## Snap-acting
### Product Selection Guide

<table>
<thead>
<tr>
<th>Snap-acting</th>
<th>MM</th>
<th>ZMT</th>
<th>MS</th>
<th>ZM</th>
<th>ZMA</th>
<th>ZMS</th>
<th>ZMSM</th>
<th>ZMV</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Series</strong></td>
<td>MM</td>
<td>ZMT</td>
<td>MS</td>
<td>ZM</td>
<td>ZMA</td>
<td>ZMS</td>
<td>ZMSM</td>
<td>ZMV</td>
</tr>
<tr>
<td><strong>Switch Profile</strong></td>
<td>Mini Size</td>
<td>Mini Size</td>
<td>Mini Size</td>
<td>Mini Size</td>
<td>Mini Size</td>
<td>Mini Size</td>
<td>Mini Size</td>
<td>Mini Size</td>
</tr>
<tr>
<td><strong>Poles/Throws</strong></td>
<td>SPDT</td>
<td>SPST</td>
<td>SPDT</td>
<td>SPDT</td>
<td>SPDT</td>
<td>SPDT</td>
<td>SPDT</td>
<td>SPST, SPDT</td>
</tr>
<tr>
<td><strong>Maximum Current</strong></td>
<td>7 Amps</td>
<td>5 Amps</td>
<td>3 Amps</td>
<td>3 Amps</td>
<td>3 Amps</td>
<td>3 Amps</td>
<td>3 Amps</td>
<td>3A</td>
</tr>
<tr>
<td><strong>Terminations</strong></td>
<td>Solder</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>Quick Connect</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>Wire Leads</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>Screw</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>PCB Thru-hole</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Flat &amp; Step Base</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td><strong>Bushing</strong></td>
<td>Sealed</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Snap-acting</th>
<th>ZMW</th>
<th>ZPA</th>
<th>MDS</th>
<th>SSW</th>
<th>LC</th>
<th>LCA</th>
<th>LCS</th>
<th>TF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Series</strong></td>
<td>ZMW</td>
<td>ZPA</td>
<td>MDS</td>
<td>SSW</td>
<td>LC</td>
<td>LCA</td>
<td>LCS</td>
<td>TF</td>
</tr>
<tr>
<td><strong>Switch Profile</strong></td>
<td>Mini Size</td>
<td>Mini Size</td>
<td>Mini Size</td>
<td>Mini Size</td>
<td>Small Size</td>
<td>Small Size</td>
<td>Small Size</td>
<td>Mid Size</td>
</tr>
<tr>
<td><strong>Poles/Throws</strong></td>
<td>SPST, SPDT</td>
<td>SPDT</td>
<td>SPDT</td>
<td>DPDT</td>
<td>SPST, SPDT</td>
<td>SPDT</td>
<td>SPST</td>
<td>SPST, SPDT</td>
</tr>
<tr>
<td><strong>Maximum Current</strong></td>
<td>0.1 Amps</td>
<td>0.1 Amps</td>
<td>300 m Amps</td>
<td>20 mA</td>
<td>10.1 Amps</td>
<td>10 Amps</td>
<td>6 Amps</td>
<td>21 Amps</td>
</tr>
<tr>
<td><strong>Terminations</strong></td>
<td>Solder</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Quick Connect</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Wire Leads</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Screw</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>PCB Thru-hole</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Flat &amp; Step Base</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Surface Mount</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>PC</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Formed PC</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td><strong>Extended Operations</strong></td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td><strong>Sealed</strong></td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

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

www.ckswitches.com
<table>
<thead>
<tr>
<th>Snap-acting</th>
<th>TFS</th>
<th>TF2</th>
<th>TF3</th>
<th>TM</th>
<th>HB</th>
<th>A</th>
<th>TL</th>
<th>SL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>switch profile</td>
<td>Mid Size</td>
<td>Mid Size</td>
<td>Mid Size</td>
<td>Mid Size</td>
<td>Large Heavy Duty</td>
<td>Large Heavy Duty</td>
<td>Large Heavy Duty</td>
<td>Large Heavy Duty</td>
</tr>
<tr>
<td>Poles/throws</td>
<td>SPDT</td>
<td>SPDT</td>
<td>SPST</td>
<td>SPST, SPDT</td>
<td>SPST, SPDT</td>
<td>SPST, SPDT, DP</td>
<td>SPST</td>
<td>SPST, SPDT, DPDT</td>
</tr>
<tr>
<td>Maximum current</td>
<td>10 Amps</td>
<td>10 Amps</td>
<td>25 Amps</td>
<td>15 Amps</td>
<td>20 Amps</td>
<td>30.1 Amps</td>
<td>15 Amps</td>
<td>10A</td>
</tr>
<tr>
<td>Terminations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solder</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>quick connect</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>wire leads</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>screw</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCB Thru-hole</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>flat &amp; step base</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>surface mount</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>PC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>formed PC</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>bushing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Snap-acting</th>
<th>DS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series</td>
<td></td>
</tr>
<tr>
<td>switch profile</td>
<td>Large Heavy Duty</td>
</tr>
<tr>
<td>Poles/throws</td>
<td>SPDT, DPDT</td>
</tr>
<tr>
<td>Maximum current</td>
<td>0.1, 10, 16A</td>
</tr>
<tr>
<td>Terminations</td>
<td></td>
</tr>
<tr>
<td>solder</td>
<td></td>
</tr>
<tr>
<td>quick connect</td>
<td>•</td>
</tr>
<tr>
<td>wire leads</td>
<td></td>
</tr>
<tr>
<td>screw</td>
<td></td>
</tr>
<tr>
<td>PCB Thru-hole</td>
<td>•</td>
</tr>
<tr>
<td>flat &amp; step base</td>
<td>•</td>
</tr>
<tr>
<td>surface mount</td>
<td>•</td>
</tr>
<tr>
<td>PC</td>
<td></td>
</tr>
<tr>
<td>formed PC</td>
<td></td>
</tr>
<tr>
<td>bushing</td>
<td></td>
</tr>
<tr>
<td>Page no.</td>
<td>J-124</td>
</tr>
</tbody>
</table>
**Snap-acting Technical Data**

**HOW TO CHOOSE PRECISION SNAP-ACTING SWITCHES AND ACTUATORS**

This catalog describes electric switches that satisfy the following definition: “A precision snap-acting switch is a mechanically operated electric switch having predetermined and accurately controlled characteristics and having contacts other than blade-and-jaw, or mercury-type, where the maximum separation between any butting contacts is 1/8 inch.”

In choosing a switch, the first thing to consider is its electrical rating. As a basic part of an electric control system, the switch must be able to carry the full load current in the system, to interrupt this current, and to handle any surge of current that may occur when the switch contacts close or any transients that occur when contacts open.

The method of applying mechanical force to operate the switch influences the choice of actuator. Basic switches are provided with leaf spring, levers, or other linkages between the switch plunger and the actuating device, which are typically used to provide additional overtravel and reduce the operating force. The differential travel measured at the free end of the leaf or lever is considerably greater than that measured at the switch plunger and max. operating force is adequately smaller. Table 1 relates types of actuators to means of applying operating force.

**ELECTRICAL LIFE CHARACTERISTICS FOR SNAP-ACTING SWITCHES**

The primary limitation to electrical life of a switch is wear of the contacts. In general, contacts wear out more quickly as current or voltage is increased and as power-factor is decreased. This is indicated by the graph below, which shows electrical life of switches tested under ordinary atmospheric conditions, operated 60 times a minute, with AC power handled on both the normally open and the normally closed contacts. The high inrush current encountered in lamp loads and in motor or other inductive loads is responsible for decreased contact life under such loading.

![Graph: Typical Electrical Life of Type HB Switch](image-url)
MECHANICAL LIFE CHARACTERISTICS FOR SNAP-ACTING SWITCHES

Fatigue of the internal spring blade is the limiting factor in the mechanical life of a switch. This fatigue can often be reduced and the life thereby extended, by reducing overtravel. One method is to use a leaf or lever actuator or a plunger containing an overtravel-absorbing spring. Tests on switches of the types covered in this catalog indicate that the mechanical life of a lever actuated switch is more than double that of a switch having the operating force applied directly on the pin.

Mechanical life is also affected by the combination of total travel and operating force. Thus a high-sensitivity switch which has small travel and light force, has about twice the life expectancy of a high current type switch, in which the travel/force combination is relatively high. Experience indicates that million of operations is a reasonable mechanical life expectancy for a basic snap switch.

For the best mechanical life, the applied overtravel force should not exceed three times the operating force.

AC RATINGS FOR SNAP-ACTING SWITCHES

Switches used to control alternating current loads, up to the ratings shown in this catalog, will maintain repeatability of characteristics and provide long electrical life (refer to graph on page K-3). In special circumstances, higher currents or voltages may be controlled, but changes in performance must be anticipated.

Switches used to control "dry circuits" can be furnished, but factory recommendations should be secured.

DC RATINGS FOR SNAP-ACTING SWITCHES

To use the table below, determine the contact separation of the switch and select the ratings from the appropriate line. The maximum current rating must be limited to the current value listed for that switch type in the body of the catalog.

<table>
<thead>
<tr>
<th>CONTACT SEPARATION</th>
<th>DIRECT CURRENT VOLTAGE</th>
<th>ACTUATOR</th>
<th>INDUCTIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>heater Load</td>
<td>Lamp Load (tungsten)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Normally Open Contact</td>
<td>Normally Closed Contact</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Amperes</td>
<td>Amperes</td>
</tr>
<tr>
<td>.010</td>
<td>6-8</td>
<td>15.0</td>
<td>20.0</td>
</tr>
<tr>
<td></td>
<td>12-14</td>
<td>15.0</td>
<td>20.0</td>
</tr>
<tr>
<td></td>
<td>24-30</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td></td>
<td>110-115</td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td>220-230</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>.020</td>
<td>6-8</td>
<td>15.0</td>
<td>20.0</td>
</tr>
<tr>
<td></td>
<td>12-14</td>
<td>15.0</td>
<td>20.0</td>
</tr>
<tr>
<td></td>
<td>24-30</td>
<td>6.0</td>
<td>6.0</td>
</tr>
<tr>
<td></td>
<td>110-115</td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td>220-230</td>
<td>0.2</td>
<td>0.2</td>
</tr>
<tr>
<td>.040</td>
<td>6-8</td>
<td>15.0</td>
<td>20.0</td>
</tr>
<tr>
<td></td>
<td>12-14</td>
<td>15.0</td>
<td>20.0</td>
</tr>
<tr>
<td></td>
<td>24-30</td>
<td>10.0</td>
<td>10.0</td>
</tr>
<tr>
<td></td>
<td>110-115</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td>220-230</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>.070</td>
<td>6-8</td>
<td>15.0</td>
<td>20.0</td>
</tr>
<tr>
<td></td>
<td>12-14</td>
<td>15.0</td>
<td>20.0</td>
</tr>
<tr>
<td></td>
<td>24-30</td>
<td>15.0</td>
<td>20.0</td>
</tr>
<tr>
<td></td>
<td>110-115</td>
<td>0.75</td>
<td>0.75</td>
</tr>
<tr>
<td></td>
<td>220-230</td>
<td>0.3</td>
<td>0.3</td>
</tr>
</tbody>
</table>
MM Series
Mini Size Precision Snap-acting Switches

Features/Benefits
• Low level and power switching
• Long electrical and mechanical life
• Increased overtravel
• Reliable snap-acting mechanism

Typical Applications
• Limited space constraints
• Communication devices

Specifications
CONTACT RATING: From low level* to 7 AMPS @ 250 V AC.
ELECTRICAL LIFE: 100,000 cycles at full rated load.
INSULATION RESISTANCE: 1,000 ohm min.
DIELECTRIC STRENGTH: 1,000 V RMS min. @ sea level.
OPERATING TEMPERATURE: –67 F to 275 F (–55 C to 135 C).
OPERATING FORCE: 5 oz. (142 grams) max. at actuator button.
MOUNTING: 2-56 screws, torque 2 in/lbs max.

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

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

Materials
SWITCH HOUSING: Heat resistant phenolic (UL 94V-0).
ACTUATOR BUTTON: Heat resistant phenolic (UL 94V-0).
SPRING: Beryllium copper CDA alloy C17200.
PIVOT: Brass CDA alloy 260.
MOVABLE CONTACTS: Fine silver for ratings greater than 1 AMP @ 125 V AC. 24K gold for 1 AMP @ 125 V AC or less.
STATIONARY CONTACTS: Fine silver inlay on copper CDA alloy C10200 for ratings greater than 1 AMP @ 125 V AC. 24K gold on copper CDA alloy C10200 for 1 AMP @ 125 V AC or less.
TERMINALS: Copper CDA alloy C18700.

Build-A-Switch
To order, simply select desired option from each category and place in the appropriate box. For additional options not shown in catalog, consult Customer Service Center.

