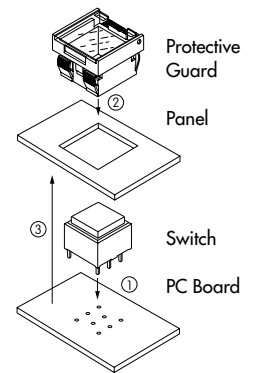


(N) = Number of switches  
\* Minimum dimension allows opening of cover to 180°



##### Installation

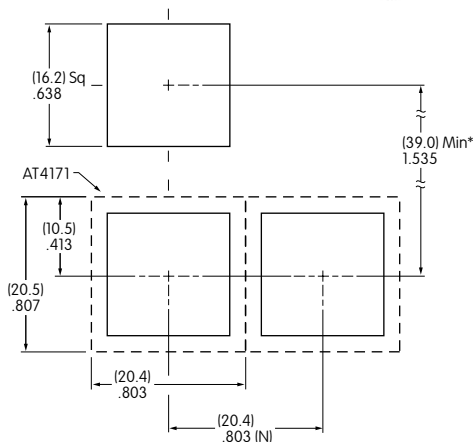
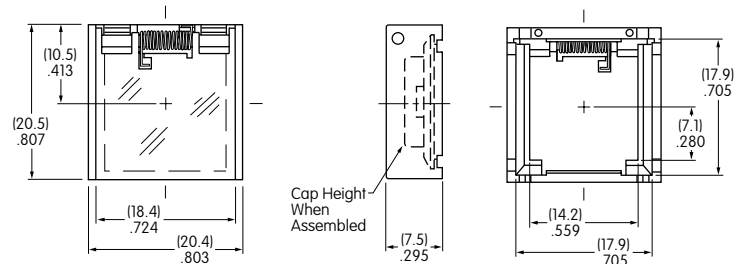
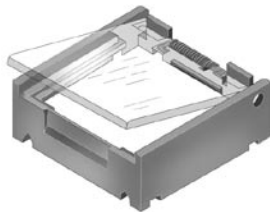
- ① Install switch onto PC board.
- ② Snap protective guard into panel.
- ③ Join the two assemblies.



#### Spring Loaded Protective Guard for Square Snap-in Model

##### AT4171 Square Protective Guard

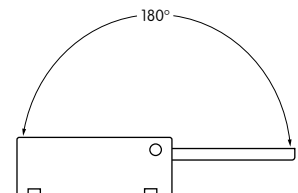
Opens 180°  
Closes automatically



(N) = Number of switches  
\* Minimum dimension allows opening of cover to 180°

**Materials:**  
Cover: Clear Polycarbonate  
Base: Black GFR Polyamide  
Coil Spring: Stainless Steel

**Recommended Panel Thickness:**  
.039" ~ .106" (1.0mm ~ 2.7mm)



### OPTIONAL ACCESSORIES

#### Spring Loaded Protective Guard for Snap-in Mounting of Rectangular PCB Model

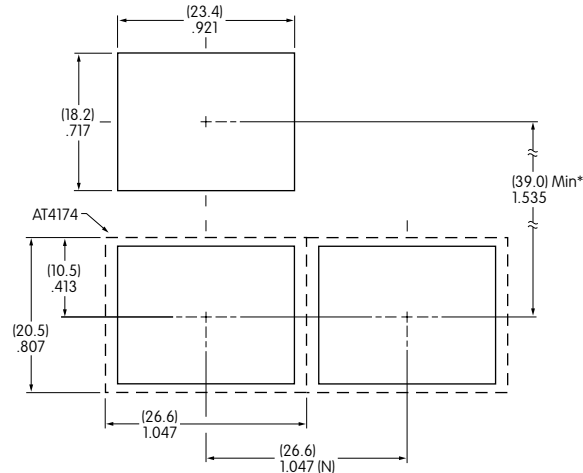
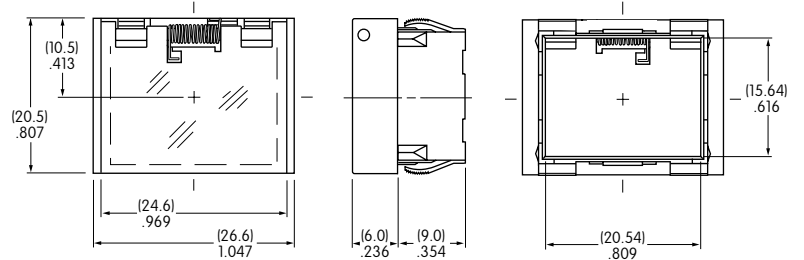
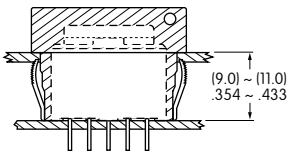
##### AT4174 Rectangular Protective Guard/ Snap-in Frame

Opens 180°  
Closes automatically

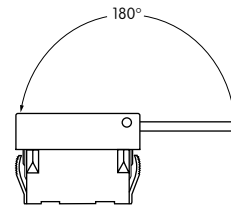
**Materials:**  
Cover: Clear Polycarbonate  
Base: Black Polyamide  
Coil Spring: Stainless Steel

**Recommended  
Panel Thickness:**  
.039" ~ .126"  
(1.0mm ~ 3.2mm)

**Recommended  
Panel-to-PCB Range:**  
.354" ~ .433"  
(9.0mm ~ 11.0mm)

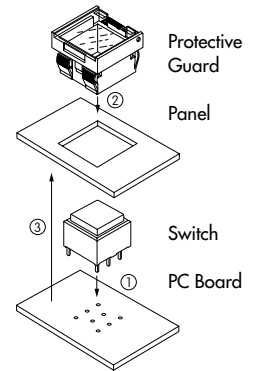


(N) = Number of switches \* Minimum dimension allows opening of cover to 180°



##### Installation

- ① Install switch onto PC board.
- ② Snap protective guard into panel.
- ③ Join the two assemblies.



