

# General Specifications

## Electrical Capacity (Resistive Load)

**Power Level (silver):** 5A @ 125/250V AC or 5A @ 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;  
 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 Temperature Range:** -25°C through +50°C (-13°F through +122°F) for Illuminated  
 -20°C through +70°C (-4°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 (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:** **File No. E44145 - Recognized only when ordered with marking on switch.**  
 Add "/U" or "/CUL" before dash in part number to order UL recognized switch.  
 UL recognized only when ordered switch body with cap assembled.  
 All single & double pole models recognized at 5A @ 125/250V AC or 0.014A @ 28V DC.  
**CSA:** **File No. 023535\_0\_000 - Certified only when ordered with marking on switch.**  
 Add "/C" before dash in part number to order CSA certified switch.  
 All single & double pole models certified at 5A @ 125/250V AC or 5A @ 30V DC or  
 0.4VA maximum @ 28V AC/DC maximum.

# 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.

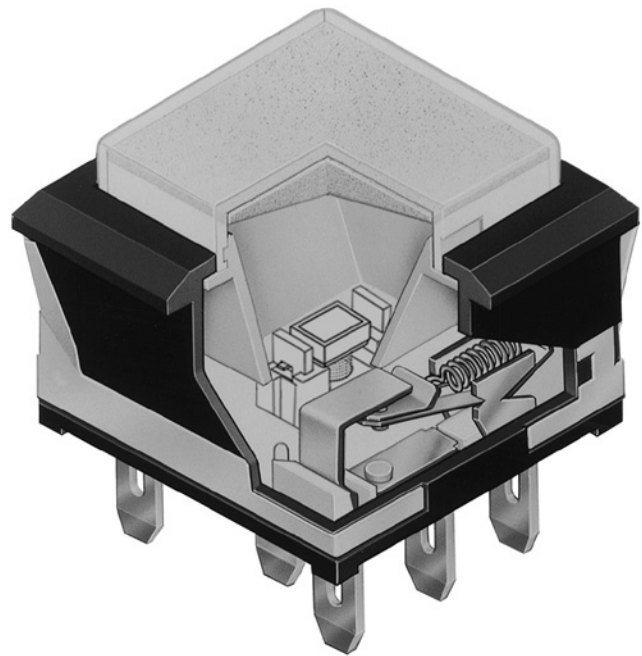
Snap-acting contact mechanism provides sensitive actuation with audible feedback; quick-make, quick-break characteristic limits arcing and prolongs electrical life.

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

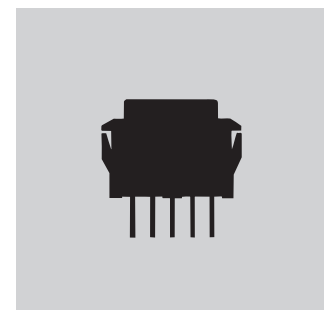
Terminals are epoxy sealed to lock out flux, solvents, and other contaminants.

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

Matching indicators available.



Actual Size



### TYPICAL SWITCH ORDERING EXAMPLE

UB
1
5
SK
G
03
5C
—
CC

#### Poles

|   |      |
|---|------|
| 1 | SPDT |
| 2 | DPDT |

#### Circuits

|                 |    |      |
|-----------------|----|------|
| 5               | ON | (ON) |
| ( ) = Momentary |    |      |
| 6               | ON | ON   |

Alternate Action with Latchdown

#### Mounting Types

| PCB Mounting       |                                |
|--------------------|--------------------------------|
| SK                 | Square                         |
| RK                 | Rectangular                    |
| * Snap-in Mounting |                                |
| KK                 | Square                         |
| NK                 | Rectangular                    |
| NBK                | Rectangular with Side Barriers |

\* Standard with Solder Lug terminals

#### LEDs

| Bright LED |       |
|------------|-------|
| 5C         | Red   |
| 5D         | Amber |
| 5F         | Green |

