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.

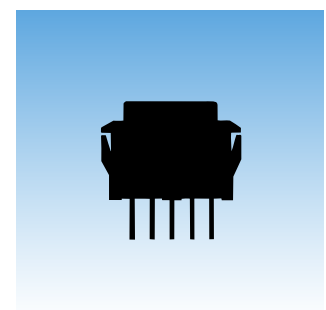Terminals are epoxy sealed to lock out flux, solvents, and other contaminants.

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.
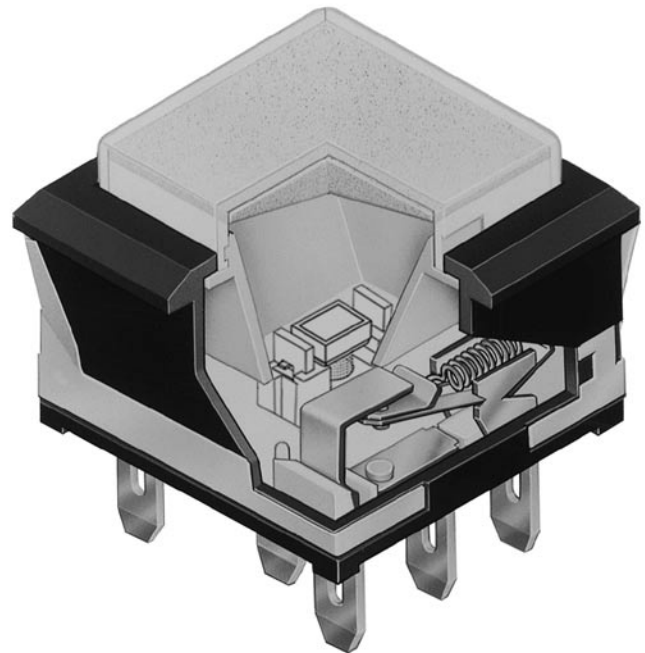
Actual Size

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^2) 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

| 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

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 |

LEDS

Bright LED

5C	Red
5D	Amber
5F	Green

Super Bright LED

6B	White
6F	Green
6G	Blue

Available with Square only

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

* Not available with Rectangular cap

Full Face Illuminated Cap for Super Bright LED

| JB | Clear Lens/White Diffuser |

For Square only; see cap detail page

Spot Illuminated Cap for Bright & Super Bright LEDs

| AB | Black with White Window |

Rectangular available for Bright only

IMPORTANT:

⚠ Switches are supplied without UL, C-UL, & CSA markings unless specified. Specific models & ratings noted on General Specifications page.

DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

UB15SKG035C-CC

Gold Contacts with 0.4VA Rating

Square with PCB Mounting

Red, Bright LED and Red Lens with Red Diffuser

SPDT   ON-(ON) Circuit

Straight PC Terminals

POLES & CIRCUITS

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

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

MOUNTING TYPES & SHAPES

PCB Mounting
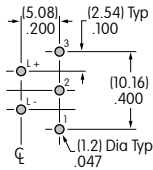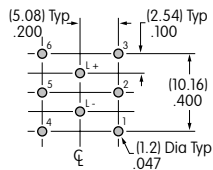
SK Square

RK Rectangular

Single Pole   Double Pole
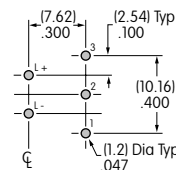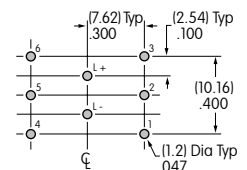
Single Pole   Double Pole

Snap-in Mounting (Solder Lug)