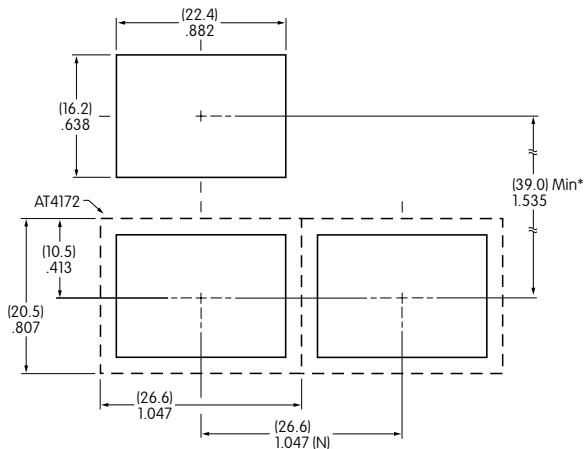
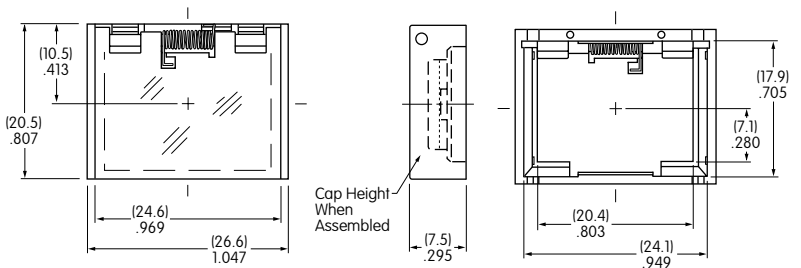
#### Spring Loaded Protective Guard for Rectangular Snap-in Model

##### AT4172 Rectangular Protective Guard

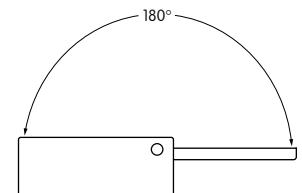
Opens 180°  
Closes automatically

**Materials:**  
Cover: Clear Polycarbonate  
Base: Black GFR Polyamide  
Coil Spring: Stainless Steel

**Recommended Panel Thickness:**  
.039" ~ .106" (1.0mm ~ 2.7mm)



(N) = Number of switches \* Minimum dimension allows opening of cover to 180°

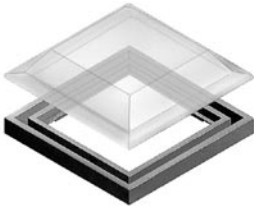




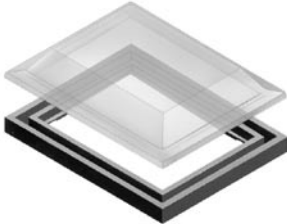
## OPTIONAL ACCESSORIES

### Dust Covers

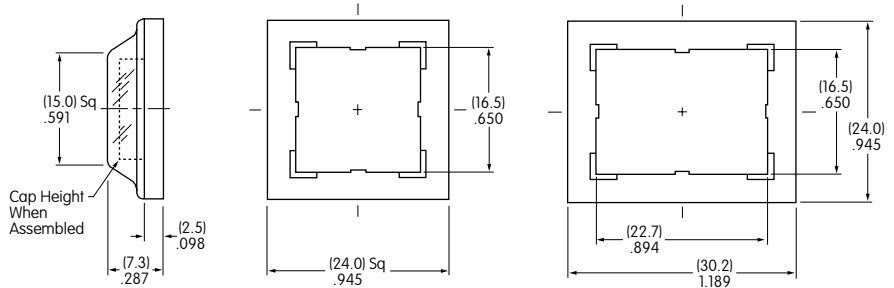
**AT4001**  
Square



**AT4011**  
Rectangular



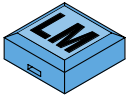
Not for use with barrier type models (mounting code NBK)



Materials:  
PVC with polyethylene gasket  
(PVC loses pliability below 0°C (32°F).)

Recommended Panel Thickness: .039" ~ .098" (1.0mm ~ 2.5mm)

## LEGENDS



Easily create and submit your own legends using our new on-line Legend Maker.

Visit [www.nkkswitches.com](http://www.nkkswitches.com)

For other legend support options, customers may either contact the factory and request the UB/UB2 Legend Packet, or utilize the general information and basic specifications presented below.

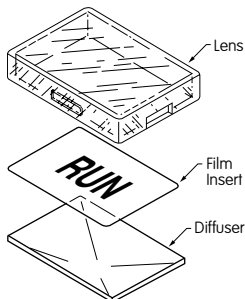
### Suggested Printable Area for UB Lens & Film Insert

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

Square Cap

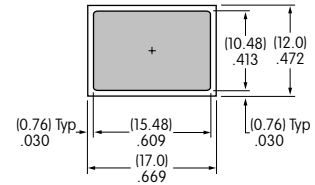
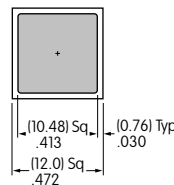


Rectangular Cap

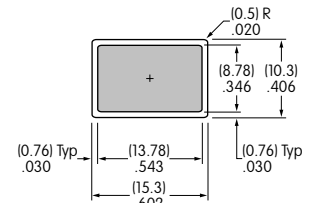
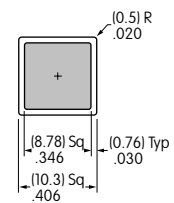


Shaded areas are printable areas.

Lens



Film Insert



Film Insert: Clear Polyester 4 mil max. thickness