#### Cap Types & Colors

| Full Face Illuminated Cap for Bright LED |                                                                   |     |             |
|------------------------------------------|-------------------------------------------------------------------|-----|-------------|
| Lens/Diffuser Colors                     |                                                                   |     |             |
| CB                                       | Red/White                                                         | FF  | Green/Green |
| CC                                       | Red/Red                                                           | *FJ | Green/Clear |
| *CJ                                      | Red/Clear                                                         | JB  | Clear/White |
| DB                                       | Amber/White                                                       | JC  | Clear/Red   |
| DD                                       | Amber/Amber                                                       | JD  | Clear/Amber |
| *DJ                                      | Amber/Clear                                                       | JF  | Clear/Green |
| FB                                       | Green/White                                                       | *JJ | Clear/Clear |
| AB                                       | Square & Rectangular Spot Illuminated Black Cap with White Window |     |             |

\* Not available with Rectangular cap

#### Contacts & Ratings

|   |                                      |
|---|--------------------------------------|
| W | Silver Rated 5A @ 125/250V AC        |
| G | Gold Rated 0.4VA max @ 28V AC/DC max |

#### Terminals

|    |                                    |
|----|------------------------------------|
| 01 | Solder Lug* (for Snap-in Mounting) |
| 03 | Straight PC                        |

\* Wire harness & cable assemblies offered only in Americas

**IMPORTANT:**

Switches are supplied without UL, cULus & CSA marking unless specified. **UL, cULus & CSA recognized only when ordered with marking on the switch.** Specific models, ratings, & ordering instructions are noted on General Specifications page.

#### Super Bright LED

|    |       |
|----|-------|
| 6B | White |
| 6F | Green |
| 6G | Blue  |

Available with Square only

#### Full Face Illuminated Cap for Super Bright LED

|    |                                              |
|----|----------------------------------------------|
| JB | Clear Lens/White Diffuser                    |
| AB | Spot Illuminated Black Cap with White Window |

For Square only; see cap detail page

#### Nonilluminated

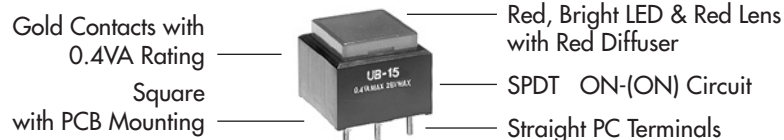
|   |                |
|---|----------------|
| N | Nonilluminated |
|---|----------------|

#### Nonilluminated Cap Colors

|   |       |   |        |
|---|-------|---|--------|
| A | Black | E | Yellow |
| B | White | F | Green  |
| C | Red   | G | Blue   |

### DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

UB15SKG035C-CC



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

\* When in latched 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**

Thk = (0.5) .020

### 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 bottom of switch. If the source voltage exceeds the rated voltage, a ballast resistor is required. Resistor value can be calculated by using the formula in the Supplement section. LED is an integral part of switch and not available separately.

| Super Bright LEDs are Electrostatic Sensitive |                                                                                   |  <b>ATTENTION</b><br>ELECTROSTATIC<br>SENSITIVE DEVICES | Bright        |               |               | Super Bright  |               |               | Unit  |
|-----------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|-------|
|                                               |                                                                                   |                                                                                                                                          | <div>5C</div> | <div>5D</div> | <div>5F</div> | <div>6B</div> | <div>6F</div> | <div>6G</div> |       |
|                                               |  | Color                                                                                                                                    | Red           | Amber         | Green         | White         | Green         | Blue          |       |
| Forward Peak Current                          | $I_{FM}$                                                                          |                                                                                                                                          | 30            | 30            | 25            | 30            | 30            | 30            | mA    |
| Typical Forward Current                       | $I_F$                                                                             |                                                                                                                                          | 20            | 20            | 20            | 20            | 20            | 20            | mA    |
| Forward Voltage                               | $V_F$                                                                             |                                                                                                                                          | 1.85          | 2.0           | 2.1           | 3.2           | 3.2           | 3.2           | 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          | 0.40          | 0.40          | .040          | mA/°C |
| Ambient Temperature Range                     |                                                                                   |                                                                                                                                          | -25° ~ +50°C  |               |               | -25° ~ +50°C  |               |               |       |

