

# C&K HB Series

## Single Pole Standard Precision Snap-acting Switches

### Features/Benefits

- Low differential travel, high repeatability
- Long life—150,000 cycles typical
- Single and double pole circuitry
- Sealed actuator and case

### Typical Applications

- Thermostats
- Motors
- Industrial controls



Models Available

### Specifications

CONTACT RATING: From low level\* to 20 AMPS @ 480 V AC;  
see ELECTRICAL RATING option section for complete listings.  
ELECTRICAL LIFE: 150,000 cycles at 20 AMPS @ 250 V AC.  
consult Customer Service Center for typical life at other ratings.  
INSULATION RESISTANCE: 1,000 M  $\Omega$  min.  
DIELECTRIC STRENGTH: 1,500 Vrms min. @ sea level.  
OPERATING TEMPERATURE: -67°F to 302°F (-55°C to 150°C).  
OPERATING FORCE: From 4 oz. to 26 oz. max. at actuator  
button available.  
MOUNTING SCREWS: Torque 3 in/lbs max.  
(Note: Exceeding 3 in/lbs torque may change operating  
characteristics and increase the possibility of cracking  
switch case).  
TERMINAL SCREWS: Torque 4 in/lbs max.  
PANEL MOUNTING BUSHING: Torque 4-6 in/lbs max.  
DEGREE OF PROTECTION: IP65; Dust-proof, water splash and  
dew condensation.

\* Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max. @  
20 V AC or DC max.

### Materials

SWITCH HOUSING: Heat resistant/electrical grade phenolic.  
INSERTS: Brass alloy.  
ACTUATOR BUTTON: Moisture resistant phenolic.  
SPRING: Copper alloy.  
PIVOT: Brass alloy.  
MOVABLE CONTACTS: Gold alloy for ratings 1 AMP or less.  
Fine silver for ratings greater than 1 AMP and motor load  
ratings less than 1/2 HP @ 125 V AC. Silver cadmium oxide  
for motor load ratings 1/2 HP @ 125 V AC or greater.  
STATIONARY CONTACTS: Gold alloy for ratings 1 AMP or less.  
Fine silver welded to copper base for ratings greater than  
1 AMP and motor load ratings less than 1/2 HP @ 125 V AC.  
Silver cadmium oxide inlay on copper base for motor load  
ratings 1/2 HP @ 125 V AC or greater.  
TERMINALS: Brass alloy, bright tin plated.

**NOTE:** Specifications and materials listed above are for switches with standard options.  
For information on specific and custom switches, consult Customer Service Center.

### Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and  
described on pages J-24 thru J-29. For additional options not shown in catalog, consult Customer Service Center.

<div>Series <b>HB</b> (STD.) Precision Snap-acting Switches</div>			
<div>Function <b>S</b> (STD.) SP</div>		<div>Operating Force <b>KG</b> (STD.) 18 oz./510 grams <b>GF</b> 4 oz./113 grams <b>KA</b> 9 oz./255 grams <b>KC</b> 13 oz./368 grams <b>KH</b> 20 oz./567 grams <b>PB</b> 26 oz./737 grams</div>	<div>Mounting Style <b>S</b> (STD.)</div>
<div>Contact Separation <b>2</b> (STD.) .020" <b>1</b> .010" <b>4</b> .040" <b>7</b> .070"</div>	<div>Electrical Rating <b>B4</b> (STD.) 20 A, 125, 250, 480 V AC; 0.25 A, 250 V DC; 0.5 A, 125 V DC <b>A2</b> 5 A, 125, 250 V AC <b>A4</b> 15 A, 125, 250 V AC <b>B5</b> 20 A, 125, 250, 480 V AC; 0.25 A, 250 V DC; 0.5 A, 125 V DC; 1/2 HP, 125 V AC; 1 HP, 250 V AC <b>B6</b> 20 A, 125, 250, 480 V AC; 0.25 A, 250 V DC; 0.5 A, 125 V DC; 3/4 HP, 125 V AC; 1 1/2 HP, 250 V AC <b>B9</b> 15 A, 125, 250 V AC; 1/4 HP, 125 V AC; 1/2 HP, 250 V AC <b>F5</b> 1 A, 125 V AC; 1 A, 30 V DC <b>F9</b> 22 A, 125, 277 V AC; 15 A, 480 V AC; 1/4 HP, 125 V AC; 1/2 HP, 250 V AC <b>X3</b> 20 A, 125, 250, 480 V AC; 0.25 A, 250 V DC; 0.5 A, 125 V DC; 15(10) A, 380 V - 185 <math>\mu</math> (VDE)</div>	<div>Actuator <b>P0</b> (STD.) Pin plunger <b>A0</b> Lever roller <b>D0</b> Stub plunger <b>F0</b> Reverse acting lever roller <b>J0</b> High overtravel plunger <b>R5</b> Perpendicular roller plunger <b>T0</b> Lever <b>TS</b> Sealed Lever <b>Y0</b> Reverse acting lever</div>	<div>Terminations <b>11</b> (STD.) Flat base, solder, 4-40 screws <b>01</b> Flat base, 4-40 thread <b>05</b> Step base, 6-32 thread <b>41</b> Flat base, .250" quick connect <b>55</b> Step base, cup washers, 6-32 screws <b>65</b> Step base, 6-32 screws, lockwashers</div>
<div>Circuitry <b>C</b> (STD.) DT <b>W</b> ST N.C. <b>V</b> ST N.O.</div>			
<div>Electrical Life <b>NONE</b> (STD.) 6,000 operations <b>U</b> 100,000 operations</div>			

