

# HB Series Single Pole Standard Precision Snap-acting Switches

## 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.

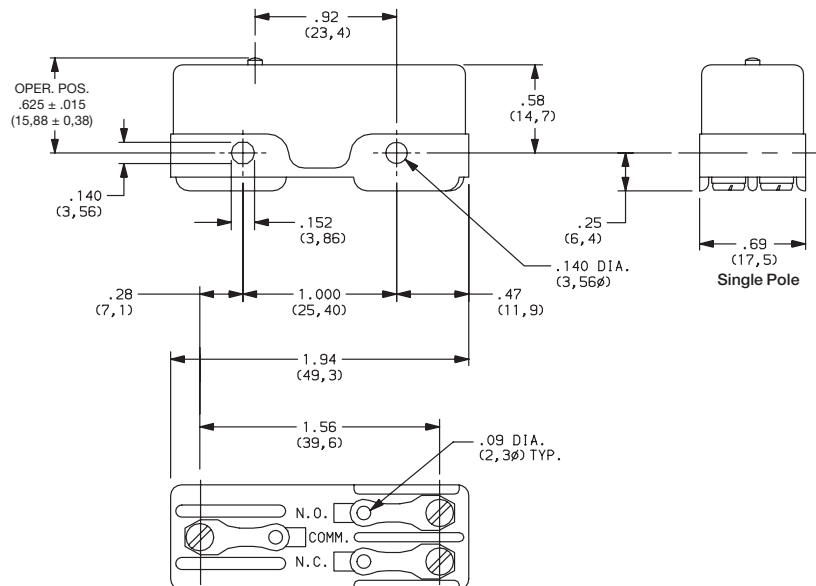
## SERIES

**HB** PRECISION SNAP-ACTING SWITCHES

## FUNCTION

**S** SINGLE POLE SWITCH

Snap-acting

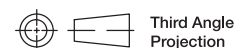
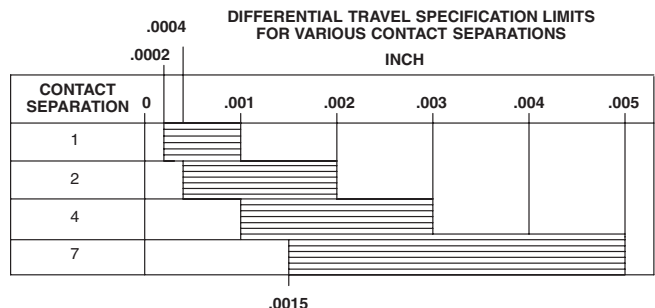


**NOTE:** To select switching function, see CIRCUITRY section, page J-52.

## CONTACT SEPARATION

| OPTION CODE | NOMINAL CONTACT SEPARATION (in./mm) |
|-------------|-------------------------------------|
| <b>2</b>    | .020<br>(0,51)                      |
| <b>1</b>    | .010<br>(0,25)                      |
| <b>4</b>    | .040<br>(1,02)                      |
| <b>7</b>    | .070<br>(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: Inch (mm)  
Specifications and dimensions subject to change



18 Jan 21

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## OPERATING FORCE

| OPTION CODE | MAXIMUM OPERATING FORCE (OZ./GRAMS) | STANDARD CONTACT SEPARATION (inch) |
|-------------|-------------------------------------|------------------------------------|
| <b>KG</b>   | 18<br>510                           | .020                               |
| <b>GF</b>   | 4<br>115                            | .010                               |
| <b>KA</b>   | 9<br>255                            | .010                               |
| <b>KC</b>   | 13<br>370                           | .020                               |
| <b>KH</b>   | 20<br>570                           | .040                               |
| <b>PB</b>   | 26<br>740                           | .070                               |

OPERATING FORCE SPECIFICATION LIMITS  
FOR VARIOUS CONTACT SEPARATIONS



**NOTE:** All listed differential travel characteristics are based on standard operating force and contact separation. For any other force or contact separation, consult Customer Service Center.  
Operating force varies with actuator option, see ACTUATOR option section.