**N**

No Lamp

### CAP TYPES & COLOR COMBINATIONS

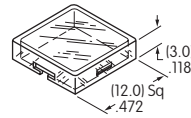
#### Full Face Illuminated Cap for Bright LED

##### Lens/Diffuser

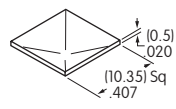
##### Colors Available for Square Cap:

|    |    |    |    |
|----|----|----|----|
| CB | DD | FJ | JF |
| CC | DJ | JB | JJ |
| CJ | FB | JC |    |
| DB | FF | JD |    |

AT4074  
Lens



AT4075  
Diffuser

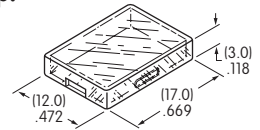


##### Lens/Diffuser

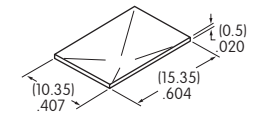
##### Colors Available for Rectangular Cap:

|    |    |    |
|----|----|----|
| CB | FB | JD |
| CC | FF | JF |
| DB | JB |    |
| DD | JC |    |

AT4117  
Lens



AT4118  
Diffuser



Lens & Diffuser Material: Polycarbonate

Lens Finish: Glossy

Diffuser Finish: Textured

#### Spot Illuminated Caps for Bright & Super Bright LEDs

##### Cap/Window Colors Available:

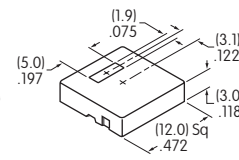
**AB**

Black Cap with Translucent White Window for LED Display

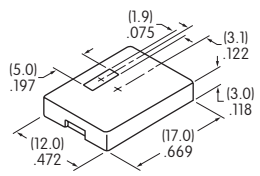
Material: Polycarbonate

Finish: Matte

AT4119 Square  
for Bright and  
Super Bright LED



AT4120  
Rectangular  
for Bright LED



#### Full Face Illuminated Cap for Super Bright LED

##### Lens/Diffuser

##### Colors Available for Square Cap:

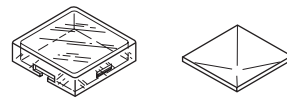
**JB**

AT4074 Lens & AT4075 Diffuser  
(Dimensions above)

Lens & Diffuser Material: Polycarbonate

Lens Finish: Glossy

Diffuser Finish: Textured



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

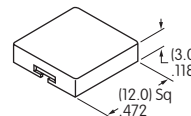
#### Opaque Caps for Nonilluminated

##### Cap Colors Available:

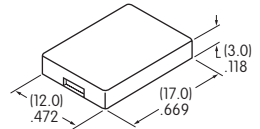
|   |   |   |
|---|---|---|
| A | C | F |
| B | E | G |

Material: Polycarbonate  
Finish: Glossy

AT4073  
Square



AT4116  
Rectangular

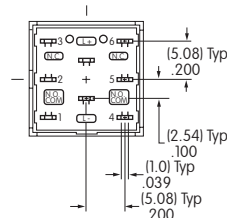
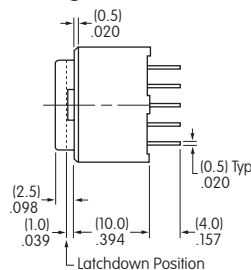
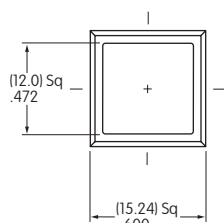