** Only available in Electrical Rating D1 and Actuator P0
### SERIES

**MM**  SPDT MOMENTARY

### OPERATING FORCE

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>BASIC SWITCH OPERATING FORCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>GG</td>
<td>5 oz. (142 grams) maximum for basic switch with pin plunger actuator ('P0' actuator option).</td>
</tr>
</tbody>
</table>

**NOTE**: Operating force varies with actuator option, see ACTUATOR option section.

---

### ELECTRICAL RATING

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>RoHS COMPLIANT*</th>
<th>RoHS COMPATIBLE*</th>
<th>CONTACT MATERIAL</th>
<th>ELECTRICAL RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>Yes</td>
<td>Yes</td>
<td>Fine silver.</td>
<td>7A 125, 250 VAC; 7A 28 VDC resistance 4A 28 VDC inductive; 2.5A 28 VDC (lamp)</td>
</tr>
<tr>
<td>F5</td>
<td>Yes</td>
<td>Yes</td>
<td>24K Gold.</td>
<td>From low level* to 1 AMP @ 125 V AC, 30 V DC.</td>
</tr>
</tbody>
</table>

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

---

### ACTUATOR

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>FIG.</th>
<th>DIM. A</th>
<th>DIM. B</th>
<th>DIM. C</th>
</tr>
</thead>
<tbody>
<tr>
<td>P0</td>
<td>1</td>
<td>.19</td>
<td>320 ± .015</td>
<td>8,13 ± .38</td>
</tr>
<tr>
<td>D0</td>
<td>3</td>
<td>.19</td>
<td>475 ± .031</td>
<td>12,07 ± .79</td>
</tr>
<tr>
<td>L0</td>
<td>2</td>
<td>.34</td>
<td>330 ± .015</td>
<td>8,38 ± .38</td>
</tr>
<tr>
<td>L2</td>
<td>5</td>
<td>.53</td>
<td>330 ± .015</td>
<td>8,38 ± .38</td>
</tr>
<tr>
<td>W0</td>
<td>4</td>
<td>.27</td>
<td>520 ± .025</td>
<td>13,51 ± .64</td>
</tr>
<tr>
<td>W2</td>
<td>6</td>
<td>.46</td>
<td>530 ± .025</td>
<td>13,51 ± .64</td>
</tr>
</tbody>
</table>

---

* Specifications and dimensions subject to change.
MM Series
Mini Size Precision Snap-acting Switches

ACTUATOR

SWITCH CHARACTERISTICS

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>MAXIMUM OPERATING FORCE (OZ./GRAMS)</th>
<th>MINIMUM RELEASE FORCE (OZ./GRAMS)</th>
<th>MAXIMUM DIFFERENTIAL TRAVEL</th>
<th>MAXIMUM PRETRAVEL</th>
<th>MINIMUM OVERTRAVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>D0</td>
<td>5</td>
<td>.7</td>
<td>.004</td>
<td>.030</td>
<td>.040</td>
</tr>
<tr>
<td></td>
<td>142</td>
<td>20</td>
<td>(0.10)</td>
<td>(0.76)</td>
<td>(1.02)</td>
</tr>
<tr>
<td>L0</td>
<td>4</td>
<td>.7</td>
<td>.025</td>
<td>.090</td>
<td>.045</td>
</tr>
<tr>
<td></td>
<td>115</td>
<td>20</td>
<td>(0.64)</td>
<td>(2.29)</td>
<td>(1.14)</td>
</tr>
<tr>
<td>L2</td>
<td>6</td>
<td>.7</td>
<td>.012</td>
<td>.075</td>
<td>.015</td>
</tr>
<tr>
<td></td>
<td>170</td>
<td>20</td>
<td>(0.30)</td>
<td>(1.80)</td>
<td>(0.38)</td>
</tr>
<tr>
<td>P0</td>
<td>5</td>
<td>.7</td>
<td>.002</td>
<td>.020</td>
<td>.004</td>
</tr>
<tr>
<td></td>
<td>142</td>
<td>28</td>
<td>(0.05)</td>
<td>(0.51)</td>
<td>(0.10)</td>
</tr>
<tr>
<td>W0</td>
<td>4</td>
<td>.7</td>
<td>.025</td>
<td>.090</td>
<td>.045</td>
</tr>
<tr>
<td></td>
<td>115</td>
<td>20</td>
<td>(0.64)</td>
<td>(2.29)</td>
<td>(1.14)</td>
</tr>
<tr>
<td>W2</td>
<td>6</td>
<td>.7</td>
<td>.012</td>
<td>.075</td>
<td>.015</td>
</tr>
<tr>
<td></td>
<td>170</td>
<td>20</td>
<td>(0.30)</td>
<td>(1.80)</td>
<td>(0.38)</td>
</tr>
</tbody>
</table>

NOTE: For basic switch operating forces, see page J–44

TERMINATIONS

C SINGLE TURRET SOLDER

L LEFT FORMED PC THRU-HOLE

T PC THRU-HOLE, .035"+  

R RIGHT FORMED PC THRU-HOLE

A QUICK CONNECT
ZMT Series
Mini Size Sealed Snap-acting Switches

Features/Benefits
• IP67 rating / Dust tight protection
• From 0.1A to 5A max. (ultra-low current available)
• Excellent sealed solution for modules mechanisms in Automotive and Medical applications
• UL / ENEC

Specifications and dimensions subject to change

Typical Applications
• Automotive: door latch, seat position detection, EV charging
• Handheld devices (medical)
• Industrial equipment
• Consumer electronics

Specifications
CONTACT RATING: 0.1A 125/250VAC 3A 24VDC
3A 125/250VAC 3A 24VDC
5A 125/250 VAC 3A 24VDC
ELECTRICAL LIFE: 10,000 cycles
ELECTRICAL OPERATING FREQUENCY: 10-30 operations per minute
MECHANICAL LIFE: 1,000,000 operations
MECHANICAL OPERATING FREQUENCY: 120 operations per minute
INSULATION RESISTANCE: Min. 100 MΩ (500 VDC/minute) between Live-parts and dead metal parts
DIELECTRIC STRENGTH:
500VAC (50-60HZ)/minute between contacts
1500VAC (50-60HZ)/minute between Live-parts and dead metal parts
OPERATING TEMPERATURE: –40ºC to 85ºC (with no icing)
OPERATING FORCE: 200 grams

Materials
CASE: PBT
COVER: PBT
BUTTON: PBT
MOVABLE CONTACTS: AG alloy
TERMINALS: AG alloy
LEVER: Stainless steel
WIRE: PVC+CU
LOWE CASE: Nylon
RUBBER SEAL: Silicon

Build-A-Switch
Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

Specifications and dimensions subject to change
ZMT Series
Mini Size Sealed Snap-acting Switches

ZMT Mini Size Sealed Snap-acting Switches - SP Momentary

ELECTRICAL RATING

Silver Contacts

<table>
<thead>
<tr>
<th>ZMT</th>
<th>UL1054/UL1058</th>
</tr>
</thead>
<tbody>
<tr>
<td>01A</td>
<td>0.1A 125/250VAC 3A 24VDC</td>
</tr>
<tr>
<td>03A</td>
<td>3A 125/250VAC 3A 24VDC</td>
</tr>
<tr>
<td>05A</td>
<td>5A 125/250VAC 3A 24VDC</td>
</tr>
</tbody>
</table>

Gold Contacts

<table>
<thead>
<tr>
<th>ZMT</th>
<th>UL1054/UL1058</th>
</tr>
</thead>
<tbody>
<tr>
<td>G03</td>
<td>3A 125/250VAC 3A 24VDC</td>
</tr>
</tbody>
</table>

- Notes:
  - See Technical Data in section N of this catalog for RoHS compliant and compatible definition and specifications.
  - All models with all options.
  - Consult Customer Service center for availability and delivery of nonstandard ratings.

OPERATING FORCE

<table>
<thead>
<tr>
<th>OPERATING CODE</th>
<th>OPERATING FORCE AT THE BOTTOM (OZ / GRAMS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CF</td>
<td>3.52 / 100</td>
</tr>
<tr>
<td>CJ</td>
<td>5.99 / 170</td>
</tr>
</tbody>
</table>
ZMT Series
Mini Size Sealed Snap-acting Switches

ACTUATORS

<table>
<thead>
<tr>
<th>CODE</th>
<th>ACTUATOR</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>P00</td>
<td>PIN PLUNGER</td>
<td></td>
</tr>
<tr>
<td>L03</td>
<td>LEAF LEVER 3.2 MM</td>
<td></td>
</tr>
<tr>
<td>S02</td>
<td>SIMULATED ROLLER 1.9 MM</td>
<td></td>
</tr>
<tr>
<td>S05</td>
<td>SIMULATED LEAF ROLLER 5.0 MM</td>
<td></td>
</tr>
<tr>
<td>F01</td>
<td>LEAF LEVER (FOLD) 1.1 MM</td>
<td></td>
</tr>
<tr>
<td>S06</td>
<td>SIMULATED LEAF ROLLER 5.8 MM</td>
<td></td>
</tr>
<tr>
<td>R05</td>
<td>HINGED SIMULATED LEAF ROLLER 5.0 MM</td>
<td></td>
</tr>
<tr>
<td>H03</td>
<td>HINGED LEVER 3.2 MM</td>
<td></td>
</tr>
<tr>
<td>A01</td>
<td>ROLLER 0.2 MM</td>
<td></td>
</tr>
</tbody>
</table>

Specifications and dimensions subject to change.

Dimensions are shown: Inch (mm)
ZMT Series
Mini Size Sealed Snap-acting Switches

TERMINATIONS

P  PC THRU-HOLE

S  SOLDER

L  LEFT-FOOTED, PC THRU-HOLE

R  RIGHT-FOOTED, PC THRU-HOLE

J  WIRE LEADS OUT BOTTOM

K  WIRE LEADS OUT RIGHT SIDE

W  WIRE LEADS OUT LEFT SIDE

Specifications and dimensions subject to change

Dimensions are shown: Inches (mm)

COM: UL1007 20AWG/22AWG/24AWG OR EQUIVALENT(BLACK)
NO: UL1007 20AWG/22AWG/24AWG OR EQUIVALENT(BLUE)
NC: UL1007 20AWG/22AWG/24AWG OR EQUIVALENT(GRAY)

COM: UL1007 20AWG/22AWG/24AWG OR EQUIVALENT(BLACK)
NO: UL1007 20AWG/22AWG/24AWG OR EQUIVALENT(BLUE)
NC: UL1007 20AWG/22AWG/24AWG OR EQUIVALENT(GRAY)

COM: UL1007 20AWG/22AWG/24AWG OR EQUIVALENT(BLACK)
NO: UL1007 20AWG/22AWG/24AWG OR EQUIVALENT(BLUE)
NC: UL1007 20AWG/22AWG/24AWG OR EQUIVALENT(GRAY)
ZMT Series
Mini Size Sealed Snap-acting Switches

NEW

CIRCUITRY

C  SPDT

Y  SPST NO

W  SPST NC

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change
www.ckswitches.com

Third Angle Projection

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change
www.ckswitches.com

27 Jan 22
MS Series
Small Size Snap-acting Switches

Features/Benefits
• Detect interlock and movement
• Different lever options
• Various operating forces
• Extended mechanical life
• UL approval on some designs
• Customization available
• RoHS compatible and compliant

Specifications
CONTACT ARRANGEMENT: SPDT
CONTACT RATING: 5 A @ 125 VAC / 3 A @ 250 VAC
OPERATING LIFE: 1,000,000 cycles without load
6,000 cycles with load UL
INITIAL CONTACT RESISTANCE: 100 mΩ max.
INSULATION RESISTANCE: 100 MΩ min. @ 500 VDC
DIELECTRIC STRENGTH: 1000 VAC (50-60 Hz)
OPERATING TEMPERATURE: -40ºC to + 85ºC
OPERATING FORCE: 130 ± 30 gf
PRE-TRAVEL (PT): 0.6 mm max.
OVERTRAVEL: 0.5 mm max.
OPERATING POSITION (OP): 8.40 ± 0.40 mm

Typical Applications
• Office equipment
• Consumer electronics
• Appliances
• Audio & visual equipment
• Medical
• Industrial meters

Materials
COVER: PBT (UL94V-0)
HOUSING: PBT (UL94V-0)
KNOB: PBT (UL94V-0)
TERMINALS: Silver plated

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

How To Order
Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

Series Sequence
01, 02, 03...

Series
MS

Electrical Rating
01 0.1 A 125/250 V AC
05 5 A 125 V AC/3 A 250 V AC
10 10.1 A 125V/250V AC

Operating Force
A 80gf
B 130gf
C 160gf
H 230gf

Actuator
00 Button (may be blank too)
01 Flat straight
02 Long straight
05 Small simulated

Circuit
A SPDT
B SPST NC
C SPST NO

Termination
0 Soldering wire terminal
1 Long soldering wire terminal
2 Left formed PC thru-hole
3 Right formed PC thru-hole
5 0.110” quick connect

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change
www.ckswitches.com
MS Series
Small Size Snap-acting Switches

Complete part numbers for MS Series Small Size Snap-acting Switches are shown on following pages.

<table>
<thead>
<tr>
<th>PART NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS-105A01</td>
</tr>
</tbody>
</table>

Specifications and dimensions subject to change

Dimensions are shown: Inches (mm)

www.ckswitches.com
MS Series
Small Size Snap-acting Switches

Specifications

MS-105A01-01

PART NUMBER

CONTACT ARRANGEMENT: SPDT
CONTACT RATING: 5 A @ 125 VAC / 3 A @ 250 VAC
OPERATING LIFE: 1,000,000 cycles without load
6,000 cycles with load UL
INITIAL CONTACT RESISTANCE: 100 mΩ max.
INSULATION RESISTANCE: 100 MΩ min. @ 500 VDC
DIELECTRIC STRENGTH: 1000 VAC (50-60 Hz)
OPERATING TEMPERATURE: -40°C to + 85°C
OPERATING FORCE: 65 ± 20 gf
PRE-TRAVEL (PT): 3.0 mm max.
OVERTRAVEL: 1.0 mm max.
OPERATING POSITION (OP): 9.40 ± 1.0 mm

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change
www.ckswitches.com

PART NUMBER

MS-105B01

CONTACT ARRANGEMENT: SPST
CONTACT RATING: 5 A @ 125 VAC / 3 A @ 250 VAC
OPERATING LIFE: 1,000,000 cycles without load
6,000 cycles with load UL
INITIAL CONTACT RESISTANCE: 100 mΩ max.
INSULATION RESISTANCE: 100 MΩ min. @ 500 VDC
DIELECTRIC STRENGTH: 1000 VAC (50-60 Hz)
OPERATING TEMPERATURE: -40°C to + 85°C
OPERATING FORCE: 230 ± 50 gf
PRE-TRAVEL (PT): 0.6 mm max.
OVERTRAVEL: 0.5 mm max.
OPERATING POSITION (OP): 8.40 ± 0.40 mm

Materials

COVER: PBT (UL94V-0)
HOUSING: PBT (UL94V-0)
KNOB: PBT (UL94V-0)
TERMINALS: Silver plated

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

PART NUMBER

MS-105A01-01

PART NUMBER

MS-105B01

Materials

COVER: PBT (UL94V-0)
HOUSING: PBT (UL94V-0)
KNOB: PBT (UL94V-0)
TERMINALS: Silver plated

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

Third Angle Projection
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change
www.ckswitches.com
MS Series
Small Size Snap-acting Switches

Specifications
CONTACT ARRANGEMENT: SPDT
CONTACT RATING: 0.1 A @ 30 VDC
OPERATING LIFE: 500,000 cycles without load
50,000 cycles with load
INITIAL CONTACT RESISTANCE: 50 mΩ max.
INSULATION RESISTANCE: 100 MΩ min. @ 500 VDC
DIELECTRIC STRENGTH: 1000 VAC (50-60 Hz)
OPERATING TEMPERATURE: -20°C to +70°C
OPERATING FORCE: 70 ± 40 gf
PRE-TRAVEL (PT): 0.50 mm max.
OVERTRAVEL: 0.5 mm min.
OPERATING POSITION (OP): 5.50 ± 0.30 mm

Materials
COVER: PBT (UL94V-0)
HOUSING: PBT (UL94V-0)
KNOB: PBT (UL94V-0)
TERMINALS: Silver plated

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

PART NUMBER
MS-118305

PART NUMBER
MS-118305-A

Specifications
CONTACT ARRANGEMENT: SPDT
CONTACT RATING: 0.1 A @ 30 VDC
OPERATING LIFE: 500,000 cycles without load
50,000 cycles with load
INITIAL CONTACT RESISTANCE: 50 mΩ max.
INSULATION RESISTANCE: 100 MΩ min. @ 500 VDC
DIELECTRIC STRENGTH: 1000 VAC (50-60 Hz)
OPERATING TEMPERATURE: -20°C to +70°C
OPERATING FORCE: 25 ± 15 gf
OVERTRAVEL: 0.5 mm min.
OPERATING POSITION (OP): 6.0 ± 0.80 mm
FREE POSITION (FP): 8.5mm max.