KK Square with Built-in Bezel
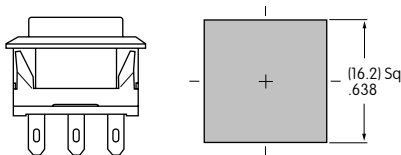
NK Rectangular with Built-in Bezel
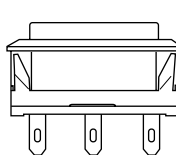
NBK Rectangular with Built-in Side Barriers
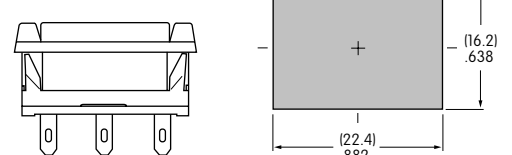
Snap-in Mounting with Solder Lug terminals is the standard combination. Panel Thickness: .039 ~ .126" (1.0 ~ 3.2mm)

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
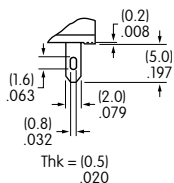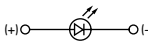
03 Straight PC
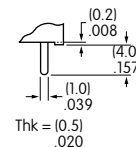
LED COLORS & SPECIFICATIONS

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.

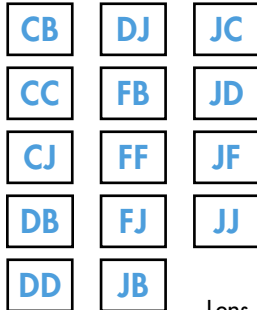The LED is an integral part of the switch and not available separately.

Super Bright LEDs are Electrostatic Sensitive **Attention** Electrostatic Sensitive Devices (+)○——▷|——○(−)		Color	Bright			Super Bright			Unit
			5C	**5D**	**5F**	**6B**	**6F**	**6G**	
			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	ΔI_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:

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

AT4074 Lens

(3.0) .118
(12.0) Sq .472

AT4075 Diffuser

(0.5) .020
(10.35) Sq .407
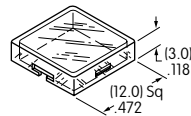
Lens/Diffuser
Colors Available for Rectangular Cap:

CB	FB	JD
CC	FF	JF
DB	JB	
DD	JC	

AT4117 Lens

(3.0) .118
(12.0) .472
(17.0) .669

AT4118 Diffuser

(0.5) .020
(10.35) .407
(15.35) .604
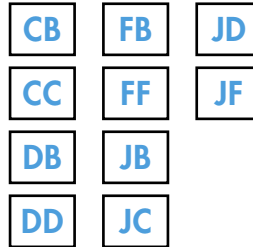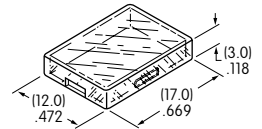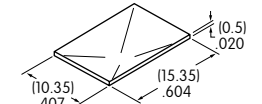
Lens & Diffuser Material: Polycarbonate   Lens Finish: Glossy   Diffuser Finish: Textured
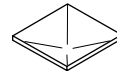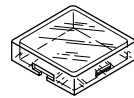
Full Face Illuminated Cap for Super Bright LED

Lens/Diffuser
Colors Available for Square Cap:

| JB | **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
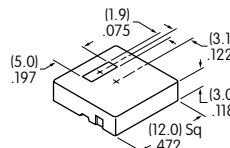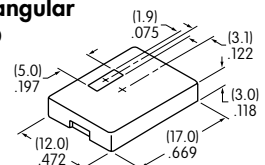
Spot Illuminated Caps

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

Material: Polycarbonate
Finish: Matte

AT4119 Square for Bright and Super Bright LED

(1.9) .075
(3.1) .122
(5.0) .197
(3.0) .118
(12.0) Sq .472

AT4120 Rectangular for Bright LED

(1.9) .075
(3.1) .122
(5.0) .197
(3.0) .118
(12.0) .472
(17.0) .669

Color Codes: **A** Black   **B** White   **C** Red   **D** Amber   **F** Green   **J** Clear
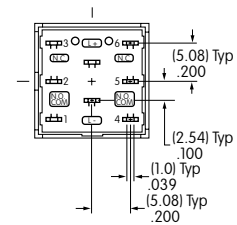
NKK®