## ELECTRICAL RATING


| OPTION CODE | MOVABLE CONTACT       | STATIONARY CONTACT                 | ELECTRICAL RATING  |
|-------------|-----------------------|------------------------------------|--|
| <b>B4</b>   | Fine silver.          | Fine silver welded to copper base. | 20 AMPS @ 125, 250 & 480 V AC; 0.25 AMPS @ 250 V DC; 0.5 AMPS @ 125 V DC (UL).                                       |
| <b>A2</b>   |                       |                                    | 5 AMPS @ 125 & 250 V AC (UL).  |
| <b>B6</b>   | Precious metal alloy. | Precious metal alloy.              | 20 AMPS @ 125, 250 & 480 V AC; 0.25 AMP @ 250 V DC; 0.5 AMP @ 125 V DC; 3/4 HP @ 125 V AC; 1 1/2 HP @ 250 V AC (UL). |
| <b>F5</b>   | Gold alloy.           | Gold alloy.                        | Low level* to 1 AMP @ 125 V AC; 1 AMP @ 30 V DC (UL).  |
| <b>F9</b>   | Fine silver.          | Fine silver welded to copper base. | 22 AMPS @ 125 & 277 V AC; 15 AMPS @ 480 V AC; 1/4 HP @ 125 V AC; 1/2 HP @ 250 V AC; 277 V AC (UL).                   |

\* Note: See Technical Data section of this catalog for RoHS compliant and compatible definition and specifications.

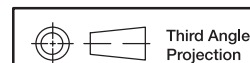
### AVAILABLE COMBINATIONS

| ELECTRICAL RATING | OPERATING FORCE (oz.) |         |          |          |          |          |
|-------------------|-----------------------|---------|----------|----------|----------|----------|
|                   | 4<br>GF               | 9<br>KA | 13<br>KC | 18<br>KG | 20<br>KH | 26<br>PB |
| A2                | •                     | •       | •        | •        | •        | •        |
| B4                | x                     | •       | •        | •        | •        | •        |
| B6                | x                     | x       | x        | •        | •        | •        |
| F5                | x                     | x       | •        | •        | •        | •        |
| F9                | x                     | x       | x        | •        | •        | •        |

• AVAILABLE  
x NOT AVAILABLE

All models  with all options  
Consult Customer Service center for availability and delivery of nonstandard ratings.

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

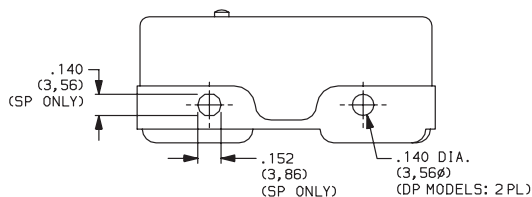


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## MOUNTING STYLE

**S** Standard



**NOTE:** Mounting holes will accept pins or screws of .139 dia. (3,53) max. on 1.000 ± .002 (25,4 ± 0,05) centers.

**NOTE:** Torque mounting screws 3 inlbs max.

## ACTUATOR

| OPTION CODE | NO. POLES | FIG. | DIM. A           | DIM. B                         | DIM. C               | DIM. D         |
|-------------|-----------|------|------------------|--------------------------------|----------------------|----------------|
| <b>A0</b>   | SP        | 1    | .86<br>(21,8)    | 1.120 ± .060<br>(28,45 ± 1,52) | .38 dia.<br>(9,7Ø)   | 1.03<br>(26,2) |
| <b>D0</b>   | SP        | 3    | .92<br>(23,4)    | .844 ± .020<br>(21,44 ± 0,51)  | —                    | —              |
| <b>F0</b>   | SP        | 2    | .09<br>(2,3)     | 1.120 ± .050<br>(28,45 ± 1,27) | .38 dia.<br>(9,7Ø)   | .74<br>(18,8)  |
| <b>J0</b>   | SP        | 4    | .86<br>(21,8)    | .860 ± .030<br>(21,84 ± 0,76)  | —                    | —              |
| <b>P0</b>   | SP        | 5    | .92<br>(23,4)    | .625 ± .010<br>(15,88 ± 0,25)  | —                    | —              |
| <b>R5</b>   | SP        | 6    | .92<br>(23,4)    | .62<br>(15,7)                  | .50 dia.<br>(12,7Ø)  | 0.61<br>(15,5) |
| <b>T0</b>   | SP        | 7    | 1.310<br>(33,27) | .720 ± .060<br>(18,28 ± 1,52)  | 1.03 dia.<br>(26,2Ø) | —              |
| <b>TS*</b>  | SP        | 7    | 1.47<br>(37,3)   | .720 ± .060<br>(18,28 ± 1,52)  | 1.03 dia.<br>(26,2Ø) | —              |
| <b>Y0</b>   | SP        | 8    | .05<br>(1,3)     | .720 ± .030<br>(18,29 ± 0,76)  | .74 dia.<br>(18,8Ø)  | 2.65<br>(6,73) |