Materials
COVER: PBT (UL94V-0)
HOUSING: PBT (UL94V-0)
KNOB: PBT (UL94V-0)
TERMINALS: Silver plated

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.
# MS Series
## Small Size Snap-acting Switches

### Specifications

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Contact Arrangement: SPDT</th>
<th>Contact Rating: 0.1 A @ 30 VDC</th>
<th>Operating Life: 500,000 cycles without load</th>
<th>50,000 cycles with load</th>
</tr>
</thead>
<tbody>
<tr>
<td>MS-118405</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MS-118405-A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Initial Contact Resistance: 50 mΩ max.

Insulation Resistance: 100 MΩ min. @ 500 VDC

Dielectric Strength: 1000 VAC (50-60 Hz)

Operating Temperature: -20°C to +70°C

Operating Force: 25 ± 15 gf

Overtravel: 0.5 mm min.

Operating Position (OP): 7.5 ± 0.80 mm

Free Position (FP): 10 mm max.

### Materials

- **Cover**: PBT (UL94V-0)
- **Housing**: PBT (UL94V-0)
- **Knob**: PBT (UL94V-0)
- **Terminals**: Silver plated

*NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.*
**Features/Benefits**
- Reliable snap-acting mechanism
- Long electrical and mechanical life
- Compact size—Ideal when space is limited
- Various PCB terminals and actuators
- RoHS compliant / compatible

**Typical Applications**
- PCB detection switch
- Communication devices
- Testing equipment
- Security/Alarm systems
- Consumer electronics
- Automotive: door latch, seat position detection, EV charging

**Specifications**
- CONTACT RATING: F7: 3A @ 125 VAC
  - M9: 0.2A @ 60 VDC.
- ELECTRICAL LIFE: 10,000 Cycles, @ 3A
- INSULATION RESISTANCE: 100 M ohm min.
- DIELECTRIC STRENGTH: 1000 Vrms.
- OPERATING TEMPERATURE: ~30°C to 85°C.
- OPERATING FORCE: CJ: 150 grams, CH: 90 grams.

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

**Materials**
- COVER: Nylon 6/6
- ACTUATOR BUTTON: Nylon 6/6
- CASE: Nylon 6/6
- SPRING: SUS
- MOVABLE BLADE: BeCu
- MOVABLE CONTACT: Silver alloy (M9 option gold plated)
- FIXED CONTACTS: Silver alloy (M9 option gold plated)
- FIXED TERMINALS: Brass - Ag plated.
- ACTUATOR (Leaf / Roller options): SUS

**BUILD-A-SWITCH**

To order, simply select desired option from each category and place in the appropriate box. For additional options not shown in catalog, consult Customer Service Center.

<table>
<thead>
<tr>
<th>Option Code</th>
<th>UL 1054</th>
<th>UL 61058-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>F7</td>
<td>3 A 125 V AC</td>
<td>3 A 125 V AC</td>
</tr>
<tr>
<td>M9</td>
<td>0.1 A 48 V DC, 0.2 A 60 V DC, 0.1 A 125 V AC</td>
<td>0.1 A 48 V DC, 0.2 A 60 V DC, 0.1 A 125 V AC</td>
</tr>
</tbody>
</table>

Available in Operating Force-Actuator combination:
- CJ-L0
- CH-L3

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change
ZM Series
Mini Size Snap-acting Switches

SERIES

ZM  MINI SIZE SNAP-ACTING SWITCHES – SP MOMENTARY

OPERATING FORCE

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>BASIC SWITCH OPERATING FORCE (OZ./GRAMS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CJ</td>
<td>5.29</td>
</tr>
<tr>
<td>CH</td>
<td>3.15</td>
</tr>
</tbody>
</table>

ELECTRICAL RATING

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>RoHS COMPATIBLE*</th>
<th>RoHS COMPATIBLE*</th>
<th>CONTACT MATERIAL</th>
<th>ELECTRICAL RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>MOBILE CONTACT</td>
<td></td>
</tr>
<tr>
<td>F7</td>
<td>Yes</td>
<td>Yes</td>
<td>Silver alloy</td>
<td>see chart</td>
</tr>
<tr>
<td>M9</td>
<td>Yes</td>
<td>Yes</td>
<td>Gold plating or silver alloy</td>
<td>see chart</td>
</tr>
</tbody>
</table>

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

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

UL/CSA LO/D MARK
MODEL NO./RATING MARK
E DATE CODE

UL/CSA LO:D MARK
MODEL NO./RATING MARK
E DATE CODE

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change
**ZM Series**

**Mini Size Snap-acting Switches**

**ACTUATOR**

<table>
<thead>
<tr>
<th>ACTUATOR OPTION CODE</th>
<th>ACTUATOR</th>
<th>A (mm)</th>
<th>B Ref (mm)</th>
<th>C (mm)</th>
<th>D (mm)</th>
<th>E (mm)</th>
<th>DIFF. MOTION mm MAX</th>
<th>OPER. FORCE grams MAX</th>
<th>RELEASED FORCE Grams MAX</th>
<th>OVER TRAVEL MIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>P0 PIN PLUNGER</td>
<td>NA</td>
<td>NA</td>
<td>1.3</td>
<td>7.0 ± 0.3</td>
<td>8.0</td>
<td>0.3</td>
<td>150</td>
<td>90</td>
<td>15-20</td>
<td>0.2</td>
</tr>
<tr>
<td>L0 LEAF</td>
<td>13.0</td>
<td>4.03</td>
<td>3.4</td>
<td>8.4 ± 0.8</td>
<td>11.0</td>
<td>1.3</td>
<td>50</td>
<td>-</td>
<td>8</td>
<td>0.6</td>
</tr>
<tr>
<td>L3 LEAF</td>
<td>13.0</td>
<td>4.03</td>
<td>3.4</td>
<td>8.4 ± 0.8</td>
<td>11.0</td>
<td>1.3</td>
<td>-</td>
<td>30</td>
<td>5</td>
<td>0.6</td>
</tr>
<tr>
<td>T13 SIMULATED ROLLER</td>
<td>15.0</td>
<td>5.36</td>
<td>3.8</td>
<td>10.5 ± 0.8</td>
<td>13.0</td>
<td>1.5</td>
<td>40</td>
<td>-</td>
<td>7</td>
<td>0.6</td>
</tr>
<tr>
<td>T23 SIMULATED ROLLER</td>
<td>15.0</td>
<td>5.36</td>
<td>3.8</td>
<td>10.5 ± 0.8</td>
<td>13.0</td>
<td>1.5</td>
<td>-</td>
<td>25</td>
<td>4</td>
<td>0.6</td>
</tr>
</tbody>
</table>

**TERMINATIONS**

**T** (STD.) PC THRU-HOLE

**K** PC THRU-HOLE WITH RETENTION FEATURE

**L** LEFT FOOTED, PC THRU-HOLE

**R** RIGHT FOOTED, PC THRU-HOLE
ZMA Series
Mini Size Snap-acting Switches

Features/Benefits
- Reliable snap-acting mechanism
- Long electrical and mechanical life
- Compact size - ideal when space is limited
- Various PCB terminals & actuators
- RoHS compatible & compliant

Typical Applications
- PCB detection switch
- Communication devices
- Testing equipment
- Security/Alarm systems
- Consumer electronics
- Automotive: door latch, seat position detection, EV charging

Specifications
- CONTACT RATING: 3A @ 125 V AC 24 V DC
- 1 A @125 / 250 V AC 24 V DC
- 0.1A @ 125 V AC 60 V DC
- ELECTRICAL LIFE: 300,000 cycles @ 0.1A / 10,000 cycles @ 3A.
- MECHANICAL LIFE: 1,000,000 cycles.
- INSULATION RESISTANCE: 100 M ohm min.
- DIELECTRIC STRENGTH: 500 Vrms.
- OPERATING TEMPERATURE: –40ºC to 85ºC
- OPERATING FORCE: 80 or 150 grams.

UL61058-1

Materials
- CASE/COVER: PBT
- ACTUATOR: Button nylon 6/6
- MOVABLE CONTACTS: Silver alloy or gold plated
- STATIONARY CONTACTS: Silver alloy or gold plated
- TERMINALS: Brass, silver 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. For additional options not shown in catalog, consult Customer Service Center.

Options

<table>
<thead>
<tr>
<th>Option Code</th>
<th>UL 1054</th>
<th>UL 61058-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>00A</td>
<td>0.1A 60 V DC</td>
<td>0.1A 60 V DC</td>
</tr>
<tr>
<td></td>
<td>0.1A 125 V AC</td>
<td>0.1A 125 V AC</td>
</tr>
<tr>
<td>03A</td>
<td>3 A 125 V AC</td>
<td>3 A 125 V AC</td>
</tr>
<tr>
<td></td>
<td>3 A 24 V DC</td>
<td>3 A 24 V DC</td>
</tr>
<tr>
<td>01A</td>
<td>1 A 24 V DC</td>
<td>1 A 24 V DC</td>
</tr>
<tr>
<td></td>
<td>1 A 125 / 250 V AC</td>
<td>1 A 125 / 250 V AC</td>
</tr>
</tbody>
</table>

Gold Plated Contacts

<table>
<thead>
<tr>
<th>Option Code</th>
<th>UL 1054</th>
<th>UL 61058-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>G00</td>
<td>0.1A 60 V DC</td>
<td>0.1A 60 V DC</td>
</tr>
<tr>
<td></td>
<td>0.1A 125 V AC</td>
<td>0.1A 125 V AC</td>
</tr>
<tr>
<td>G03</td>
<td>3 A 125 V AC</td>
<td>3 A 125 V AC</td>
</tr>
<tr>
<td></td>
<td>3 A 24 V DC</td>
<td>3 A 24 V DC</td>
</tr>
</tbody>
</table>

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

www.ckswitches.com
ZMA Series
Mini Size Snap-acting Switches

ZMA MINI SIZE SNAP-ACTING SWITCHES – SP MOMENTARY

ELECTRICAL RATING

Silver Contacts

<table>
<thead>
<tr>
<th>Option Code</th>
<th>UL 1054</th>
<th>UL 61058-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>00A</td>
<td>0.1A 60 V DC</td>
<td>0.1A 125 V AC</td>
</tr>
<tr>
<td>03A</td>
<td>3 A 125 V AC</td>
<td>3 A 125 V AC</td>
</tr>
<tr>
<td>01A</td>
<td>1 A 24 V DC</td>
<td>1 A 125 / 250 V AC</td>
</tr>
</tbody>
</table>

Gold Plated Contacts

<table>
<thead>
<tr>
<th>Option Code</th>
<th>UL 1054</th>
<th>UL 61058-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>G00</td>
<td>0.1A 60 V DC</td>
<td>0.1A 125 V AC</td>
</tr>
<tr>
<td>G03</td>
<td>3 A 125 V AC</td>
<td>3 A 125 V AC</td>
</tr>
</tbody>
</table>

*Note: See Technical Data in section N of this catalog for RoHS compliant and compatible definition and specifications.
All models with all options.
Consult Customer Service center for availability and delivery of nonstandard ratings.

OPERATING FORCE

<table>
<thead>
<tr>
<th>Option Code</th>
<th>BASIC SWITCH OPERATING FORCE (OZ./GRAMS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>080</td>
<td>2.82 / 80</td>
</tr>
<tr>
<td>150</td>
<td>5.28 / 150</td>
</tr>
</tbody>
</table>

Specifications and dimensions subject to change.

Dimensions are shown: Inches (mm)

Third Angle Projection
ZMA Series
Mini Size Snap-acting Switches

ACTUATOR

P00  PIN PLUNGER

L08  LEVER 4.3MM

S03  SIMULATED ROLLER 5.8MM

A03  ROLLER 0.9MM

L30  LEVER 20.55MM

L04  LEVER 3.8MM

L11  LEVER 7.75MM

L21  LEVER 4.55MM

S06  SIMULATED ROLLER 2.1MM

S07  SIMULATED ROLLER 1MM

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

www.ckswitches.com
## SWITCH CHARACTERISTICS

<table>
<thead>
<tr>
<th>CODE</th>
<th>OPER. FORCE MAX. (GRAMS)</th>
<th>REL. FORCE MIN. (GRAMS)</th>
<th>'A' FP MAX. (MM)</th>
<th>'B' OP MAX. (MM)</th>
<th>'C' PT MAX. (MM)</th>
<th>'D' OT MIN. (MM)</th>
<th>'E' MIN. (MM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P00</td>
<td>80</td>
<td>21</td>
<td>7.35</td>
<td>6.9 ± 0.3</td>
<td>0.62</td>
<td>0.2</td>
<td></td>
</tr>
<tr>
<td>S03</td>
<td>25</td>
<td>5</td>
<td>14.2</td>
<td>9.8 ± 0.9</td>
<td>3.5</td>
<td>0.7</td>
<td>5.8</td>
</tr>
<tr>
<td>L30 (80 GF)</td>
<td>13</td>
<td>2</td>
<td>16.8</td>
<td>9.5 ± 1.9</td>
<td>6.9</td>
<td>0.55</td>
<td>20.55</td>
</tr>
<tr>
<td>L30 (150 GF)</td>
<td>13</td>
<td>2</td>
<td>16.8</td>
<td>9.75 ± 1.9</td>
<td>6.9</td>
<td>0.55</td>
<td>20.55</td>
</tr>
<tr>
<td>L11</td>
<td>25</td>
<td>4</td>
<td>11.7</td>
<td>8.68 ± 1</td>
<td>4.4</td>
<td>0.6</td>
<td>7.75</td>
</tr>
<tr>
<td>L21</td>
<td>30</td>
<td>4</td>
<td>10.0</td>
<td>8.35 ± 0.7</td>
<td>2.35</td>
<td>0.62</td>
<td>4.55</td>
</tr>
<tr>
<td>L08</td>
<td>27</td>
<td>3</td>
<td>13.5</td>
<td>10.75 ± 0.8</td>
<td>3.5</td>
<td>0.3</td>
<td>4.3</td>
</tr>
<tr>
<td>A03</td>
<td>34</td>
<td>6</td>
<td>16.55</td>
<td>13.65 ± 1</td>
<td>3.9</td>
<td>0.5</td>
<td>0.9</td>
</tr>
<tr>
<td>L04</td>
<td>30</td>
<td>5</td>
<td>10.1</td>
<td>7.9 ± 0.8</td>
<td>3.0</td>
<td>0.6</td>
<td>3.6</td>
</tr>
<tr>
<td>S06</td>
<td>33</td>
<td>5</td>
<td>12.43</td>
<td>10.7 ± 0.8</td>
<td>1.43</td>
<td>1.25</td>
<td>2.1</td>
</tr>
<tr>
<td>S07</td>
<td>40</td>
<td>2</td>
<td>13.0</td>
<td>9.7 ± 1</td>
<td>4.3</td>
<td>0.5</td>
<td>1</td>
</tr>
</tbody>
</table>