Color Codes: A Black B White C Red D Amber E Yellow F Green G Blue J Clear

## TYPICAL SWITCH DIMENSIONS

### Single & Double Pole

### Square • PCB Mount

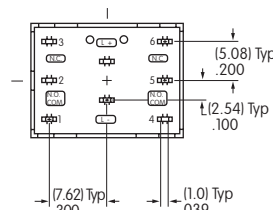
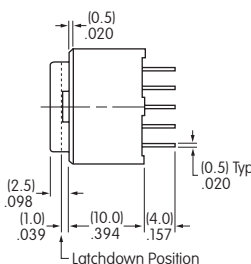
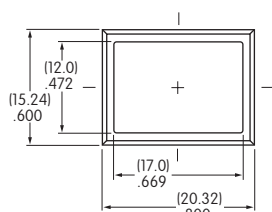


UB15SKG035C-CB

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

### Single & Double Pole

### Rectangular • PCB Mount

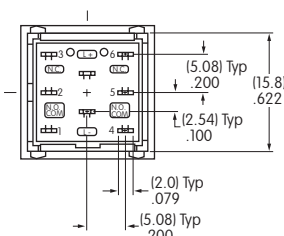
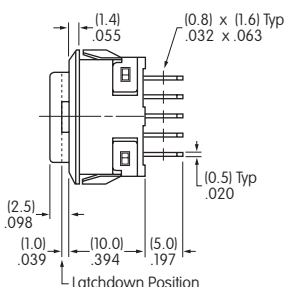
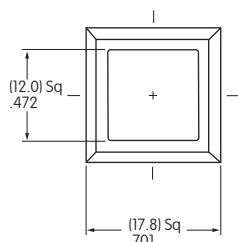


UB26RKG035D-DD

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

### Single & Double Pole

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

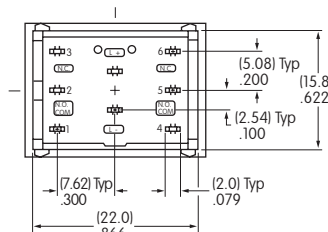
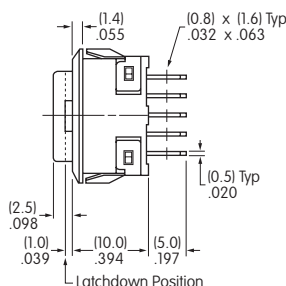
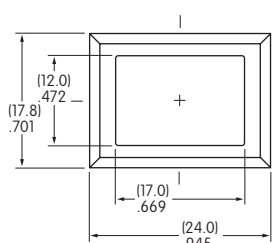


UB25KKW015C-CB

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

### Single & Double Pole

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

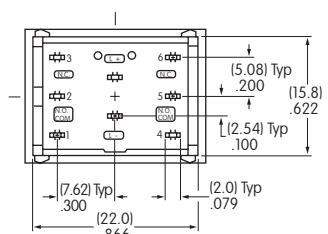
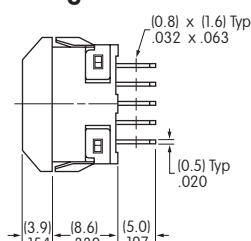
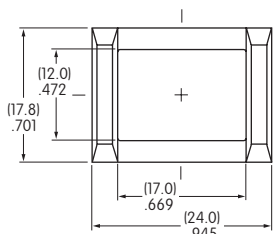