TYPICAL SWITCH DIMENSIONS

Square • PCB Mount   Single & Double Pole

(12.0) Sq
.472

(15.24) Sq
.600

(0.5)
.020

(2.5)
.098
(1.0)
.039
(10.0)
.394
(4.0)
.157
(0.5) Typ
.020
Latchdown Position

(5.08) Typ
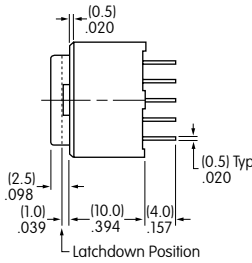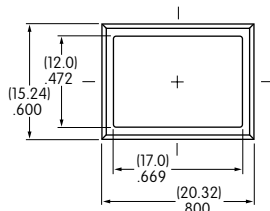.200
(2.54) Typ
.100
(1.0) Typ
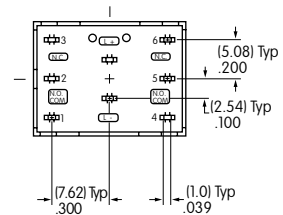.039
(5.08) Typ
.200
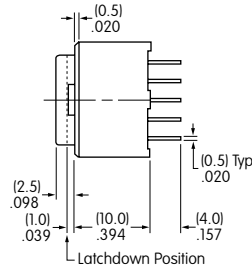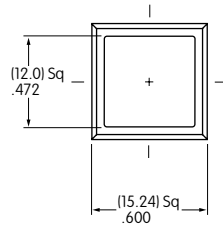
Single pole models do not have terminals 4, 5, & 6.

UB15SKG035C-CB

Rectangular • PCB Mount   Single & Double Pole

(12.0)
.472
(15.24)
.600

(17.0)
.669
(20.32)
.800

(0.5)
.020

(2.5)
.098
(1.0)
.039
(10.0)
.394
(4.0)
.157
(0.5) Typ
.020
Latchdown Position

(5.08) Typ
.200
(2.54) Typ
.100
(7.62) Typ
.300
(1.0) Typ
.039

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

UB26RKG035D-DD

Square • Snap-in Mount • Built-in Bezel   Single & Double Pole

(12.0) Sq
.472

(17.8) Sq
.701

(1.4)
.055
(0.8) x (1.6) Typ
.032 x .063

(2.5)
.098
(1.0)
.039
(10.0)
.394
(5.0)
.197
(0.5) Typ
.020
Latchdown Position

(5.08) Typ
.200
(15.8)
.622
(2.54) Typ
.100
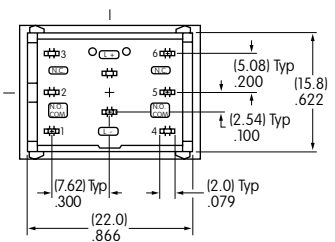(2.0) Typ
.079
(5.08) Typ
.200
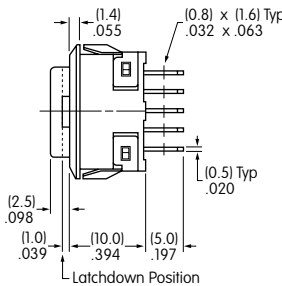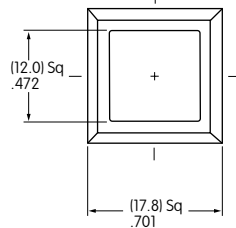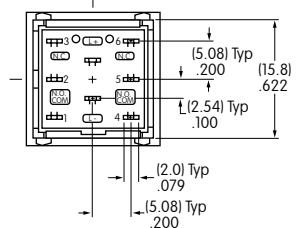
Single pole models do not have terminals 4, 5, & 6.