### TERMINATIONS

<table>
<thead>
<tr>
<th>CODE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>PC THRU-HOLE</td>
</tr>
<tr>
<td>L</td>
<td>LEFT FOOTED, PC THRU-HOLE</td>
</tr>
<tr>
<td>R</td>
<td>RIGHT FOOTED, PC THRU-HOLE</td>
</tr>
<tr>
<td>E</td>
<td>SOLDER</td>
</tr>
<tr>
<td>K</td>
<td>PC THRU-HOLE WITH RETENTION FEATURE</td>
</tr>
</tbody>
</table>

---

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change
www.ckswitches.com
ZMS Series
Mini Size Snap-acting Switches

Features/Benefits
- Reliable snap-acting mechanism
- Long electrical and mechanical life
- Compact size - ideal when space is limited
- Various PCB terminals & actuators
- RoHS compatible
- IP67 for standalone switch except the metal terminal part; Full IP67 protection when potted with wire version

Typical Applications
- PCB detection switch
- Communication devices
- Testing equipment
- Security/Alarm systems
- Consumer electronics
- Automotive: door latch, seat position detection, EV charging

Specifications
CONTACT RATING: 3A @ 125 V AC/ 3A @ 12 V DC, 0.01A @ 12 V DC
ELECTRICAL LIFE: 100,000 cycles @ 0.01A 12 V DC
  100,000 cycles @ 3A 12 V DC
  6,000 cycles @ 3A 125 V AC
MECHANICAL LIFE: 500,000 cycles
INSULATION RESISTANCE: 100 M ohm min.
DIELECTRIC STRENGTH: 500 Vrms.
OPERATING TEMPERATURE: -40˚C + 85˚C.
OPERATING FORCE: 130 grams.

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

Materials
CASE: Nylon
COVER/ACTUATOR: PBT
MOVABLE CONTACTS: 3 Amp silver alloy, 0.01A gold plating over silver alloy
STATIONARY CONTACTS: 3 Amp silver alloy, 0.01 A gold plating over silver alloy
TERMINALS: Brass, silver plated
LEVER: Stainless steel

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.
Sealing cap could possibly be damaged in case of contacts with oils or greases. Please try to avoid direct contact. If more support is needed, consult Customer Service Centre.

Build-A-Switch
To order, simply select desired option from each category and place in the appropriate box. For additional options not shown in catalog, consult Customer Service Center.

Electrical Rating
- 00 0.01 A @ 12 V DC
- 03 3A 125 V AC
- 3A 12 V DC

Operating Force
- 130 130 grams / 4.59

Actuator
- P00 Pin plunger
- T10 .25 lever
- T11 .28 simulated roller

Terminations
- P PC Thru-hole
- L Left form, PC Thru-hole
- R Right form, PC Thru-hole
- S Solder type
- J Wire leads out bottom *
- K Wire leads out right side *
- W Wire leads out left side *

Mounting Styles
- S Std (No support post)
- L Support post left
- R Support post right

Circuitry
- C SPDT
- W SPST N.C.
- Y SPST N.O.

Series
- ZMS SP, Mom.

Over Travel
- H High Travel

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change
www.ckswitches.com
ZMS Series
Mini Size Snap-acting Switches

ZMSH  HIGH OVER TRAVEL

Specifications and dimensions subject to change.

Dimensions are shown: Inches (mm)

www.ckswitches.com

---

**ELECTRICAL RATING**

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>CONTACT MATERIAL</th>
<th>UL61058-1 UL1054 ELECTRICAL RATING</th>
<th>ENEC ELECTRICAL RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>Gold plating over silver alloy</td>
<td>0.01 AMP @ 12 V DC 0.1 AMP @ 12 V DC</td>
<td>10m AMP @ 12 V DC 5E5</td>
</tr>
<tr>
<td>03</td>
<td>Silver alloy</td>
<td>3 AMPS @ 125 V AC 3 AMPS @ 12 V DC</td>
<td>3 AMPS @ 12 V DC 1E5</td>
</tr>
</tbody>
</table>

Consult Customer Service center for availability and delivery of nonstandard ratings.

---

**OPERATING FORCE**

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>BASIC SWITCH OPERATING FORCE (OZ./GRAMS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>130</td>
<td>130 4.58</td>
</tr>
</tbody>
</table>
ZMS Series
Mini Size Snap-acting Switches

ACTUATOR

P00 PIN PLUNGER

T10 .25 LEVER

T11 LEVER

SWITCH CHARACTERISTICS

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>P00</td>
<td>130 4.59</td>
<td>13 0.45</td>
<td>.472 (12)</td>
<td>0.032 (0.8)</td>
<td>.415 ± .012</td>
<td>0.012 (0.3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.068 (1.72)</td>
</tr>
<tr>
<td>T10</td>
<td>195 6.88</td>
<td>55 1.93</td>
<td>.604 (15.35)</td>
<td>0.152 (3.85)</td>
<td>.440 ± .020</td>
<td>0.020 (0.5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.084 (2.14)</td>
</tr>
<tr>
<td>T11</td>
<td>160 5.64</td>
<td>45 1.58</td>
<td>.726 (18.45)</td>
<td>0.186 (4.8)</td>
<td>.539 ± .032</td>
<td>0.030 (0.7)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.101 (2.57)</td>
</tr>
</tbody>
</table>

SWITCH CHARACTERISTICS "J" TERMINATION ONLY

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>P00</td>
<td>130 4.59</td>
<td>13 0.45</td>
<td>.650 (16.50)</td>
<td>0.032 (0.8)</td>
<td>.593 ± .020</td>
<td>.012 (0.3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.068 (1.72)</td>
</tr>
<tr>
<td>T10</td>
<td>195 6.88</td>
<td>55 1.93</td>
<td>.781 (19.85)</td>
<td>0.152 (3.85)</td>
<td>.618 ± .028</td>
<td>.020 (0.5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.084 (2.14)</td>
</tr>
<tr>
<td>T11</td>
<td>160 5.64</td>
<td>45 1.58</td>
<td>.904 (22.95)</td>
<td>0.188 (4.8)</td>
<td>.717 ± .039</td>
<td>.030 (0.7)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.101 (2.57)</td>
</tr>
</tbody>
</table>
ZMS Series
Mini Size Snap-acting Switches

TERMINATIONS

P  PC THRU-HOLE

L  LEFT FOOTED, PC THRU-HOLE

R  RIGHT FOOTED, PC THRU-HOLE

J  WIRE LEADS BOTTOM (IP67)

K  RIGHT SIDE (IP67)

S  SOLDER TYPE

W  LEFT SIDE (IP67)

MOUNTING STYLES

S  STD (NO SUPPORT POST)

L  SUPPORT POST LEFT

R  SUPPORT POST RIGHT

CIRCUITRY

C  SPDT (Single Pole, Double Throw)

W  SPST, NC (Single Pole, Single Throw, Normally Closed)

Y  SPST, NO (Single Pole, Single Throw, Normally Open)
ZMSM Series with Mounting Hole
Mini Size Snap-acting Switches

**Features/Benefits**
- Reliable snap-acting mechanism
- Long electrical and mechanical life
- Various PCB terminals & actuators
- RoHS compatible
- IP67 for standalone switch except the metal terminal part; Full IP67 protection when potted with wire version

**Typical Applications**
- Communication devices
- Testing equipment
- Security/Alarm systems
- Automotive: door latch, seat position detection, EV charging

**Specifications**
- CONTACT RATING: 3A @ 125 V AC/ 3A @ 12 V DC, 0.01 A @ 12 V DC
- ELECTRICAL LIFE: 100,000 cycles @ 0.01 A, 12 V DC / 100,000 cycles @ 3A, 12 V DC, 6,000 cycles @ 3A, 125 VAC
- INSULATION RESISTANCE: 100 M ohm min.
- DIELECTRIC STRENGTH: 500 Vrms.
- OPERATING TEMPERATURE: -40˚C + 85˚C.
- OPERATING FORCE: 130 grams.

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

**Materials**
- CASE: Nylon
- COVER/ACTUATOR: PBT
- MOVABLE CONTACTS: 3 Amp silver, 0.01A gold
- STATIONARY CONTACTS: 3 Amp silver, 0.01A gold
- TERMINALS: Brass, Pre-plated with silver
- LEVER: Stainless steel

**Build-A-Switch**
To order, simply select desired option from each category and place in the appropriate box. For additional options not shown in catalog, consult Customer Service Center.

**Circuitry**

<table>
<thead>
<tr>
<th>Circuitry</th>
<th>SPDT</th>
<th>SPST N.C.</th>
<th>SPST N.O.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Terminations**

<table>
<thead>
<tr>
<th>Terminations</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>PC Thru-hole</td>
</tr>
<tr>
<td>S</td>
<td>Solder type</td>
</tr>
<tr>
<td>J</td>
<td>Wire leads 20 AWG UL 1007</td>
</tr>
<tr>
<td>K</td>
<td>Wire leads 22 AWG UL1430</td>
</tr>
<tr>
<td>W</td>
<td>Wire leads 24 AWG UL1061</td>
</tr>
<tr>
<td>N</td>
<td>Wire leads 26 AWG UL1330</td>
</tr>
<tr>
<td>M</td>
<td>No support post</td>
</tr>
<tr>
<td>L</td>
<td>Two support post left</td>
</tr>
<tr>
<td>R</td>
<td>Two support post right</td>
</tr>
<tr>
<td>T</td>
<td>One support post left and right</td>
</tr>
</tbody>
</table>

**Over Travel**

<table>
<thead>
<tr>
<th>Series</th>
<th>ZMSM</th>
<th>Over Travel</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SP, Mom.</td>
<td>High Travel</td>
</tr>
</tbody>
</table>

**Electrical Rating**

<table>
<thead>
<tr>
<th>Electrical Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 HD</td>
<td>0.01 A @ 12 V DC</td>
</tr>
<tr>
<td>3 HD</td>
<td>3A 125 V AC</td>
</tr>
<tr>
<td>3L HD</td>
<td>3A 12 V DC</td>
</tr>
</tbody>
</table>

**Actuator**

<table>
<thead>
<tr>
<th>Actuator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P00</td>
<td>Pin plunger</td>
</tr>
<tr>
<td>T10</td>
<td>.25 lever</td>
</tr>
<tr>
<td>T11</td>
<td>.28 simulated roller</td>
</tr>
</tbody>
</table>

**Operating Force**

<table>
<thead>
<tr>
<th>Operating Force</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>130</td>
<td>130 grams / 4.59</td>
</tr>
</tbody>
</table>

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

www.ckswitches.com
ZMSM Series with Mounting Hole
Mini Size Snap-acting Switches

ZMSMH HIGH OVER TRAVEL

Model shown: ZMSMHXXXXOP00PLC

ELECTRICAL RATING

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>RoHS COMPLIANT*</th>
<th>RoHS COMPATIBLE*</th>
<th>CONTACT MATERIAL</th>
<th>ELECTRICAL RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Yes</td>
<td>Yes</td>
<td>Gold alloy</td>
<td>0.01 A @ 12 V DC</td>
</tr>
<tr>
<td>3</td>
<td>Yes</td>
<td>Yes</td>
<td>Silver alloy</td>
<td>3 AMPS @ 125 V AC 3 AMPS</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>@ 12 V DC</td>
</tr>
</tbody>
</table>

Model with option “S” (solder type) only.
Consult Customer Service center for availability and delivery of nonstandard ratings.