UB26NKW015F-FF

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

### Single & Double Pole

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



UB25NBKW015F-FB

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

### OPTIONAL ACCESSORIES

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

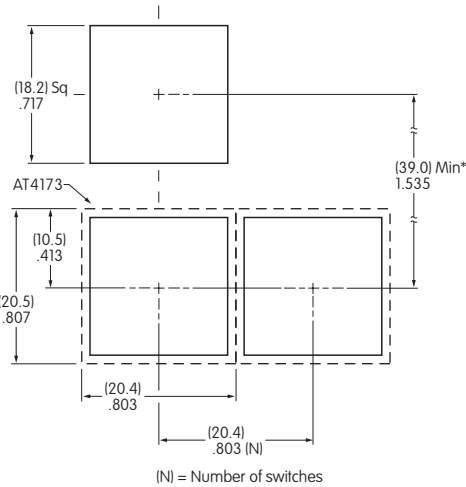
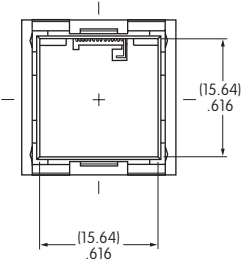
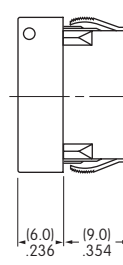
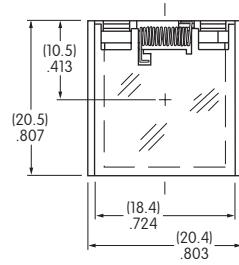
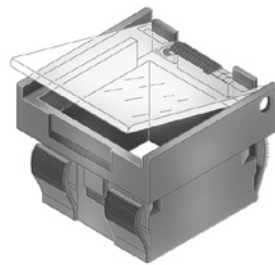
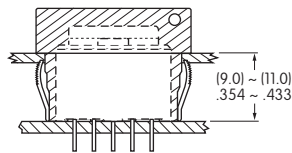
##### AT4173 Square Protective Guard/ Snap-in Frame

Opens 180°  
Closes automatically

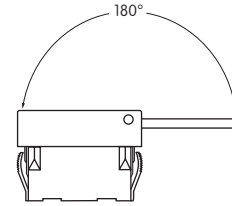
**Materials:**  
Cover: Clear Polycarbonate  
Base: Black Polyamide  
Coil Spring: Stainless Steel

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

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

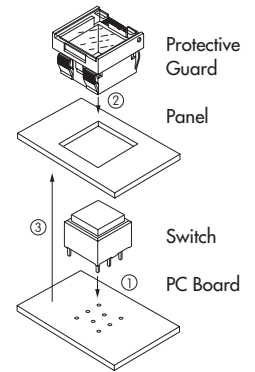


(N) = Number of switches  
\* Minimum dimension allows opening of cover to 180°



##### Installation

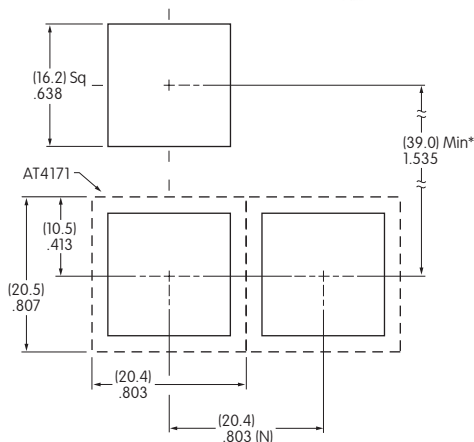
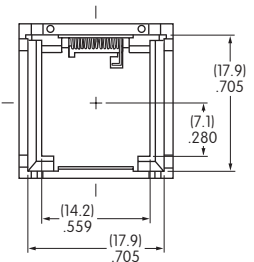
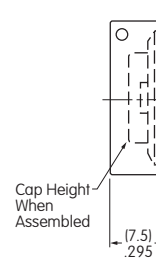
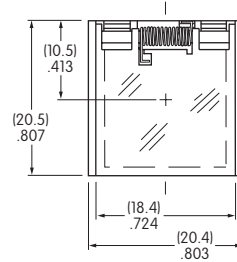
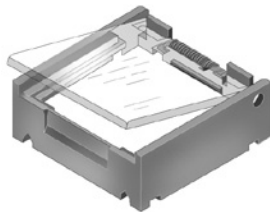
- ① Install switch onto PC board.
- ② Snap protective guard into panel.
- ③ Join the two assemblies.