UB25KKW015C-CB

Rectangular • Snap-in Mount • Built-in Bezel   Single & Double Pole

(12.0)
.472
(17.8)
.701

(17.0)
.669
(24.0)
.945

(1.4)
.055
(0.8) x (1.6) Typ
.032 x .063

(2.5)
.098
(1.0)
.039
(10.0)
.394
(5.0)
.197
(0.5) Typ
.020
Latchdown Position

(5.08) Typ
.200
(15.8)
.622
(2.54) Typ
.100
(7.62) Typ
.300
(2.0) Typ
.079
(22.0)
.866
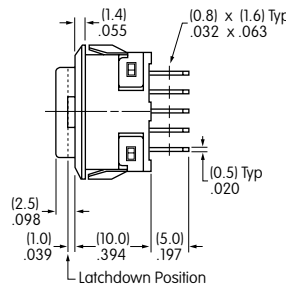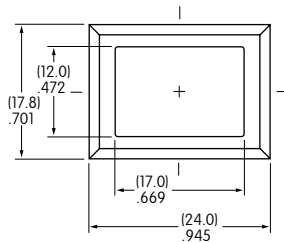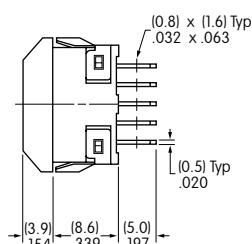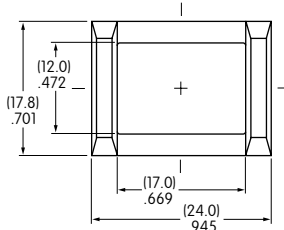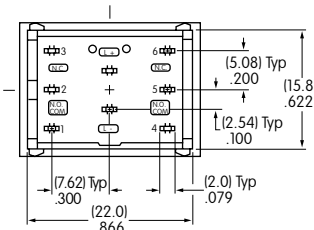
Single pole models do not have terminals 4, 5, & 6.

UB26NKW015F-FF

Rectangular • Snap-in Mount • Built-in Side Barriers   Single & Double Pole

(12.0)
.472
(17.8)
.701

(17.0)
.669
(24.0)
.945

(0.8) x (1.6) Typ
.032 x .063

(0.5) Typ
.020

(3.9)
.154
(8.6)
.339
(5.0)
.197

(5.08) Typ
.200
(15.8)
.622
(2.54) Typ
.100
(7.62) Typ
.300
(2.0) Typ
.079
(22.0)
.866

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

UB25NBKW015F-FB

OPTIONAL ACCESSORIES

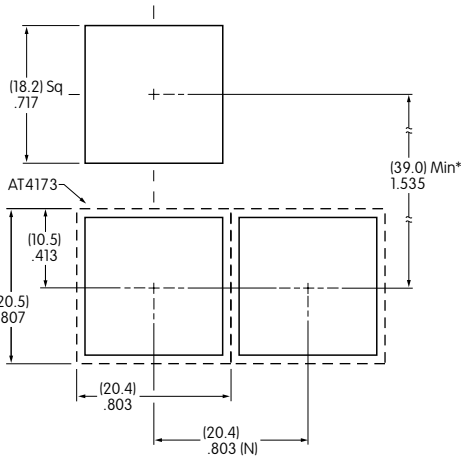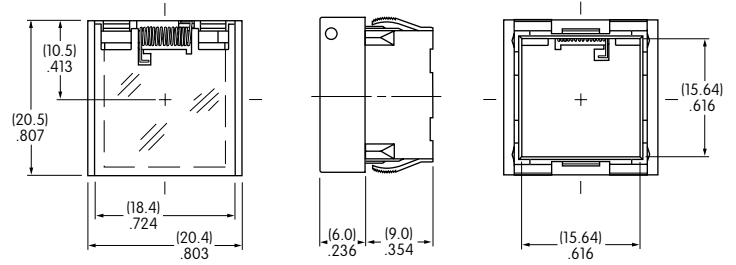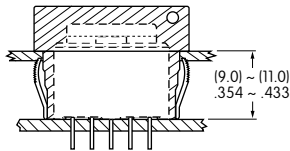### Spring Loaded Protective Guard for Snap-in Mounting of Square PCB Model