OPERATING FORCE

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>BASIC SWITCH OPERATING FORCE (OZ./GRAMS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>130</td>
<td>130 4.59</td>
</tr>
</tbody>
</table>
ZMSM Series with Mounting Hole
Mini Size Snap-acting Switches

**ACTUATOR**

<table>
<thead>
<tr>
<th>Actuator code</th>
<th>PIN PLUNGER (IP65)</th>
<th>.25 LEVER (IP65)</th>
<th>LEVER (IP65)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P00</td>
<td>14.7 REF</td>
<td>18.35 REF</td>
<td>22.92 REF</td>
</tr>
</tbody>
</table>

**SWITCH CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Actuator code</th>
<th>Maximum Operate Force (grams/oz.)</th>
<th>Minimum Release Force (grams/oz.)</th>
<th>Free Position Max (mm)</th>
<th>Maximum Pre-travel (mm)</th>
<th>Operate Position (mm)</th>
<th>Maximum Differential (mm)</th>
<th>Overtravel min. (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P00</td>
<td>130 4.59</td>
<td>13 0.45</td>
<td>7.35</td>
<td>0.8</td>
<td>6.75 ± 0.3</td>
<td>0.3</td>
<td>1.75</td>
</tr>
<tr>
<td>T10</td>
<td>195 6.88</td>
<td>55 1.93</td>
<td>10.70</td>
<td>3.85</td>
<td>7.40 ± 0.8</td>
<td>0.5</td>
<td>2.3</td>
</tr>
<tr>
<td>T11</td>
<td>160 5.64</td>
<td>45 1.58</td>
<td>13.80</td>
<td>4.8</td>
<td>9.90 ± 0.8</td>
<td>0.7</td>
<td>2.6</td>
</tr>
</tbody>
</table>

**TERMINATIONS**

**P** PC THRU-HOLE (IP65)

**S** SOLDER TYPE (IP65)

**J, K, W, N** WIRE LEADS BOTTOM (IP67)

Standard Wire: 20 AWG UL 1007

Available options - must specify
- J - 20AWG UL1007 (Standard)
- K - 22AWG UL1430
- W - 24AWG UL1061
- N - 26AWG UL1330

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

www.ckswitches.com
ZMSM Series with Mounting Hole
Mini Size Snap-acting Switches

MOUNTING STYLES

M  NO SUPPORT POSTS

L  TWO SUPPORT POSTS LEFT

R  TWO SUPPORT POSTS RIGHT

T  ONE SUPPORT POST LEFT & RIGHT

MODEL SHOWN: ZMSMH0000P00PMC

POSTS LEFT
MODEL SHOWN: ZMSMH0000P00PLC

POSTS RIGHT
MODEL SHOWN: ZMSMH0000P00PRC

LEFT & RIGHT
MODEL SHOWN: ZMSMH0000P00PTC

CIRCUITRY

C  SPDT (Single Pole, Double Throw)

W  SPST, NC (Single Pole, Single Throw, Normally Closed)

Y  SPST, NO (Single Pole, Single Throw, Normally Open)

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

31 May 21
www.ckswitches.com
ZMV Series
Mini Size Snap-acting Switches

Features/Benefits
• Compact size – ideal when space is limited
• High contact reliability to support from low range switching loads
• Adequate stroke setting for reliable & precision ON or OFF switching
• Pin plunger version can be actuated from an angle
• Internal spring design return – ensures the actuator is restored to the same position every time. These features yield consistent operation over the long life of these switches.
• IP67 for standalone switch except the metal terminal part; Full IP67 protection when potted with wire version
• RoHS compatible & compliant

Specifications
CONTACT RATING: 3A 12VDC @ 100,000 cycles min.
3A 24VDC @ 50,000 cycles min.
3A 125/250VAC @ 10,000 cycles min.
0.01A 12/24VDC @ 1,000,000 cycles min.
0.01A 125/250VAC @ 1,000,000 cycles min.
MECHANICAL LIFE: 1,000,000 cycles min.
INSULATION RESISTANCE: 100 MΩ min.
DIELECTRIC STRENGTH: Min. 500VAC (50-60Hz)/minute between Live Parts
OPERATING TEMPERATURE: –40ºC to 85ºC
OPERATING FORCE: 150 gf max.

Materials
CASE: Nylon
COVER: Nylon
ACTUATOR BUTTON: PET+POM
MOVABLE CONTACTS: AG alloy (Gold plated if selected)
STATIONARY CONTACTS: AG alloy (Gold plated if selected)
TERMINALS: Brass

NOTE: Specifications and materials listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.
Sealing cap could possibly be damaged in case of contacts with oils or greases.
Please try to avoid direct contact. If more support is needed, consult Customer Service Centre.

Build-A-Switch
Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

Electrical Rating
03A 3A 125/250VAC
(Gold plated)
G03 3A 125/250VAC
(Plated silver)

Operating Force
150 150 grams

Actuator Type
P00 Pin plunger
T13 Hinged lever with lever length 13 mm
T20 Hinged lever with lever length 20 mm
S03 Simulated hinged roller lever length 15 mm
L14 Leaf lever with lever length 14 mm
L16 Simulated leaf roller lever length 16 mm
L20 Leaf lever with lever length 20 mm

Terminations*
P PC Thru-hole
S Solder
J Wire leads out bottom
K Wire leads out right side
W Wire leads out left side

Wire Type for J, K, W Terminations*
NONE AVSS 0.3 mm² (Default)
20 UL1007 20 AWG
22 UL1007 22 AWG
24 UL1007 24 AWG

Pillar Type or Mounting Style
A0 Standard (No support post)
B5 Pillar type B 5 mm
B2 Pillar type B 2 mm
C5 Pillar type C 5 mm
C2 Pillar type C 2 mm
F0 Pillar type F 1.5 mm

Circuitry
C SPDT
W SPST N.C.
Y SPST N.O.

Dimensions are shown: mm
Specifications and dimensions subject to change

www.ckswitches.com

4 Apr 23
ZMV Series
Mini Size Snap-acting Switches

ZMV  MINI SIZE SNAP-ACTING SWITCHES

ACTUATOR TYPE

P00  PIN PLUNGER

T13  HINGED LEVER WITH LEVER LENGTH 13 MM

T20  HINGED LEVER WITH LEVER LENGTH 20 MM

S03  SIMULATED HINGED ROLLER LEVER LENGTH 15 MM

Dimensions are shown: mm
Specifications and dimensions subject to change

www.ckswitches.com
ZMV Series
Mini Size Snap-acting Switches

ACTUATOR TYPE

L14  LEAF LEVER WITH LEVER LENGTH 14 MM

L16  SIMULATED LEAF ROLLER LEVER LENGTH 16 MM

L20  LEAF LEVER WITH LENGTH 20 MM

Specifications and dimensions subject to change
www.ckswitches.com

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change
www.ckswitches.com
ZMV Series
Mini Size Snap-acting Switches

TERMINATIONS

P  PC THRU-HOLE

S  SOLDER

J  WIRE LEADS OUT BOTTOM

K  WIRE LEADS OUT RIGHT SIDE

W  WIRE LEADS OUT LEFT SIDE

Default wire:
COM: AVSS 0.3 MM² BLACK OR EQUIVALENT
NO: AVSS 0.3 MM² BLUE OR EQUIVALENT
NC: AVSS 0.3 MM² GRAY OR EQUIVALENT

Default wire:
COM: AVSS 0.3 MM² BLACK OR EQUIVALENT
NO: AVSS 0.3 MM² BLUE OR EQUIVALENT
NC: AVSS 0.3 MM² GRAY OR EQUIVALENT

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

www.ckswitches.com

C&K

4 Apr 23
J-39
ZMV Series
Mini Size Snap-acting Switches

PILLAR TYPE OR MOUNTING STYLE

A0  STANDARD (NO SUPPORT POST)

B5  PILLAR TYPE B 5 MM

B2  PILLAR TYPE B 2 MM

C5  PILLAR TYPE C 5 MM

C2  PILLAR TYPE C 2 MM

F0  PILLAR TYPE F 1.5 MM

Dimensions are shown: mm
Specifications and dimensions subject to change

www.ckswitches.com
# SWITCH CHARACTERISTICS

<table>
<thead>
<tr>
<th>SWITCH TYPE</th>
<th>PART SUFFIX</th>
<th>OF (gf)</th>
<th>FP (mm)</th>
<th>OP (mm)</th>
<th>EP (mm) Min</th>
<th>OT (mm) Min</th>
<th>MD (mm) Max</th>
<th>RF (gf) Min</th>
<th>FP (mm) Max</th>
<th>OP (mm) Max</th>
<th>EP (mm) Max</th>
<th>OT (mm) Max</th>
<th>MD (mm) Min</th>
<th>RF (gf) Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZMVXXX150P00000XX</td>
<td>150</td>
<td>11.2</td>
<td>10.4±0.2</td>
<td>9.1</td>
<td>1.1</td>
<td>0.25</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ZMVXXX150T13XXXX</td>
<td>150</td>
<td>12.8</td>
<td>11.5±0.5</td>
<td>10</td>
<td>1.0</td>
<td>0.5</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ZMVXXX150T20XXXX</td>
<td>95</td>
<td>15.5</td>
<td>13.3±0.8</td>
<td>11</td>
<td>1.5</td>
<td>0.8</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ZMVXXX150S03XXXX</td>
<td>120</td>
<td>16.5</td>
<td>15.2±0.5</td>
<td>13.5</td>
<td>1.2</td>
<td>0.5</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ZMVXXX150L14XXXX</td>
<td>220</td>
<td>13.3</td>
<td>11.4±0.5</td>
<td>9.8</td>
<td>1.1</td>
<td>0.5</td>
<td>38</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ZMVXXX150L16XXXX</td>
<td>200</td>
<td>16.5</td>
<td>14.8±0.5</td>
<td>12.9</td>
<td>1.4</td>
<td>0.5</td>
<td>38</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ZMVXXX150L20XXXX</td>
<td>168</td>
<td>15.5</td>
<td>12.2±0.8</td>
<td>9.9</td>
<td>1.5</td>
<td>0.8</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Dimensions are shown: mm**

**Specifications and dimensions subject to change**

**OF:** Operating force  
**FP:** Free position  
**OP:** Operating position  
**EP:** End position  
**OT:** Overtravel  
**MD:** Differential motion  
**RF:** Release force
ZMW Series
Mini Size Snap-acting Switches

Features/Benefits
• Long & adequate stroke setting for high reliability & insulation
• Silent actuation for reduced audible click
• Compact size – ideal when space is limited
• Twin contacts design – sliding contacts prevent pollution of foreign materials
• IP67 for standalone switch except the metal terminal part; Full IP67 protection when potted with wire version
• RoHS compatible & compliant

Specifications
CONTACT RATING: 100mA 30VDC @ 300,000 cycles min.
50mA 16VDC @ 500,000 cycles min.
1mA 5VDC @ 50,000 cycles min.
MECHANICAL LIFE: 500,000 cycles min.
INSULATION RESISTANCE: 100 M ohm min.
DIELECTRIC STRENGTH: Min. 600VAC (50-60Hz)/minute between Live Parts
OPERATING TEMPERATURE: –40ºC to 85ºC
OPERATING FORCE: 150 gf max.

Materials
CASE: Nylon
COVER: PBT
ACTUATOR BUTTON: POM
MOVABLE CONTACTS: Silver alloy or gold plated
STATIONARY CONTACTS: Silver alloy or gold plated
TERMINALS: Brass, silver plated.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center. Sealing cap could possibly be damaged in case of contacts with oils or greases. Please try to avoid direct contact. If more support is needed, consult Customer Service Centre.

Typical Applications
• Industrial
• Home appliances
• Automotive: door latch, seat position detection, EV charging

Build-A-Switch
Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

Series
ZMW

Electrical Rating
00A 0.1A 30VDC; 0.05A 16VDC; 0.001A 5VDC (Contact Plated Silver)
G00 0.1A 30VDC; 0.05A 16VDC; 0.001A 5VDC (Contact Plated Gold)

Actuator Type
P00 Pin plunger
T10 Lever 14 mm

Pillar Type
AA DC

Circuitry
C SPDT (Only valid for Termination P, S, Q, L, R, J)
W SPST N.C. (Only valid for Termination J, K, W)
Y SPST N.O. (Only valid for Termination J, K, W)

Terminations
P PC Thru-hole
S Solder
Q Quick Connect
L Left-footed, PC Thru-hole
R Right-footed, PC Thru-hole
J Wire leads out bottom
K Wire leads out right side
W Wire leads out left side

Dimensions are shown: mm
Specifications and dimensions subject to change
www.ckswitches.com
ZMW Series
Mini Size Snap-acting Switches

ZMW MINI SIZE SNAP-ACTING SWITCHES

MOUNTING HOLES

ACTUATOR TYPE

P00 PIN PLUNGER

T10 LEVER
14 MM

Dimensions are shown: mm
Specifications and dimensions subject to change

www.ckswitches.com
## SWITCH CHARACTERISTICS

<table>
<thead>
<tr>
<th>SWITCH TYPE</th>
<th>PART SUFFIX</th>
<th>OF Max (gf)</th>
<th>FP Max (mm)</th>
<th>NC-OP (mm)</th>
<th>NO-OP (mm)</th>
<th>NC-OT Min. (mm)</th>
<th>NO-OT Min. (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZMWXXQP00X0X</td>
<td>S</td>
<td>13.4</td>
<td>12.9±0.3</td>
<td>12.6±0.3</td>
<td>2.5</td>
<td>2.2</td>
<td></td>
</tr>
</tbody>
</table>

Datum from Bottom

<table>
<thead>
<tr>
<th>Datum from Centre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Datum from Centre</td>
</tr>
</tbody>
</table>

| ZMWXXBT10X0X | S | 15.7 | 14.0±0.6 | 13.45±0.6 | 3.0 | 2.45 |

Datum from Bottom

<table>
<thead>
<tr>
<th>Datum from Centre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Datum from Centre</td>
</tr>
</tbody>
</table>

### PILLAR TYPE

**DC**

![Pillar Type DC](image)

**AA**

![Pillar Type AA](image)

Dimensions are shown: mm
Specifications and dimensions subject to change

27 Aug 20
ZPA Series
Surface Mount Snap-acting Switches

Features/Benefits
• Reliable snap-acting mechanism
• Long electrical and mechanical life
• Mini packaging size
• Surface mount terminations
• RoHS compatible & compliant

Typical Applications
• PCB detection switch
• Communication devices
• Testing equipment
• Security/Alarm systems
• Consumer electronics

Specifications
CONTACT RATING: 0.1A @ 125 V AC 30 V DC
ELECTRICAL LIFE: 1,000,000 cycles @ 0.1A
MECHANICAL LIFE: 1,000,000 cycles
INSULATION RESISTANCE: 100 M ohm min.
DIELECTRIC STRENGTH: 500 Vrms
OPERATING TEMPERATURE: −40ºC to +85ºC
OPERATING FORCE: 80 or 150 grams
PACKAGING: Switches are supplied in rigid dispensing tubes in full-tube quantities only, this may affect order quantities. Tape and reel packing also available.

Materials
CASE/COVER: LCP
ACTUATOR: LCP
MOVABLE CONTACT: Silver alloy
STATIONARY CONTACTS: Silver alloy
TERMINALS: Brass, silver plated.

NOTE: Specifications and materials listed above are for switches with standard options.

Build-A-Switch
To order, simply select desired option from each category and place in the appropriate box. For additional options not shown in catalog, consult Customer Service Center.

Materials
CASE/COVER: LCP
ACTUATOR: LCP
MOVABLE CONTACT: Silver alloy
STATIONARY CONTACTS: Silver alloy
TERMINALS: Brass, silver plated.

NOTE: Specifications and materials listed above are for switches with standard options.