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

##### AT4171 Square Protective Guard

Opens 180°  
Closes automatically

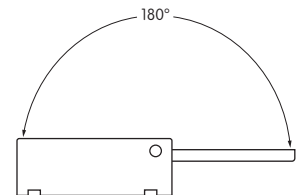


(N) = Number of switches \* Minimum dimension allows opening of cover to 180°

##### 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

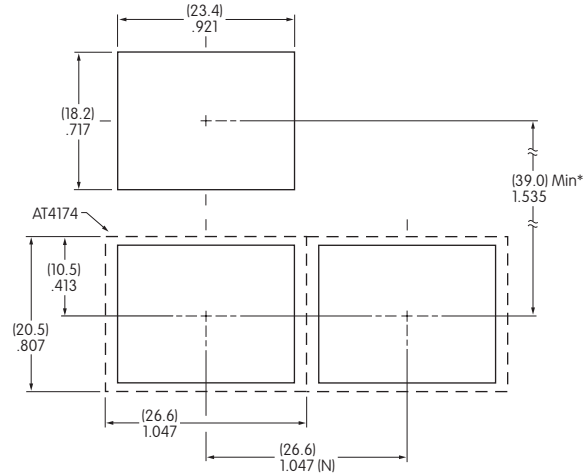
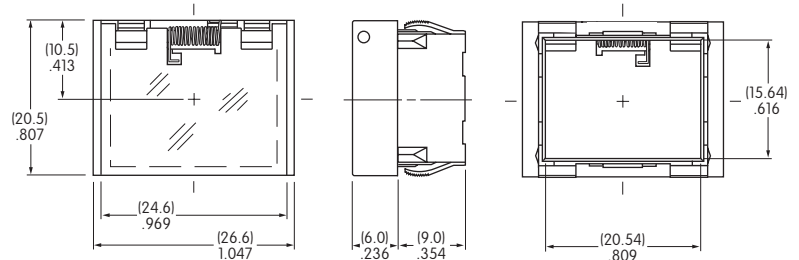
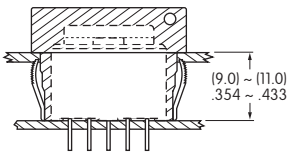
#### AT4174 Rectangular Protective Guard/ Snap-in Frame

Opens 180°  
Closes automatically

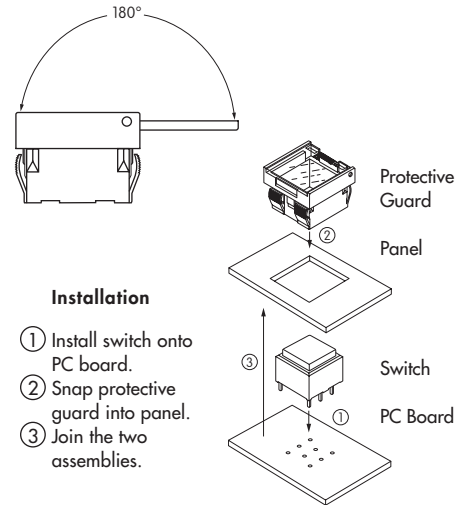
**Materials:**  
Cover: Clear Polycarbonate  
Base: Black Polyamide  
Coil Spring: Stainless Steel

**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.

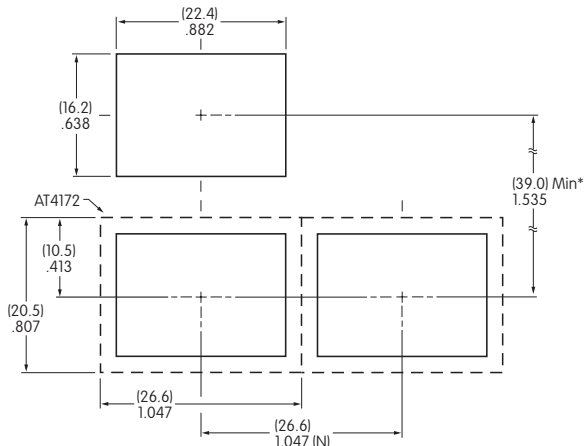
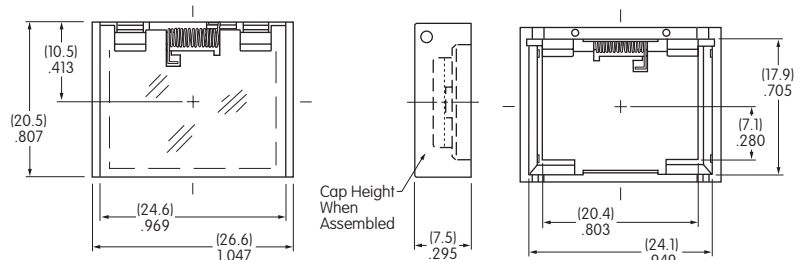
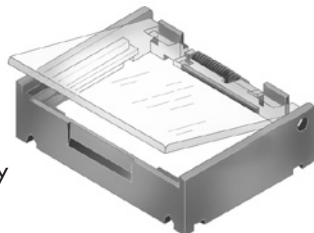
### Spring Loaded Protective Guard for Rectangular Snap-in Model