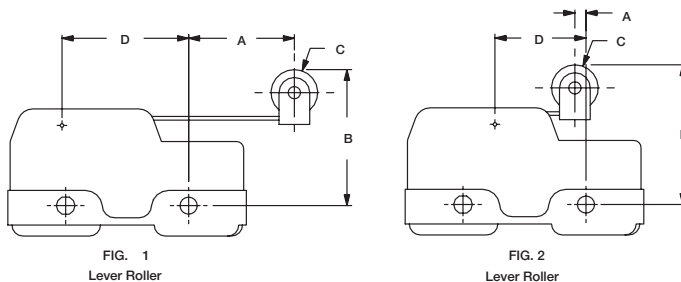


FIG. 1  
Lever Roller

FIG. 2  
Lever Roller

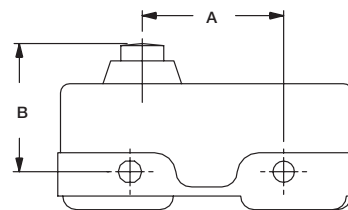


FIG. 3  
Stub Plunger

\* Actuators sealed against the entrance of airborne contaminants and/or splashing liquids.

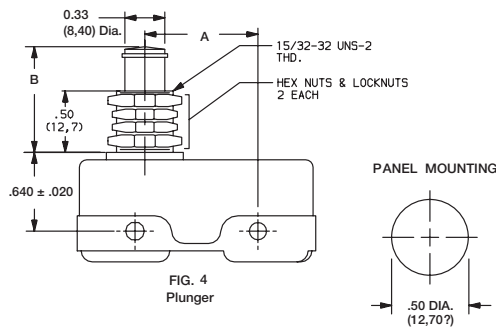


FIG. 4  
Plunger

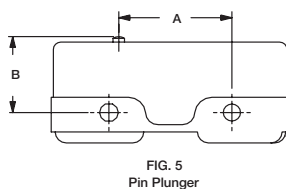


FIG. 5  
Pin Plunger

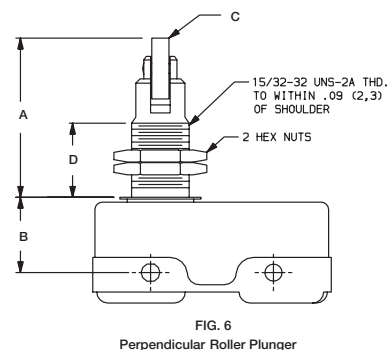


FIG. 6  
Perpendicular Roller Plunger

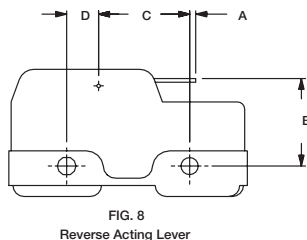


FIG. 8  
Reverse Acting Lever

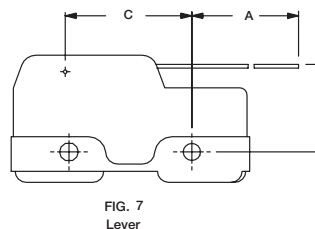


FIG. 7  
Lever



Third Angle Projection

Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

# HB Series Single Pole Standard Precision Snap-acting Switches

## ACTUATOR

|  | OPTION CODE | ACTUATOR   |            |           |           |           |           |            |           | * SEALED ACTUATOR |
|--|-------------|------------|------------|-----------|-----------|-----------|-----------|------------|-----------|-------------------|
|  |             | A0         | D0         | F0        | J0        | P0        | R5        | T0         | Y0        | TS                |
| <b>MAXIMUM OPERATING FORCE (OZ./GRAMS)</b> | GF          | —          | —          | —         | —         | 4<br>115  | —         | —          | —         | —                 |
|  | KA          | 3<br>85    | 9.5<br>269 | 10<br>284 | 10<br>284 | 9<br>255  | 10<br>284 | 2<br>60    | 10<br>284 | 2<br>56           |
|  | KC          | —          | 13<br>370  | 10<br>284 | 13<br>370 | 13<br>370 | 13<br>370 | —          | 10<br>284 | —                 |
|  | KG          | 3.5<br>100 | —          | —         | —         | 18<br>510 | —         | 2.5<br>71  | —         | 2.5<br>71         |
|  | KH          | 4<br>115   | 20<br>570  | 20<br>570 | 20<br>570 | 20<br>570 | 20<br>570 | 3<br>85    | 20<br>570 | 3<br>85           |
|  | PB          | 4.5<br>130 | 26<br>740  | 20<br>570 | 26<br>740 | 26<br>740 | 26<br>740 | 3.5<br>100 | 20<br>570 | 3.5<br>100        |
| <b>MINIMUM RELEASE FORCE (OZ./GRAMS)</b>   | GF          | —          | —          | —         | —         | 1<br>28   | —         | —          | —         | —                 |
|  | KA          | .75<br>21  | 4<br>110   | 3<br>85   | 4<br>110  | 4<br>110  | 4<br>110  | .5<br>14   | 3<br>85   | .5<br>14          |
|  | KC          | 1.7<br>48  | 4<br>110   | 3<br>85   | 4<br>110  | 4<br>110  | 4<br>110  | —          | 3<br>85   | —                 |
|  | KG          | .75<br>21  | —          | —         | —         | 4<br>110  | —         | .5<br>14   | —         | .5<br>14          |
|  | KH          | .75<br>21  | 4<br>110   | 3<br>85   | 4<br>110  | 4<br>110  | 4<br>110  | .5<br>14   | 3<br>85   | .5<br>14          |
|  | PB          | .75<br>21  | 4<br>110   | 3<br>85   | 4<br>110  | 4<br>110  | 4<br>110  | .5<br>14   | 3<br>85   | .5<br>14          |

**NOTE:** For basic switch operating forces, see page J-71. \* Actuators sealed against the entrance of airborne contaminants and/or splashing liquids.

|  | OPTION CODE | ACTUATOR       |                  |                |                |                  |                |                |                | * SEALED ACTUATOR |
|--|-------------|----------------|------------------|----------------|----------------|------------------|----------------|----------------|----------------|-------------------|