# C&K HB Series

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### Sealed Actuator and Case

To provide reliable service under environmental conditions that might damage standard precision switches, various HB Series switch models are sealed against the entrance of airborne contaminants and/or splashing liquids. The clearance between the operating plunger and the cover is sealed with a silicone boot and the base cover joint is sealed with an epoxy adhesive. These models are designed to meet requirements of IP65 (dust proof, water splash and dew condensation). For additional information on sealed switches, consult our Customer Service Center.

### SERIES



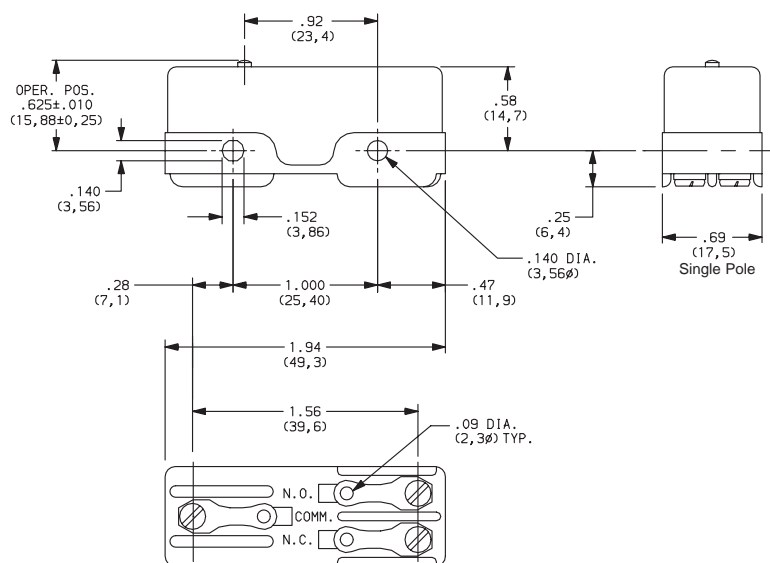
**HB** (STD.) PRECISION SNAP-ACTING SWITCHES

### FUNCTION



**S** (STD.) SINGLE POLE SWITCH

Snap-acting



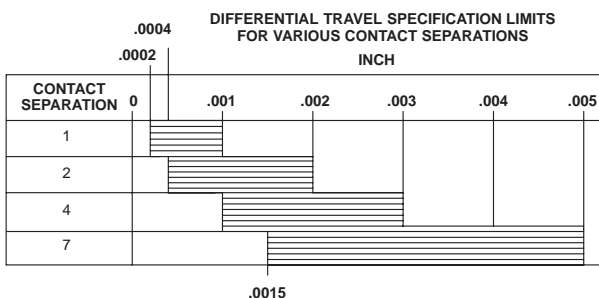
**NOTE:** To select switching function, see CIRCUITRY section, page J-29.

### CONTACT SEPARATION



OPTION CODE	NOMINAL CONTACT SEPARATION (in./mm)
<b>2</b> (STD.)	.020 (0,51)
<b>1</b>	.010 (0,25)
<b>4</b>	.040 (1,02)
<b>7</b>	.070 (1,78)

Switches with 1 AMP rating (option code 'F5') are available only with .020 contact separation (option '2').  
Switches with 1/2 HP, 125 V AC rating or greater (option codes 'B5 and B6') are not available with .010 contact separation (option code '1').



Dimensions are shown: IN (mm)  
Dimensions subject to change