AT4173
Square Protective Guard/ Snap-in Frame
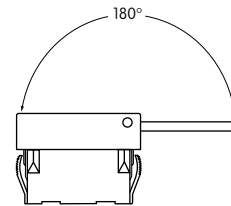
Opens 180°
Closes automatically

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:
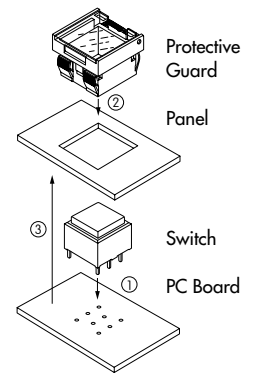.354" ~ .433"
(9.0mm ~ 11.0mm)

(9.0) ~ (11.0)
.354 ~ .433

(10.5) .413
(20.5) .807
(18.4) .724
(20.4) .803
(6.0) .236
(9.0) .354
(15.64) .616
(15.64) .616

(18.2) Sq .717
AT4173
(10.5) .413
(20.5) .807
(39.0) Min* 1.535
(20.4) .803
(20.4) .803 (N)

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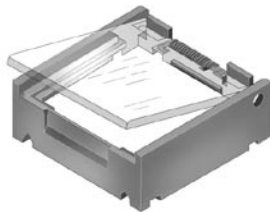* Minimum dimension allows opening of cover to 180°

180°

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

Protective Guard
Panel
Switch
PC Board

Spring Loaded Protective Guard for Square Snap-in Model

AT4171
Square Protective Guard
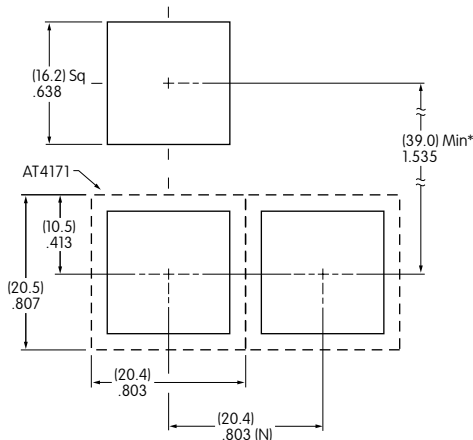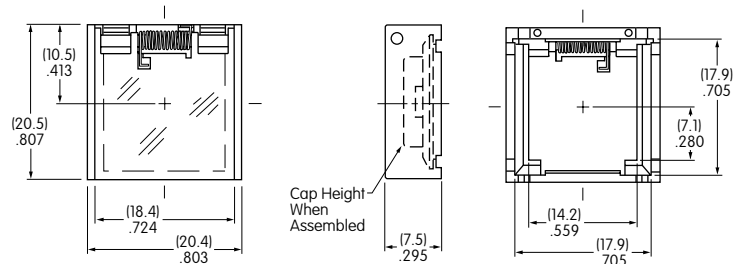
Opens 180°
Closes automatically

(16.2) Sq .638
AT4171
(10.5) .413
(20.5) .807
(39.0) Min* 1.535
(20.4) .803
(20.4) .803 (N)

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

(10.5) .413
(20.5) .807
(18.4) .724
(20.4) .803
Cap Height When Assembled
(7.5) .295
(17.9) .705
(7.1) .280
(14.2) .559
(17.9) .705

