General Specifications

Electrical Capacity (Resistive Load)

Power Level (silver): 0.1A maximum @ 30V AC/DC

Other Ratings

Contact Resistance: 50 milliohms maximum
Insulation Resistance: 100 megohms minimum @ 500V DC
Dielectric Strength: 500V AC minimum for 1 minute minimum
Mechanical Life: 100,000 operations minimum
Electrical Life: 50,000 operations minimum
Nominal Operating Force: 3.43N
Contact Timing: Nonshorting (break before make)
Travel: Pretravel .087" (2.2mm); Overtravel .031" (0.8mm); Total Travel .118" (3.0mm)

Materials & Finishes

Housing: Glass fiber reinforced polyamide
Base: Glass fiber reinforced polyamide
Movable Contact: Phosphor bronze with silver plating
Stationary Contacts: Phosphor bronze with silver plating
Common Terminal: Phosphor bronze with silver plating
End Terminals: Phosphor bronze with silver plating
Lamp Terminals: Phosphor bronze with silver plating

Environmental Data

Operating Temperature 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 (490m/s^2) acceleration (tested in 6 right angled directions, with 5 shocks in each direction)

Installation

Mounting Torque: 0.49Nm (4.34 lb•in) maximum for round mounting nut
Cap Installation Force: 9.8N (2.2 lbf) maximum downward force on cap
Soldering Time & Temperature: Manual Soldering: See Profile A in Supplement section.

Standards & Certifications

UL: **File No. E44145 - Recognized only when ordered with marking on switch.**
Add "/U" or "/CUL" before first dash in part number to order UL recognized switch.
All models recognized at 0.1A @ 30V AC/DC.

Distinctive Characteristics

Full face and spot illumination available. Front panel relamping.

Choice of super bright LEDs in white, green, and blue in addition to bright red, amber, and green LEDs.

Compact front panel design with 9mm square or round bezel options.

Rear panel threaded mounting. Behind panel depth of less than one inch. 8mm body diameter fits common size panel cutout.

Latchdown feature gives indication of circuit status. Audible and tactile feedback with smooth and responsive operation.

Dual, sliding contacts with self-cleaning action provide contact stability, high reliability, and increased operating life.

Solder lug terminals have spacing of .100" (2.54mm) for choice of mounting.

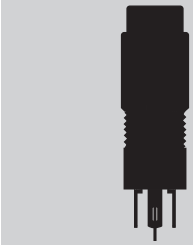
Longer normally closed terminal facilitates wiring and soldering.

Molded-in terminals lock out flux, dust, and other contaminants.

Matching indicators available.



Actual Size



TYPICAL SWITCH ORDERING EXAMPLE

HB | 1 | 5 | S | K | W01 | — | 6G | — | JB

Pole

1	SPDT

Shapes

S	Square
C	Round

Contacts & Terminals

W01	Silver Contacts and Solder Lug Terminals 0.1A @ 30V AC/DC

Circuits

5	ON	(ON)

( ) = Momentary

6	ON	ON

Alternate Action with Latchdown

Housing

K	Black only

LEDs

Bright

5C	Red
5D	Amber
5F	Green

Super Bright

6B	White
6F	Green
6G	Blue

Nonilluminated

No Code	Nonilluminated

Cap Types & Colors

LED Cap: Lens/Diffuser Color

AB	Black Cap/White Window for Spot Illuminated (Square only)
CB	Red/White
DB	Amber/White
FB	Green/White
JB	Clear/White

LED Cap: Lens/Diffuser Color

JB	Clear/White

Nonilluminated Cap Colors

A	Black (Square Only)
B	White
C	Red
E	Yellow
F	Green
G	Blue

IMPORTANT:

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

DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

HB15SKW01-6G-JB



POLES & CIRCUITS

Pole	Model	Plunger Position ( ) = Momentary: Normal	Plunger Position ( ) = Momentary: Down	Connected Terminals: Normal	Connected Terminals: Down	Throw & Switch/Lamp Schematics
SP	**HB15** ***HB16**	ON ON	(ON) ON	1-3	1-2	SPDT

Notes: Switch is marked with NO, NC, C, L. LED circuit is isolated and requires external power source.