Build-A-Switch
To order, simply select desired option from each category and place in the appropriate box. For additional options not shown in catalog, consult Customer Service Center.
ZPA Series
Surface Mount Snap-acting Switches

ZPA  SURFACE MOUNT SNAP-ACTING SWITCHES – SP MOMENTARY

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

ELECTRICAL RATING

<table>
<thead>
<tr>
<th>Option Code</th>
<th>Silver Contacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>00A</td>
<td>0.1A 30 V DC</td>
</tr>
<tr>
<td></td>
<td>0.1A 125 V AC</td>
</tr>
</tbody>
</table>

OPERATING FORCE

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>BASIC SWITCH OPERATING FORCE (OZ./GRAMS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>080</td>
<td>2.82 80</td>
</tr>
<tr>
<td>150</td>
<td>5.29 150</td>
</tr>
</tbody>
</table>
# ZPA Series
Surface Mount Snap-acting Switches

## ACTUATOR

### P00 PIN PLUNGER

![P00 Diagram](image)

### L04 LEVER 3.9MM

![L04 Diagram](image)

### L11 LEVER 7.2MM

![L11 Diagram](image)

## SWITCH CHARACTERISTICS

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>ACTUATOR</th>
<th>OPE. FORCE MAX.</th>
<th>REL. FORCE MIN.</th>
<th>A' FP MAX</th>
<th>B' OP MAX</th>
<th>C' PT MAX</th>
<th>D' OT MIN</th>
<th>MOVEMENT DIFFERENTIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td>P00</td>
<td>Max. 80 gf</td>
<td>Min. 21 gf</td>
<td>Max. 7.35mm</td>
<td>7.0 x 0.2 mm</td>
<td>Max. 0.62 mm</td>
<td>Min. 0.2 mm</td>
<td>Max. 0.12 mm</td>
</tr>
<tr>
<td></td>
<td>L04</td>
<td>Max. 30 gf</td>
<td>Min. 5 gf</td>
<td>Max. 10.1mm</td>
<td>7.9 x 0.8 mm</td>
<td>Max. 3.0 mm</td>
<td>Min. 0.6 mm</td>
<td>Max. 0.8 mm</td>
</tr>
<tr>
<td></td>
<td>L11</td>
<td>Max. 25 gf</td>
<td>Min. 4 gf</td>
<td>Max. 11.7mm</td>
<td>8.68 ± 1.0 mm</td>
<td>Max. 4.4 mm</td>
<td>Min. 0.6 mm</td>
<td>Max. 0.8 mm</td>
</tr>
<tr>
<td>150</td>
<td>P00</td>
<td>Max. 150 gf</td>
<td>Min. 35 gf</td>
<td>Max. 7.36mm</td>
<td>7.0 x 0.2 mm</td>
<td>Max. 0.62 mm</td>
<td>Min. 0.2 mm</td>
<td>Max. 0.12 mm</td>
</tr>
<tr>
<td></td>
<td>L04</td>
<td>Max. 50 gf</td>
<td>Min. 8 gf</td>
<td>Max. 10.1mm</td>
<td>7.9 ± 0.8 mm</td>
<td>Max. 3.0 mm</td>
<td>Min. 0.6 mm</td>
<td>Max. 0.8 mm</td>
</tr>
<tr>
<td></td>
<td>L11</td>
<td>Max. 39 gf</td>
<td>Min. 6 gf</td>
<td>Max. 11.7mm</td>
<td>8.68 ± 1.0 mm</td>
<td>Max. 4.4 mm</td>
<td>Min. 0.6 mm</td>
<td>Max. 0.8 mm</td>
</tr>
</tbody>
</table>
ZPA Series
Surface Mount Snap-acting Switches

TAPE AND REEL

Package: 400pcs/ reel

TUBE

Package: 25pcs/ tube

Specifications and dimensions subject to change
MDS Series
Mini Size Snap-acting Switches

Features/Benefits
• Snap-acting tactile feel
• Mini package size
• Available in vertical or right angle PCB mount
• RoHS compliant and compatible

Typical Applications
• Detect the presence of a mechanical device
• Medical devices
• Consumer electronic devices
• ATCA applications

Specifications
CONTACT RATING: 300mA @ 30 VDC.
MECHANICAL & ELECTRICAL LIFE: 30,000 operations.
CONTACT RESISTANCE: 100 mΩ max. initial
OPERATING TEMPERATURE: -25ºC to +70ºC.
SOLDERABILITY: According to lead free solder profiles.
PACKAGING: Available in bulk or tape and reel.
OPERATING FORCE: 50g Max.
RELEASE FORCE: 3g Min.

Materials
BASE: PA9T
COVER & ACTUATOR: PA9T
MOVABLE CONTACT: Copper alloy, silver plated.
STATIONARY CONTACTS: Copper alloy, silver plated.
TERMINALS: Copper alloy, silver plated.

NOTE: MDS series is RoHS compliant, and compatible. See technical data section of this catalog for RoHS compliant and compatible definitions and specifications.

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. For additional options not shown in catalog, consult Customer Service Center.

Build-A-Switch Diagram:
- Series: MDS SPDT
- Operating Force: 65 grams
- Electrical Rating: 00A 300mA @ 30 VDC
- Actuator: L02 Standard lever, L03 Higher OP lever
- Termination Style:
  - PS: PC Thru-hole, Short
  - PL: PC Thru-hole, Long
  - RS: PC Thru-hole, Short, Right bend
  - RL: PC Thru-hole, Long, Right bend
  - LS: PC Thru-hole, Short, Left bend
  - LL: PC Thru-hole, Long, Left bend
  - SL: SMT, Left
  - SR: SMT, Right
  - SV: SMT, Vertical
  - CL: SMT, Left bracket with pins
  - CR: SMT, Right bracket with pins
  - BL: SMT, Left bracket no pins
  - BR: SMT, Right bracket no pins
  - WC: Wire lead, 6 inches
MDS Series
Mini Size Snap-acting Switches

SERIES

OPERATING CHARACTERISTICS

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>OPERATING FORCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEVER L02</td>
<td>LEVER L03</td>
</tr>
<tr>
<td>OPERATING POSITION</td>
<td>DIM 'A'</td>
</tr>
<tr>
<td>FREE POSITION</td>
<td>DIM 'B'</td>
</tr>
<tr>
<td>PRETRAVEL</td>
<td>DIM 'C'</td>
</tr>
<tr>
<td>OVER TRAVEL</td>
<td>DIM 'D'</td>
</tr>
<tr>
<td>CONTACT RATING</td>
<td>0.3A @ 30 VDC</td>
</tr>
<tr>
<td>OPERATING FORCE</td>
<td>50 GRAMS F. MAX</td>
</tr>
</tbody>
</table>

ELECTRICAL RATING

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>ELECTRICAL RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>00A</td>
<td>300mA @ 30 V DC</td>
</tr>
</tbody>
</table>

ACTUATOR

L02  STANDARD LEVER
L03  HIGHER OP LEVER

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change
MDS Series
Mini Size Snap-acting Switches

TERMINATIONS

PCB Mounting Pattern

**PS**  PC THRU-HOLE, SHORT STRAIGHT

**PL**  PC THRU-HOLE, LONG STRAIGHT

**RS**  PC THRU-HOLE, SHORT RIGHT BEND

**RL**  PC THRU-HOLE, LONG RIGHT BEND

**LS**  PC THRU-HOLE, SHORT LEFT BEND

**LL**  PC THRU-HOLE, LONG LEFT BEND
MDS Series
Mini Size Snap-acting Switches

TERMINATIONS

SL SMT, LEFT MOUNT

SR SMT, RIGHT MOUNT

SV SMT, VERTICAL

CL SMT, LEFT BRACKET WITH PINS

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

www.ckswitches.com
MDS Series
Mini Size Snap-acting Switches

TAPE AND REEL

SL  SMT, LEFT MOUNT
SR  SMT, RIGHT MOUNT

MDS6500AL02SL shown

CL  SMT, LEFT MOUNT
BL  SMT, LEFT MOUNT

MDS6500AL02CL shown

CR  SMT, RIGHT MOUNT
BR  SMT, RIGHT MOUNT

SV  SMT, VERTICAL MOUNT

PULLING-OUT DIRECTION OF THE TAPE

Supplied in carrier tape meeting the EIA-481-2 standard for 24mm tape.

Packaging quantity:
- SL and SR: 1,600 pieces per reel
- CL, CR, BL and BR: 1,000 pieces per reel
- SV: 400 pieces per reel
- WC: consult factory

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

www.ckswitches.com

27 Sep 19  J-56
SSW Series
Surface Mount Mini Size 2 Pole Snap-acting Switches

Features/Benefits
- Surface mount terminations
- IP67
- Redundant contacts
- Change over time <15ms
- Top and side actuation
- Low acoustics

Typical Applications
- Automotive, ASIL related applications
  (electronic parking brake, by-wire functions)

Specifications
FUNCTION: momentary action
CONTACT ARRANGEMENT: 2 change over contacts = DPDT
SWITCHING MODE: non shorting
TERMINAL: SMD terminals

Environmental
OPERATING TEMPERATURE: -40°C to 85°C
STORAGE TEMPERATURE: -40°C to 85°C
SEALING: IP67

Process
SOLDERING: Depending on the application, this component is suited to the following methods:
- Infrared Reflow Soldering in accordance with C&K product specification
TERMINALS: Silver plated

Packaging
Reel containing 370 pieces
Reel dimensions according to EIA RS481. External diameter 380 mm

NOTE: This datasheet is describing main product characteristics. It cannot be considered as a contractual document for design in and subject to change without prior notice. We recommend contacting your closest sales representative to obtain contractual specifications. Product compliance to final application requirement remains customer responsibility.

How To Order
Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.
For any part number different from those listed above, please consult your local representative.

Specifications
<table>
<thead>
<tr>
<th>Force (N)</th>
<th>Operating life* (cycles)</th>
<th>Travel (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0 +/- 1</td>
<td>Up to 300 000</td>
<td>1.2</td>
</tr>
</tbody>
</table>

* Under Max. electrical load

SHEAR FORCE RESISTANCE: 40N
SIDE ACTUATION: cam angle at 40°

MAXIMUM POWER: 0.36 W
MAXIMUM VOLTAGE: 18 VDC
MINIMUM VOLTAGE: 5 V
MAXIMUM CURRENT: 20 mA
MINIMUM CURRENT: 1 mA
DIELECTRIC STRENGTH (50 Hz, 1min.): > 250 Vrms
CHANGEOVER TIME: < 15 ms
INSULATION RESISTANCE (100 V): > 100 MΩ
CONTACT RESISTANCE initial: 100 mΩ

Dimensions are shown: mm
Specifications and dimensions subject to change

www.ckswitches.com
28 Jun 21
SSW Series
Surface Mount Mini Size 2 Pole Snap-acting Switches

### TYPE CONFIGURATION

<table>
<thead>
<tr>
<th>Type</th>
<th>Actuator height (mm)</th>
<th>Terminal 1-3 / 4-6 ON Terminal 1-2 / 4-5 OFF (mm)</th>
<th>Terminal 1-3 / 4-6 OFF Terminal 1-2 / 4-5 ON (mm)</th>
<th>Minimum height (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12.2 +/- 0.4 /- 0.2</td>
<td>11.7 +/- 0.35</td>
<td>11.0 +/- 0.3</td>
<td>9.65</td>
</tr>
</tbody>
</table>

### ELECTRICAL ARRANGEMENT

1. 2
2. 3
3. 5
4. 4
5. 6

### DIMENSIONS

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Actuator height (mm)</th>
<th>Terminal 1-3 / 4-6 ON Terminal 1-2 / 4-5 OFF (mm)</th>
<th>Terminal 1-3 / 4-6 OFF Terminal 1-2 / 4-5 ON (mm)</th>
<th>Minimum height (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N°1</td>
<td>8.4</td>
<td>2.34</td>
<td>15.4</td>
<td>8.3</td>
</tr>
<tr>
<td>N°2</td>
<td>5.66</td>
<td>5.1</td>
<td>7.84</td>
<td>1.36</td>
</tr>
<tr>
<td>N°3</td>
<td>5.24</td>
<td>5.66</td>
<td>7.84</td>
<td>1.36</td>
</tr>
<tr>
<td>N°4</td>
<td>0.56</td>
<td>0.9</td>
<td>6x 0.6</td>
<td>1.46</td>
</tr>
<tr>
<td>N°5</td>
<td>7.55</td>
<td>8.85</td>
<td>5.66</td>
<td>8.3</td>
</tr>
<tr>
<td>N°6</td>
<td>6x 0.6</td>
<td>7.55</td>
<td>5.24</td>
<td>8.3</td>
</tr>
</tbody>
</table>

Marking area: see note 8

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change
SSW Series
Surface Mount Mini Size 2 Pole Snap-acting Switches

RECOMMENDED PCB LAYOUT

Dimensions are shown: mm
Specifications and dimensions subject to change

TAPE & REEL

PACKAGING OF SWITCHES

NOTES:
5 Quantity per reel 370 pcs.
6 Trailer length 160mm (10 cavities).
7 Loader length 400mm (25 cavities).

DETAIL Q
SCALE (1/1)

Dimensions are shown: mm
Specifications and dimensions subject to change
LC Series
Small Size Precision Snap-acting Switches

Features/Benefits
- Compact design
- Long life and high electrical capacity
- Quick connect, wire lead or PC mounting
- Wide variety of actuator styles

Typical Applications
- Motorized equipment
- Sump pump
- Thermostatic controls

Specifications
CONTACT RATING: From low level* to 10.1 AMPS @ 250 V AC.
ELECTRICAL LIFE: 100,000 cycles
INSULATION RESISTANCE: 1,000 MΩ min. @ sea level.
DIELECTRIC STRENGTH: 1,000 Vrms min. @ –17ºF to 185ºF (–25ºC to 85ºC).
OPERATING FORCE: From 142 to 170 grams at actuator button.
Forces are less at free end of lever actuators; (see OPERATING FORCE and ACTUATOR option sections).
MOUNTING: 2-56 screws, torque 2.3 in/lbs max.

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

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

Materials
SWITCH HOUSING: Thermoplastic polyester or high temperature thermoplastic (PTS) (UL 94V-0).
ACTUATOR BUTTON: Thermoplastic polyester (UL 94V-0).
SPRING: Copper alloy.
PIVOT: Copper alloy.
MOVABLE CONTACTS: Fine silver for ratings greater than 1 AMP @ 125 V AC. Fine silver with 24K gold plate for 1 AMP @ 125 V AC or less.
STATIONARY CONTACTS: Fine silver welded on copper alloy for ratings greater than 1 AMP @ 125 V AC. Gold alloy welded on copper alloy for ratings less than 1 AMP @ 125 V AC.
TERMINALS: Copper alloy.
TERMINAL SEAL: Epoxy.

Build-A-Switch
To order, simply select desired option from each category and place in the appropriate box. For additional options not shown in catalog, consult Customer Service Center.