|  |             | A0             | D0               | F0             | J0             | P0               | R5             | T0             | Y0             | TS                |
| <b>MAXIMUM DIFFERENTIAL TRAVEL (IN/MM)</b> | GF          | —              | —                | —              | —              | .0005<br>(0,013) | —              | —              | —              | —                 |
|  | KA          | .020<br>(0,51) | .0005<br>(0,013) | .005<br>(0,13) | —              | .0005<br>(0,013) | —              | .047<br>(1,19) | .005<br>(0,13) | .047<br>(1,19)    |
|  | KC          | —              | .002<br>(0,05)   | .008<br>(0,20) | —              | .002<br>(0,05)   | —              | —              | .009<br>(0,23) | —                 |
|  | KG          | .062<br>(1,57) | —                | —              | —              | .003<br>(0,08)   | —              | .078<br>(1,98) | —              | .078<br>(1,98)    |
|  | KH          | .080<br>(2,03) | .003<br>(0,76)   | .020<br>(0,51) | —              | .003<br>(0,08)   | —              | .093<br>(2,36) | .020<br>(0,51) | .093<br>(2,36)    |
|  | PB          | .125<br>(3,18) | .007<br>(0,18)   | .030<br>(0,76) | —              | .005<br>(0,13)   | —              | .156<br>(3,96) | .031<br>(0,79) | .156<br>(3,96)    |
| <b>MAXIMUM PRETRAVEL (IN/MM)</b>           | GF          | —              | —                | —              | —              | .020<br>(0,51)   | —              | —              | —              | —                 |
|  | KA          | .312<br>(7,92) | .020<br>(0,51)   | 0.8<br>(2,0)   | .015<br>(0,38) | .015<br>(0,38)   | .015<br>(0,38) | .38<br>(9,7)   | .09<br>(2,3)   | .38<br>(9,7)      |
|  | KC          | —              | .020<br>(0,51)   | 0.8<br>(2,0)   | .020<br>(0,51) | .020<br>(0,51)   | .020<br>(0,51) | —              | .09<br>(2,3)   | —                 |
|  | KG          | .312<br>(7,92) | —                | —              | —              | .025<br>(0,64)   | —              | .38<br>(9,7)   | —              | .38<br>(9,7)      |
|  | KH          | .38<br>(9,7)   | .025<br>(0,64)   | 0.9<br>(2,3)   | .025<br>(0,64) | .025<br>(0,64)   | .025<br>(0,64) | .38<br>(9,7)   | 0.9<br>(2,3)   | .38<br>(9,7)      |
|  | PB          | .38<br>(9,7)   | .030<br>(0,76)   | 0.9<br>(2,3)   | .030<br>(0,76) | .030<br>(0,76)   | .030<br>(0,76) | .38<br>(9,7)   | 0.9<br>(2,3)   | .38<br>(9,7)      |
| <b>MINIMUM OVERTRAVEL (IN/MM)</b>          | GF          | —              | —                | —              | —              | .005<br>(0,13)   | —              | —              | —              | —                 |
|  | KA          | .156<br>(3,96) | .055<br>(1,40)   | .06<br>(1,5)   | .22<br>(5,6)   | .005<br>(0,13)   | .141<br>(3,58) | .19<br>(4,8)   | .06<br>(1,5)   | .19<br>(4,8)      |
|  | KC          | —              | .055<br>(1,40)   | 0.9<br>(2,3)   | .22<br>(5,6)   | .005<br>(0,13)   | .141<br>(3,58) | —              | 0.9<br>(2,3)   | —                 |
|  | KG          | .156<br>(3,96) | —                | —              | —              | .005<br>(0,13)   | —              | .19<br>(4,8)   | —              | .19<br>(4,8)      |
|  | KH          | .156<br>(3,96) | .055<br>(1,40)   | 0.9<br>(2,3)   | .22<br>(5,6)   | .005<br>(0,13)   | .141<br>(3,58) | .19<br>(4,8)   | 0.9<br>(2,3)   | .19<br>(4,8)      |
|  | PB          | .156<br>(3,96) | .055<br>(1,40)   | 0.9<br>(2,3)   | .22<br>(5,6)   | .005<br>(0,13)   | .141<br>(3,58) | .19<br>(4,8)   | 0.9<br>(2,3)   | .19<br>(4,8)      |