#### AT4172 Rectangular Protective Guard

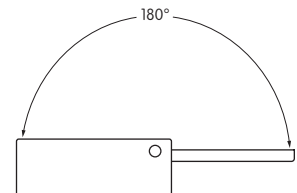
Opens 180°  
Closes automatically

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

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

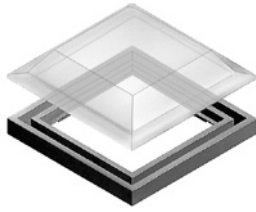


(N) = Number of switches \* Minimum dimension allows opening of cover to 180°



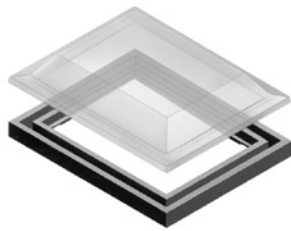
### OPTIONAL ACCESSORIES

**AT4001  
Square**



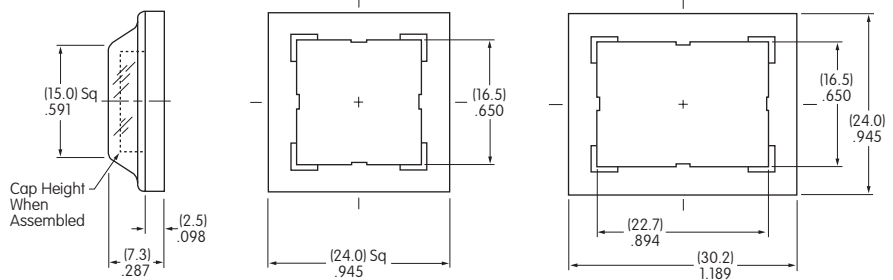
Only for use with KK mounting type

**AT4011  
Rectangular**



Only for use with NK mounting type

#### Dust Covers



#### Materials:

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

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

### LEGENDS

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

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

**Recommended Methods:** Laser Etch on clear lens, Screen Print or Pad Print on lens;

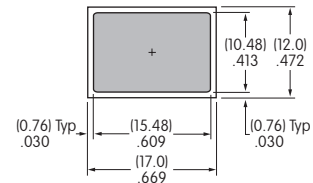
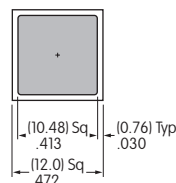
Laser Print on film insert.

**Square Cap**

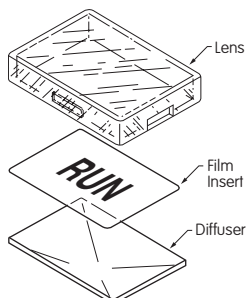


Shaded areas are printable areas.

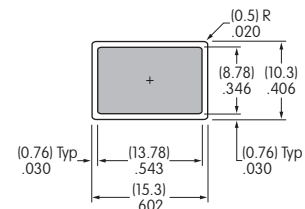
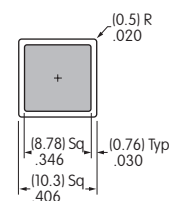
**Lens**



**Rectangular Cap**



**Film Insert**



Film Insert: Clear Polyester 4 mil max. thickness



Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



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