<table>
<thead>
<tr>
<th>Series</th>
<th>LC SP, Mom.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Force</td>
<td>GG 5 oz./142 grams</td>
</tr>
<tr>
<td>Electrical Rating</td>
<td>X1 UL 61058-1 (see chart)</td>
</tr>
<tr>
<td></td>
<td>F5 UL 1054 (see chart)</td>
</tr>
<tr>
<td>Actuator</td>
<td>P00 Pin plunger</td>
</tr>
<tr>
<td></td>
<td>T10 .29&quot; lever, high force</td>
</tr>
<tr>
<td>Termination</td>
<td>E Solder</td>
</tr>
<tr>
<td>Electrical Life</td>
<td>NONE 6,000 operations</td>
</tr>
<tr>
<td>Seal</td>
<td>NONE (STD.) No seal</td>
</tr>
</tbody>
</table>

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

www.ckswitches.com
OPERATING FORCE

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>BASIC SWITCH OPERATING FORCES (OZ./GRAMS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GG</td>
<td>5</td>
</tr>
<tr>
<td>GD</td>
<td>3.3</td>
</tr>
<tr>
<td>GH</td>
<td>6</td>
</tr>
</tbody>
</table>

NOTE: Operating force varies with actuator option, see ACTUATOR option section.

ELECTRICAL RATING

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>ELECTRICAL RATING</th>
<th>MOVABLE CONTACT</th>
<th>STATIONARY CONTACT</th>
<th>RoHS COMPLIANT*</th>
<th>RoHS COMPATIBLE*</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1</td>
<td>1A GP, 250 Vac, 50/60 Hz, 25E3, T85</td>
<td>Fine silver with 24K gold plate</td>
<td>Fine silver with 24K gold plate on copper base alloy</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>V6</td>
<td>5/2A RM, 250 Vac, 50/60 Hz, 1E4, T85</td>
<td>Fine silver</td>
<td>Fine silver welded on copper base alloy</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>V7</td>
<td>10/2A RM, 250 Vac, 50/60 Hz, 1E4, T85</td>
<td>Fine silver</td>
<td>Fine silver welded on copper base alloy</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>ELECTRICAL RATING</th>
<th>MOVABLE CONTACT</th>
<th>STATIONARY CONTACT</th>
<th>RoHS COMPLIANT*</th>
<th>RoHS COMPATIBLE*</th>
</tr>
</thead>
<tbody>
<tr>
<td>F5</td>
<td>1A, 125 V AC, 30 VDC 100,000 cycles (&quot;U&quot; option)</td>
<td>Fine silver with 24K gold plate</td>
<td>Fine silver with 24K gold plate on copper base alloy</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>L9</td>
<td>5A, 1/3 HP @ 125 and 250 V AC 100,000 cycles (&quot;U&quot; option)</td>
<td>Fine silver</td>
<td>Fine silver welded on copper base alloy</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>M1</td>
<td>10/1A, 1/3 HP @ 125 and 250 V AC 100,000 cycles (&quot;U&quot; option)</td>
<td>Fine silver</td>
<td>Fine silver welded on copper base alloy</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

* Note: See Technical Data section of this catalog for RoHS compliant and compatible definition and specifications. 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.
### LC Series
Small Size Precision Snap-acting Switches

**ACTUATOR**

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>FIG.</th>
<th>DIM. A</th>
<th>DIM. B</th>
<th>DIM. C</th>
</tr>
</thead>
<tbody>
<tr>
<td>P00</td>
<td>1</td>
<td>0.297</td>
<td>(7,6)</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>0.28</td>
<td>(7,7)</td>
<td>–</td>
</tr>
<tr>
<td>A10</td>
<td>2</td>
<td>0.61</td>
<td>(15,5)</td>
<td>–</td>
</tr>
<tr>
<td>T10</td>
<td>3</td>
<td>0.29</td>
<td>(7,4)</td>
<td>–</td>
</tr>
<tr>
<td>T13</td>
<td>5</td>
<td>0.220</td>
<td>(5,3)</td>
<td>–</td>
</tr>
<tr>
<td>T20</td>
<td>4</td>
<td>0.39</td>
<td>(9,9)</td>
<td>–</td>
</tr>
<tr>
<td>T23</td>
<td>6</td>
<td>0.32</td>
<td>(8,1)</td>
<td>–</td>
</tr>
<tr>
<td>T25</td>
<td>7</td>
<td>0.67</td>
<td>(17,0)</td>
<td>–</td>
</tr>
<tr>
<td>A15</td>
<td>8</td>
<td>0.51</td>
<td>(13,0)</td>
<td>–</td>
</tr>
<tr>
<td>A20</td>
<td>9</td>
<td>0.38</td>
<td>(9,7)</td>
<td>–</td>
</tr>
<tr>
<td>T15</td>
<td>10</td>
<td>0.57</td>
<td>(14,51)</td>
<td>–</td>
</tr>
</tbody>
</table>

**SWITCH CHARACTERISTICS**

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>GG</th>
<th>GD</th>
<th>GH</th>
<th>GG</th>
<th>GD</th>
<th>GH</th>
</tr>
</thead>
<tbody>
<tr>
<td>A10</td>
<td>1.69</td>
<td>1</td>
<td>2.0</td>
<td>0.21</td>
<td>0.11</td>
<td>0.42</td>
</tr>
<tr>
<td>P00</td>
<td>1.7</td>
<td>1</td>
<td>2.1</td>
<td>0.21</td>
<td>0.10</td>
<td>0.39</td>
</tr>
<tr>
<td>T10</td>
<td>1.8</td>
<td>1.2</td>
<td>2.2</td>
<td>0.21</td>
<td>0.03</td>
<td>0.42</td>
</tr>
<tr>
<td>T13</td>
<td>1.9</td>
<td>1.2</td>
<td>2.3</td>
<td>0.21</td>
<td>0.03</td>
<td>0.42</td>
</tr>
<tr>
<td>T20</td>
<td>1.0</td>
<td>3.2</td>
<td>3.3</td>
<td>0.21</td>
<td>0.03</td>
<td>0.42</td>
</tr>
<tr>
<td>T23</td>
<td>1.0</td>
<td>3.2</td>
<td>3.3</td>
<td>0.21</td>
<td>0.03</td>
<td>0.42</td>
</tr>
<tr>
<td>T25</td>
<td>0.7</td>
<td>0.35</td>
<td>0.75</td>
<td>0.21</td>
<td>0.03</td>
<td>0.42</td>
</tr>
</tbody>
</table>

**NOTE:** For basic switch operating forces, see page J-32.
LC Series
Small Size Precision Snap-acting Switches

TERMINATIONS

E SOLDER

H .110" QUICK CONNECT

J WIRE LEAD

L LEFT FORMED PC THRU-HOLE

R RIGHT FORMED PC TRU-HOLE

S PC THRU-HOLE

CIRCUITRY

C SPDT (Single Pole, Double Throw)

W SPST N.C. (Single Pole, Single Throw, Normally Closed)

Y SPST N.O. (Single Pole, Single Throw, Normally Open)

ELECTRICAL LIFE

NONE 6,000 OPERATIONS

U EXTENDED 100,000 OPERATIONS

SEAL

NONE NO SEAL

E EPOXY SEAL

Dimensions are shown: mm
Specifications and dimensions subject to change
www.ckswitches.com
## LCA Series
### Small Size Snap-acting Switches

#### Features/Benefits
- Compact design
- Long life and high electrical capacity
- Quick connect, solder terminals, PC terminals
- Wide variety of actuator styles
- RoHS compatible

#### Typical Applications
- Motorized equipment
- Sump pump
- Thermostatic controls
- Automotive: door latch, seat position detection, EV charging

### Specifications

**CONTACT RATING:** From low level to 10.1 AMPS @ 125/250 V AC  
**ELECTRICAL LIFE:** 0.1A @ 125/250VAC up to 1M cycles  
6A & 10A @ 125/250VAC 10k cycles  
5A @ 125/250VAC 100k cycles  
**INSULATION RESISTANCE:** 100 M ohm min.  
**DIELECTRIC STRENGTH:** 1,500 Vrms min. @ sea level.  
**OPERATING TEMPERATURE:** –40ºC to +125ºC  
**OPERATING FORCE:** 150 grams at actuator button MAX.  
Forces are less at free end of lever actuators; (see ACTUATOR’S option sections).  
**MOUNTING:** 2-56 screws, torque 2.3 in/lbs max.  

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

### Materials

- **SWITCH HOUSING:** Thermoplastic polyester  
- **ACTUATOR BUTTON:** Thermoplastic polyester.  
- **SPRING:** Copper alloy.  
- **PIVOT:** Copper alloy.  
- **MOVABLE CONTACTS:** Silver alloy  
- **STATIONARY CONTACTS:** Silver alloy  
- **TERMINALS:** Copper alloy.  
- **ACTUATOR LEVER:** Stainless steel.

### Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. For additional options not shown in catalog, consult Customer Service Center.

<table>
<thead>
<tr>
<th>Option Code</th>
<th>UL 1054</th>
<th>UL 61058-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>0.1 A 125/250 V AC 1E4</td>
<td>0.1 A 125/250 V AC 1E4</td>
</tr>
<tr>
<td>06</td>
<td>6 A 125/250 V AC 1E4</td>
<td>6 A 125/250 V AC 1E4</td>
</tr>
<tr>
<td>10</td>
<td>10.1 A 125/250 V AC 1E4</td>
<td>10.1 A 125/250 V AC 1E4</td>
</tr>
<tr>
<td>S5</td>
<td>NA</td>
<td>5 A 125/250 V AC 1E5</td>
</tr>
</tbody>
</table>

**Actuator**  
- **P00** Pin plunger  
- **T05** 4.8 mm short lever  
- **T06** 6.8 mm lever  
- **T09** 8.8 mm lever  
- **T12** 12.9 mm lever  
- **T16** 15.2 mm lever  
- **T18** 18.1 mm lever  
- **T21** 20.1 mm lever  
- **T23** 23.4 mm lever  
- **T43** 43.5 mm lever  
- **S06** 6.0 mm simulated lever  
- **S09** 9.2 mm simulated lever  
- **A05** 5.0 mm lever roller

**Terminations**  
- **S** Solder  
- **Q** .110 Quick Connect  
- **P** PC Thru Hole  
- **L** Left Form PC  
- **R** Right Form PC

**Circuitry**  
- **C** SPDT  
- **W** SPST N.C.  
- **Y** SPST N.O.

---

Dimensions are shown: mm  
Specifications and dimensions subject to change  

www.ckswitches.com
LCA Series
Small Size Snap-acting Switches

SERIES

LCA

ELECTRICAL RATING

<table>
<thead>
<tr>
<th>RoHS COMPLIANT *</th>
<th>RoHS COMPATIBLE *</th>
<th>OPTION CODE</th>
<th>ELECTRICAL RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>YES</td>
<td>01</td>
<td>0.1A, 125/250 VAC</td>
</tr>
<tr>
<td>YES</td>
<td>YES</td>
<td>06</td>
<td>6A, 125/250 VAC</td>
</tr>
<tr>
<td>YES</td>
<td>YES</td>
<td>10</td>
<td>10.1A, 125/250 VAC</td>
</tr>
<tr>
<td>YES</td>
<td>YES</td>
<td>S5</td>
<td>5A, 125/250 VAC</td>
</tr>
</tbody>
</table>

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

OPERATING FORCE

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>OPERATING FORCES (grams)</th>
</tr>
</thead>
<tbody>
<tr>
<td>150</td>
<td>150 grams max.</td>
</tr>
</tbody>
</table>
### LCA Series
Small Size Snap-acting Switches

**ACTUATOR**

**A05** LEVER ROLLER  
**SXX** SIMULATED ROLLER

---

### Specifications and Dimensions

Dimensions shown: mm  
Specifications and dimensions subject to change

---

#### ACTUATOR

**A05** LEVER ROLLER  
**SXX** SIMULATED ROLLER

---

#### Dimensions

<table>
<thead>
<tr>
<th>ACTUATOR OPTION CODE</th>
<th>A (mm)</th>
<th>B REF (mm)</th>
<th>C (mm)</th>
<th>D (mm)</th>
<th>E (mm)</th>
<th>DIFF. MOTION (mm)</th>
<th>OPERATING POSITION</th>
<th>FREE POSITION MAX</th>
<th>OPER. FORCE MAX</th>
<th>RELEASED FORCE MAX</th>
<th>OVER TRAVEL MIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>P00</td>
<td>N/A</td>
<td>N/A</td>
<td>1.1</td>
<td>8.5±0.3</td>
<td>9.3</td>
<td>0.20</td>
<td>150</td>
<td>25</td>
<td>0.40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T05</td>
<td>16.70</td>
<td>4.80</td>
<td>3.60</td>
<td>8.95±0.8</td>
<td>11.75</td>
<td>0.80</td>
<td>50</td>
<td>6</td>
<td>0.60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T06</td>
<td>18.70</td>
<td>6.80</td>
<td>4.03</td>
<td>8.9±0.9</td>
<td>12.09</td>
<td>0.90</td>
<td>45</td>
<td>5</td>
<td>0.67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T09</td>
<td>20.60</td>
<td>8.80</td>
<td>5.64</td>
<td>9.15±1.35</td>
<td>13.45</td>
<td>1.83</td>
<td>33</td>
<td>2</td>
<td>0.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T12</td>
<td>24.80</td>
<td>12.90</td>
<td>3.35</td>
<td>8.95±1.9</td>
<td>13.1</td>
<td>1.17</td>
<td>34</td>
<td>2</td>
<td>0.89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T16</td>
<td>27.10</td>
<td>15.20</td>
<td>7.20</td>
<td>9.15±1.7</td>
<td>15.15</td>
<td>1.30</td>
<td>40</td>
<td>1</td>
<td>0.70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T18</td>
<td>30.00</td>
<td>18.28</td>
<td>7.70</td>
<td>8.95±1.9</td>
<td>14.65</td>
<td>1.50</td>
<td>32</td>
<td>1</td>
<td>1.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T21</td>
<td>32.00</td>
<td>20.10</td>
<td>8.00</td>
<td>8.15±1.85</td>
<td>15.55</td>
<td>1.60</td>
<td>35</td>
<td>1</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T23</td>
<td>35.20</td>
<td>23.40</td>
<td>8.60</td>
<td>8.95±2.0</td>
<td>15.55</td>
<td>1.80</td>
<td>25</td>
<td>1</td>
<td>1.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T36</td>
<td>47.60</td>
<td>35.90</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T43</td>
<td>55.20</td>
<td>43.50</td>
<td>10.45</td>
<td>8.95±3.0</td>
<td>19.25</td>
<td>2.90</td>
<td>15</td>
<td>1</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S06</td>
<td>17.90</td>
<td>6.00</td>
<td>3.86</td>
<td>10.85±0.9</td>
<td>17.81</td>
<td>0.86</td>
<td>47</td>
<td>5</td>
<td>0.64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>S09</td>
<td>21.10</td>
<td>9.00</td>
<td>5.70</td>
<td>16.15±1.5</td>
<td>20.35</td>
<td>1.00</td>
<td>42</td>
<td>2</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A05</td>
<td>16.00</td>
<td>5.00</td>
<td>3.80</td>
<td>14.65±0.8</td>
<td>17.65</td>
<td>0.80</td>
<td>50</td>
<td>6</td>
<td>0.60</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