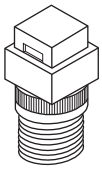


* When in latchdown position for the alternate circuit, cap position is .051" (1.3mm) above the built-in bezel.

SHAPES & PANEL CUTOUT

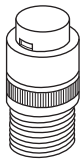
S **.354" (9.0mm) Square**

The bezel is an integral part of the switch body.



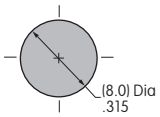
C **.354" (9.0mm) Round**

The bezel is an integral part of the switch body.



Panel Cutout & Mounting

Recommended Panel Thickness:
.020 ~ .197" (0.5 ~ 5.0mm)



Overtightening the mounting nut AT073 may damage the switch housing.

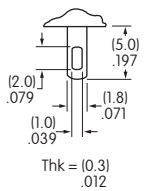
HOUSING

K **Housing available in black only.**

CONTACT MATERIALS, RATINGS, & TERMINALS

W01 **Silver Contacts** **Power Level** **0.1A maximum @ 30V AC/DC**

Solder Lug



PCB Mounting

Solder lug terminals are spaced .100" x .200" (2.54mm x 5.08mm). This enables PCB mounting which can be accomplished by elongating PC board holes to .080" (2.03mm).

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. Single element LED is colored in OFF state.
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.

Bright
AT633



Super Bright
AT624G
Blue
AT629B
White
AT630F
Green



T-1 Bi-pin

Note for Super Bright:

ATTENTION
ELECTROSTATIC
SENSITIVE DEVICES



		Bright			Super Bright			
		5C	5D	5F	6B	6F	6G	
Color		Red	Amber	Green	White	Green	Blue	Unit
Maximum Forward Current	I_{FM}	30	30	30	30	30	30	mA
Typical Forward Current	I_F	20	20	20	20	20	20	mA
Forward Voltage	V_F	2.1	2.05	2.1	3.3	3.3	3.3	V
Maximum Reverse Voltage	V_{RM}	10	10	10	7	7	7	V
Current Reduction Rate Above 25°C	ΔI_F	0.40	0.40	0.40	0.40	0.40	0.40	mA/°C
Ambient Temperature Range		−25° ~ +50°C			−25° ~ +50°C			

No Code **No Lamp**

CAP TYPES & COLORS

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

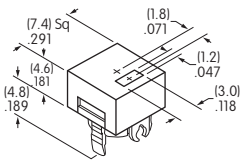
Cap Colors Available:

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

Colored Cap for Bright LEDs

Square only
Material: Polycarbonate
Finish: Matte

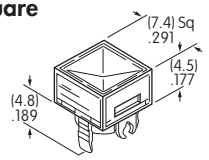
AT4052
Spot Illuminated



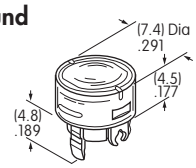
Lens/Diffuser Colors Available:

CB **Red/White**
DB **Amber/White**
FB **Green/White**

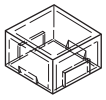
AT4166
Square



AT4167
Round



Material: Polycarbonate Finish: Glossy


Transparent Colored Lens


Translucent White Diffuser

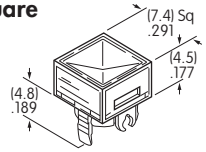

Colored LED AT633

White Cap for Bright & Super Bright LEDs

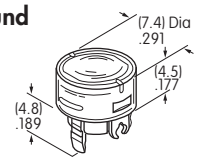
JB **Clear Lens/ White Diffuser**

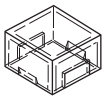
Material: Polycarbonate
Finish: Glossy

AT4031
Square



AT4032
Round




Transparent Clear Lens


Translucent White Diffuser


Colored LEDs AT624, AT629, AT630, or AT633

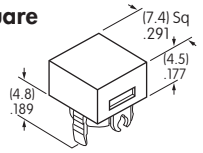
Nonilluminated Caps

Cap Colors Available:

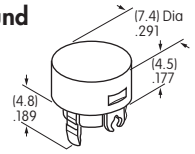
A **Black** (Square Only)
B **White**
C **Red**
E **Yellow**
F **Green**
G **Blue**

Material: Polycarbonate Finish: Glossy

AT4035
Square

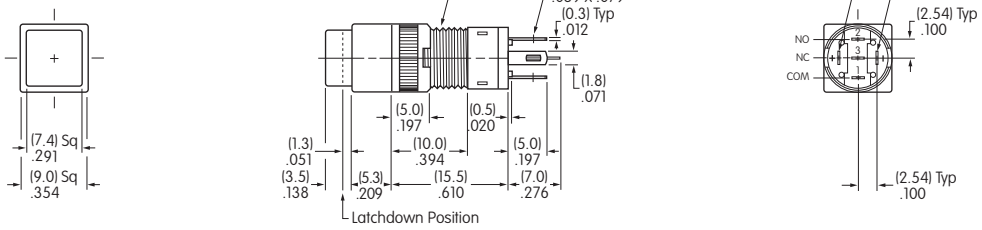


AT4036
Round



TYPICAL SWITCH DIMENSIONS

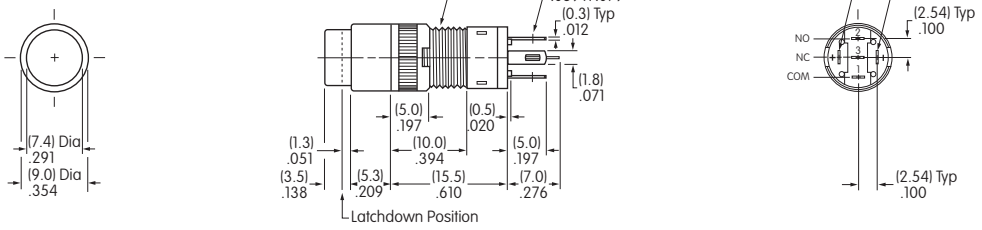
Single Pole — Square





HB15SKW01-5C-CB

Single Pole — Round



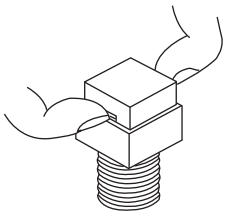


HB16CKW01-5C-CB

ASSEMBLY INSTRUCTIONS

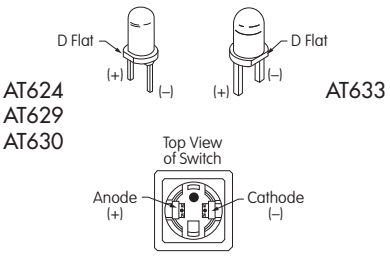
Cap Removal

1. Have cap in extended position (not latchdown) for alternate action models.
2. Use the grip slots on the sides of the cap and pull it out of the switch.



LED Polarity & Orientation in Lamp Socket

For AT624, AT629, AT630 and AT633: Insert the LED with the D flat opposite the black dot molded inside the switch lamp socket.

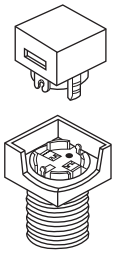


ATTENTION ELECTROSTATIC SENSITIVE DEVICES

Super Bright LEDs AT624, AT629, & AT630 are electrostatic sensitive.

Cap Replacement

1. Match the prongs on the cap base with the projections in the switch, at the same time aligning the spring clips on the cap with the indentations in the switch.
2. Press firmly in place.



AT111 Lamping Tool

Lamping Tool AT111 may be used to remove and replace LED.



AT110 Socket Wrench

Socket Wrench AT110 may be used to tighten the mounting nut.