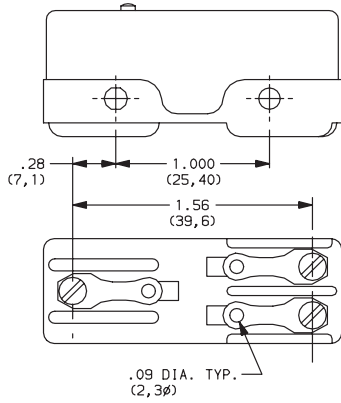


**Snap-acting**

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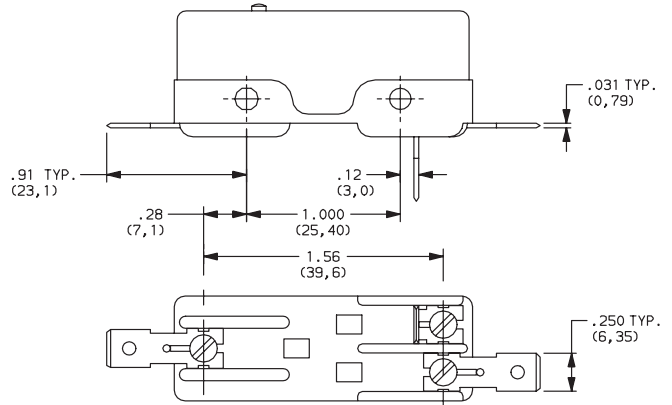
## TERMINATIONS

### 11 FLAT BASE, SOLDER TERMINALS AND 4-40 SCREWS

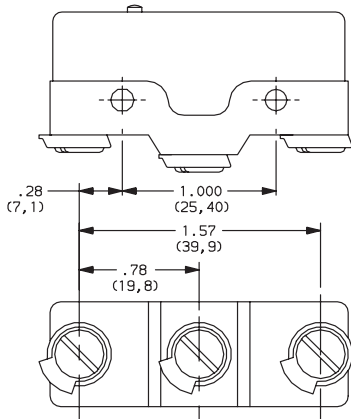


**NOTE:** Switches with flat base option have molded ribs that provide increased creep distance.

### 41 FLAT BASE, .250" QUICK CONNECT TERMINALS



### 55 STEP BASE, 6-32 SCREWS AND CUP WASHERS

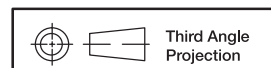


**NOTE:** Switches with step base option provide wide electrical clearance for screw terminal options.

Snap-acting

## CIRCUITRY

### C DT (Double Throw, Normally Closed & Normally Open)



Third Angle Projection

Dimensions are shown: Inches (mm)  
Specifications and dimensions subject to change

# Mouser Electronics

Authorized Distributor

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C&K Switches:

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