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

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

180°
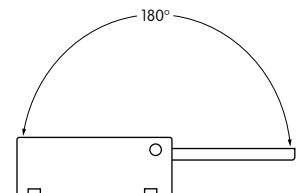
OPTIONAL ACCESSORIES

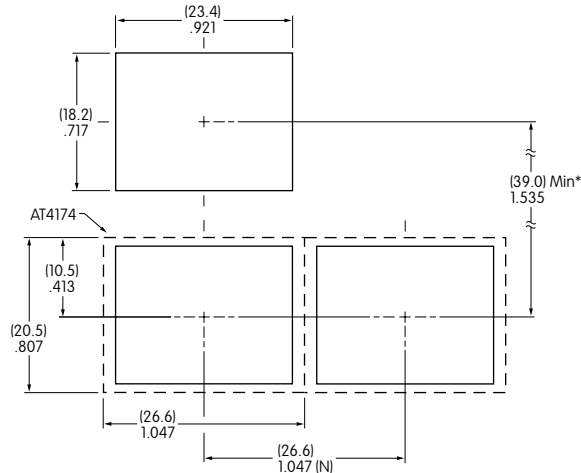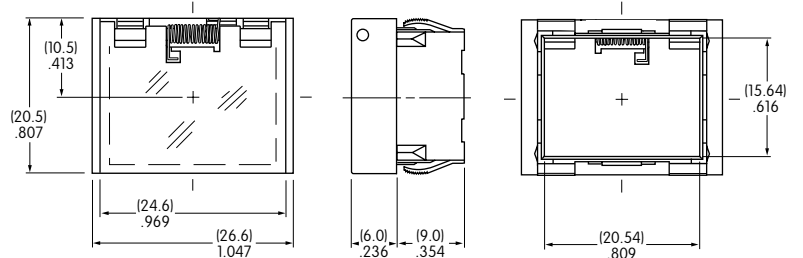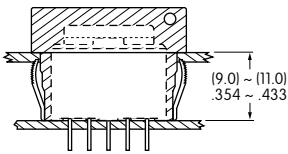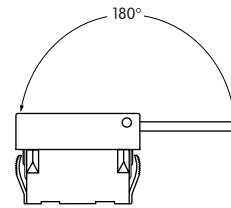### Spring Loaded Protective Guard for Snap-in Mounting of Rectangular PCB Model

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)

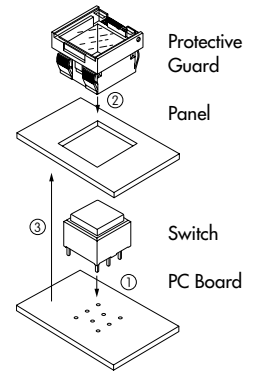**Recommended Panel-to-PCB Range:**
.354" ~ .433"
(9.0mm ~ 11.0mm)

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

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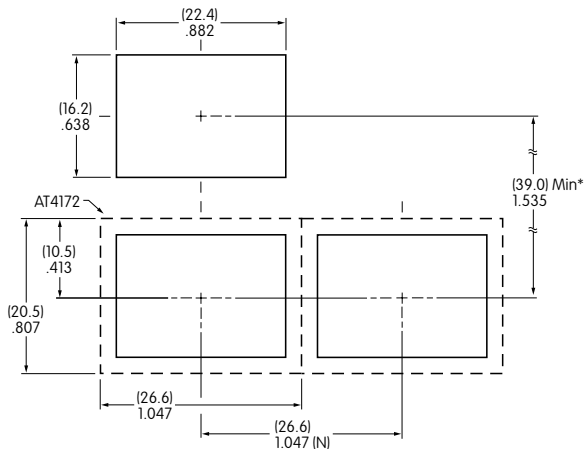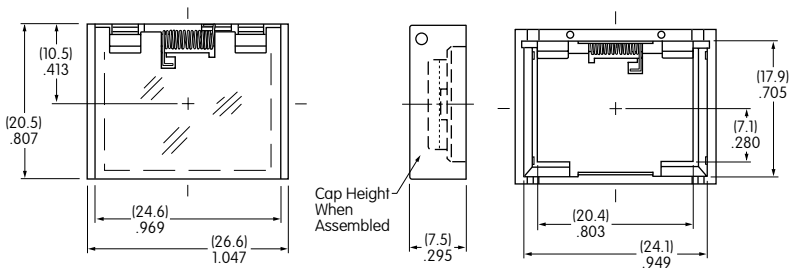2 Snap protective guard into panel.
3 Join the two assemblies.

Spring Loaded Protective Guard for Rectangular Snap-in Model
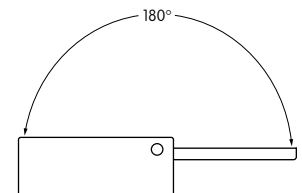
AT4172
Rectangular Protective Guard

Opens 180°
Closes automatically

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

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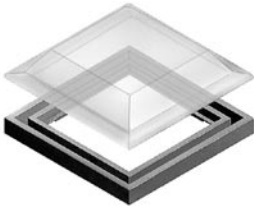.039" ~ .106" (1.0mm ~ 2.7mm)

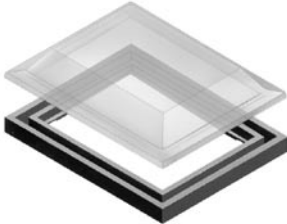(N) = Number of switches   * Minimum dimension allows opening of cover to 180°

OPTIONAL ACCESSORIES

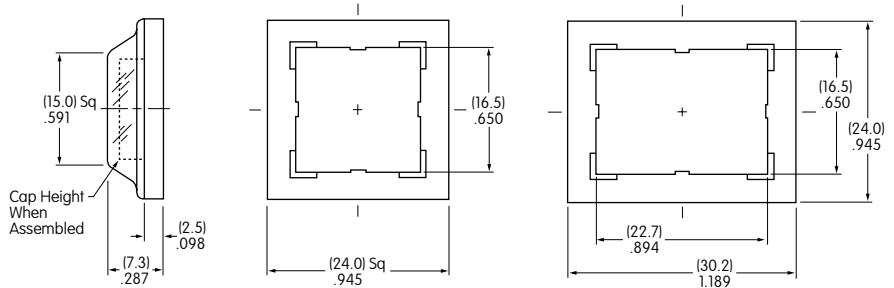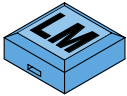### Dust Covers

AT4001
Square

AT4011
Rectangular

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

(15.0) Sq .591

Cap Height When Assembled

(2.5) .098

(7.3) .287

(16.5) .650

(24.0) Sq .945

(16.5) .650

(24.0) .945

(22.7) .894

(30.2) 1.189

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

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

LEGENDS

LM

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

Visit 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.
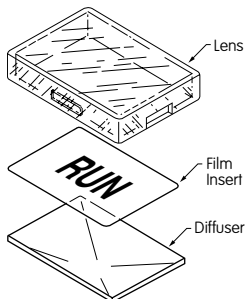
Suggested Printable Area for UB Lens & Film Insert

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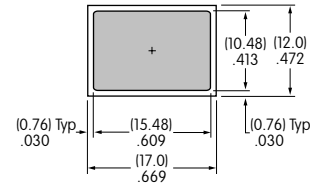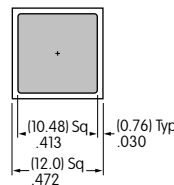Epoxy based ink is recommended.
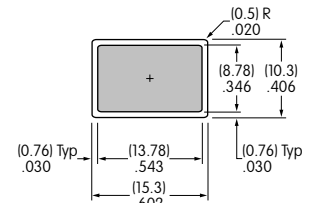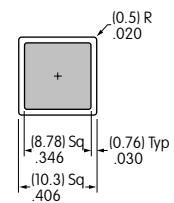
Square Cap

Lens

Rectangular Cap

Lens

Film Insert

Diffuser

Shaded areas are printable areas.

Lens

(10.48) Sq .413

(0.76) Typ .030

(12.0) Sq .472

(10.48) .413

(12.0) .472

(0.76) Typ .030

(15.48) .609

(0.76) Typ .030

(17.0) .669

Film Insert

(0.5) R .020

(8.78) Sq .346

(0.76) Typ .030

(10.3) Sq .406

(0.5) R .020

(8.78) .346

(10.3) .406

(0.76) Typ .030

(13.78) .543

(0.76) Typ .030

(15.3) .602

Film Insert: Clear Polyester 4 mil max. thickness