---

**Dimensions Projection**

Dimensions shown: mm  
Specifications and dimensions subject to change

---

12 Jul 21

www.ckswitches.com
LCA Series
Small Size Snap-acting Switches

TERMINATIONS

S SOLDER

Q QUICK CONNECT

P PC THRU HOLE

L LEFT FORM PC

R RIGHT FORM PC

CIRCUITRY

C SPDT (Single Pole, Double Throw)
W SPST N.C. (Single Pole, Single Throw, Normally Closed)
Y SPST N.O. (Single Pole, Single Throw, Normally Open)

Dimensions are shown: mm
Specifications and dimensions subject to change
LCS Series
Small Size Sealed Snap-acting Switches

Features/Benefits
- Compact design
- Long life and high electrical capacity
- Quick connect, solder terminals, PC terminals, wire leads
- Wide variety of actuator styles
- RoHS compatible, RoHS compliant
- IP67 for standalone switch except the metal terminal part; Full IP67 protection when potted with wire version

Specifications
- CONTACT RATING: from low level to 5 Amp
- ELECTRICAL LIFE: 10,000 cycles for 5A; 1M cycles for 0.1A
- INSULATION RESISTANCE: 100 M ohm min.
- DIELECTRIC STRENGTH: 1,000 VAC
- OPERATING TEMPERATURE:
  - -40°C to +120°C (without wire)
  - -40°C to +85°C (with UL1007 wire)
  - -40°C to +105°C (with UL1015 wire)
  - -40°C to +105°C (with UL1430 wire)
  - -40°C to +80°C (with UL1061 wire)
  - -40°C to +120°C (with UL1330 wire)
- OPERATING FORCE: (see ACTUATOR’S option sections).
- MOUNTING: 2-56 screws, torque 2.3 in/lbs max.

Materials
- SWITCH HOUSING: Thermoplastic polyester or high temperature thermoplastic (PTS) (UL 94V-0).
- ACTUATOR BUTTON: Thermoplastic polyester.
- SPRING: Copper alloy.
- PIVOT: Copper alloy.
- MOVABLE CONTACTS: Option “01” Gold plating over silver alloy
  Option “05” Silver alloy
- STATIONARY CONTACTS: Option “01” Gold plating over silver alloy
  Option “05” Silver alloy
- TERMINALS: Copper alloy.
- ACTUATOR LEVEL: Stainless steel.

Build-A-Switch
To order, simply select desired option from each category and place in the appropriate box. For additional options not shown in catalog, consult Customer Service Center.

Specifications and dimensions subject to change
Dimensions are shown: mm
www.ckswitches.com
LCS Series
Small Size Sealed Snap-acting Switches

SERIES

LCS

Dimensions are shown: mm
Specifications and dimensions subject to change

www.ckswitches.com

ELECTRICAL RATING

<table>
<thead>
<tr>
<th>RoHS COMPLIANT *</th>
<th>RoHS COMPATIBLE *</th>
<th>OPTION CODE</th>
<th>ELECTRICAL RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>YES</td>
<td>05</td>
<td>5 AMP, 125/250 V AC</td>
</tr>
<tr>
<td>YES</td>
<td>YES</td>
<td>01</td>
<td>0.1 AMP, 125/250 V AC</td>
</tr>
</tbody>
</table>

OPERATING FORCE

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>OPERATING FORCES (grams)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>203 g. max.</td>
</tr>
</tbody>
</table>

Dimensions are shown: mm
Specifications and dimensions subject to change

31 May 21

J–71
### LCS Series
Small Size Sealed Snap-acting Switches

**ACTUATOR**

<table>
<thead>
<tr>
<th>ACTUATOR OPTION CODE</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>DIFFERENTIAL MOTION (MAX)</th>
<th>OPERATING FORCE (MAX)</th>
<th>RELEASE FORCE (MIN)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P00</td>
<td>N/A</td>
<td>0.6</td>
<td>1.2</td>
<td>8.4 ± 3</td>
<td>9.9</td>
<td>0.2</td>
<td>203</td>
<td>50</td>
</tr>
<tr>
<td>T00</td>
<td>11.9</td>
<td>0.6</td>
<td>3.2</td>
<td>8.8 ± 9</td>
<td>11.1</td>
<td>0.5</td>
<td>98</td>
<td>21</td>
</tr>
<tr>
<td>T05</td>
<td>17.40</td>
<td>0.9</td>
<td>4.3</td>
<td>8.8 ± 1.1</td>
<td>12</td>
<td>0.8</td>
<td>82</td>
<td>16</td>
</tr>
<tr>
<td>T07</td>
<td>19.40</td>
<td>1</td>
<td>4.8</td>
<td>8.8 ± 1.2</td>
<td>12.4</td>
<td>0.7</td>
<td>66</td>
<td>13</td>
</tr>
<tr>
<td>T13</td>
<td>25.5</td>
<td>1.6</td>
<td>6.3</td>
<td>8.8 ± 1.6</td>
<td>13.5</td>
<td>0.9</td>
<td>54</td>
<td>11</td>
</tr>
<tr>
<td>T19</td>
<td>33.3</td>
<td>1.95</td>
<td>8</td>
<td>8.8 ± 2.0</td>
<td>15</td>
<td>1.75</td>
<td>40</td>
<td>5</td>
</tr>
<tr>
<td>T28</td>
<td>40.7</td>
<td>2.1</td>
<td>10.1</td>
<td>8.8 ± 2.6</td>
<td>16.5</td>
<td>2.3</td>
<td>39</td>
<td>8</td>
</tr>
<tr>
<td>T43</td>
<td>55.9</td>
<td>2.9</td>
<td>13.8</td>
<td>8.8 ± 4.5</td>
<td>19.1</td>
<td>3.6</td>
<td>33</td>
<td>7</td>
</tr>
<tr>
<td>T26</td>
<td>18.6</td>
<td>1</td>
<td>4.6</td>
<td>10.7 ± 1.2</td>
<td>14.1</td>
<td>0.65</td>
<td>68</td>
<td>14</td>
</tr>
<tr>
<td>A05</td>
<td>17.20</td>
<td>0.9</td>
<td>4.3</td>
<td>14.5 ± 1.1</td>
<td>17.7</td>
<td>0.6</td>
<td>72</td>
<td>15</td>
</tr>
</tbody>
</table>

Dimensions are shown: mm
Specifications and dimensions subject to change

www.ckswitches.com
**TERMINATIONS**

**S** SOLDER

**P** PC THRU HOLE

**Q** QUICK CONNECT 2.8mm / 0.110"

**Z or W** "A" WIRE ORIENTATION

**Z or W** "B" WIRE ORIENTATION

**Z or W** "C" WIRE ORIENTATION

**CIRCUITRY**

**C** SPDT (Single Pole, Double Throw)

**W** SPST N.C. (Single Pole, Single Throw, Normally Closed)

**Y** SPST N.O. (Single Pole, Single Throw, Normally Open)
TF Series
Mid Size Snap-acting Switches

Features/Benefits
- Broad range of operating forces
- Ratings up to 21 AMPS
- Wide variety of actuator styles
- Quick connect terminations

Typical Applications
- Motor controls
- Thermostatics
- Portable tools

Specifications
CONTACT RATING: From low level* to 21 AMPS @ 277 V AC.
ELECTRICAL LIFE: 300,000 cycles at 10 AMPS @ 250 V AC, consult Customer Service Center for typical life of higher rated switches.
INSULATION RESISTANCE: 1,000 M ohm min.
DIELECTRIC STRENGTH: 1,500 Vrms min. @ sea level.
OPERATING TEMPERATURE: –40ºF to 185ºF (–40ºC to 85ºC).
OPERATING FORCE: From 15 to 400 grams at actuator button available.
MOUNTING: Torque screws 2-5 in/lbs.

* Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max. @ 20 V AC or DC max. Standard electrical life per UL 1054, rated for 6,000 operations.

Materials
SWITCH HOUSING: Thermoplastic (UL 94V-0).
ACTUATOR BUTTON: Thermoplastic (UL 94V-0).
SPRING: Copper alloy.
PIVOT: Brass alloy.
MOVABLE CONTACTS: Gold alloy for ratings 1 AMP or less.
Fine silver for ratings greater than 1 AMP up to 15 AMPS.
Precious metal alloy for ratings greater than 15 AMPS.
STATIONARY CONTACTS: Gold alloy for ratings 1 AMP or less.
Fine silver for ratings greater than 1 AMP.
TERMINALS: Brass alloy for ratings up to 10 AMPS.
Copper alloy for ratings greater than 10 AMPS.

NOTE: Specifications and materials listed above are 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. For additional options not shown in catalog, consult Customer Service Center.

Specifications
CONTACT RATING: From low level* to 21 AMPS @ 277 V AC.
ELECTRICAL LIFE: 300,000 cycles at 10 AMPS @ 250 V AC, consult Customer Service Center for typical life of higher rated switches.
INSULATION RESISTANCE: 1,000 M ohm min.
DIELECTRIC STRENGTH: 1,500 Vrms min. @ sea level.
OPERATING TEMPERATURE: –40ºF to 185ºF (–40ºC to 85ºC).
OPERATING FORCE: From 15 to 400 grams at actuator button available.
MOUNTING: Torque screws 2-5 in/lbs.

* Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max. @ 20 V AC or DC max. Standard electrical life per UL 1054, rated for 6,000 operations.

Materials
SWITCH HOUSING: Thermoplastic (UL 94V-0).
ACTUATOR BUTTON: Thermoplastic (UL 94V-0).
SPRING: Copper alloy.
PIVOT: Brass alloy.
MOVABLE CONTACTS: Gold alloy for ratings 1 AMP or less.
Fine silver for ratings greater than 1 AMP up to 15 AMPS.
Precious metal alloy for ratings greater than 15 AMPS.
STATIONARY CONTACTS: Gold alloy for ratings 1 AMP or less.
Fine silver for ratings greater than 1 AMP.
TERMINALS: Brass alloy for ratings up to 10 AMPS.
Copper alloy for ratings greater than 10 AMPS.

NOTE: Specifications and materials listed above are switches with standard options. For information on specific and custom switches, consult Customer Service Center.
TF Series
Mid Size Snap-acting Switches

SERIES

TF  MID SIZE SNAP-ACTING SWITCHES – SP MOMENTARY

OPERATING FORCE

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>BASIC SWITCH OPERATING FORCE (OZ./GRAMS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC</td>
<td>.53</td>
</tr>
<tr>
<td></td>
<td>15</td>
</tr>
<tr>
<td>CD</td>
<td>.88</td>
</tr>
<tr>
<td></td>
<td>25</td>
</tr>
<tr>
<td>CF</td>
<td>1.76</td>
</tr>
<tr>
<td></td>
<td>50</td>
</tr>
<tr>
<td>CG</td>
<td>2.65</td>
</tr>
<tr>
<td></td>
<td>75</td>
</tr>
<tr>
<td>CJ</td>
<td>5.29</td>
</tr>
<tr>
<td></td>
<td>150</td>
</tr>
<tr>
<td>EC</td>
<td>7.94</td>
</tr>
<tr>
<td></td>
<td>225</td>
</tr>
<tr>
<td>EE</td>
<td>14.11</td>
</tr>
<tr>
<td></td>
<td>400</td>
</tr>
</tbody>
</table>

*Minimums may apply, consult Customer Service Center.

Operating Force option ‘CC’ not available with ‘T18 & T26’ Actuator options.
Operating force varies with actuator option, see ACTUATOR option section.

ELECTRICAL RATING

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>CONTACT MATERIAL</th>
<th>ELECTRICAL RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MOVABLE CONTACT</td>
<td>STATIONARY CONTACT</td>
</tr>
<tr>
<td>F5</td>
<td>Gold alloy</td>
<td>Gold alloy</td>
</tr>
<tr>
<td>H8</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>J3</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>J6</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>K6</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>L3</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

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

* Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max. @ 20 V AC or DC max.
TF Series
Mid Size Snap-acting Switches

ELECTRICAL RATING

<table>
<thead>
<tr>
<th>ELECTRICAL RATING</th>
<th>AMPS (REF.)</th>
<th>CC (15)</th>
<th>CD (25)</th>
<th>CF (50)</th>
<th>CG (75)</th>
<th>CJ (100)</th>
<th>EC (200)</th>
<th>EE (400)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F5</td>
<td>1</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>H8</td>
<td>5</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>J3</td>
<td>21</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>J6</td>
<td>15</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>K6</td>
<td>11</td>
<td>X</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>L3</td>
<td>20</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

* AVAILABLE
X NOT AVAILABLE

** Available with 4A & 5A terminations only, see page J-10.

All models meet UL standards.
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.

MOUNTING STYLE

S STANDARD
For 4-40 screw size

V Metric
For 3 mm screw size

Third Angle Projection
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

www.ckswitches.com
## ACTUATOR

### TF Series

**Mid Size Snap-acting Switches**

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>FIG.</th>
<th>DIM. A</th>
<th>DIM. B</th>
<th>DIM. C</th>
<th>DIM. D</th>
</tr>
</thead>
<tbody>
<tr>
<td>P00</td>
<td>1</td>
<td>.80</td>
<td>—</td>
<td>.58 ± .015 (14.68 ± 0.38)</td>
<td>—</td>
</tr>
<tr>
<td>A10</td>
<td>2</td>
<td>.81</td>
<td>.32 (6,1)</td>
<td>.810 ± .020 (20.57 ± 0.51)</td>
<td>.10 dia. (4.00)</td>
</tr>
<tr>
<td>A15</td>
<td>2</td>
<td>1.34</td>
<td>.32 (8,1)</td>
<td>.810 ± .030 (20.57 ± 0.76)</td>
<td>.10 dia. (4.00)</td>
</tr>
<tr>
<td>A20</td>
<td>2</td>
<td>1.05</td>
<td>.54 (13,7)</td>
<td>.810 ± .050 (20,57 ± 1.27)</td>
<td>.10 dia. (4.00)</td>
</tr>
<tr>
<td>A25</td>
<td>2</td>
<td>1.56</td>
<td>.54 (13,7)</td>
<td>.810 ± .075 (20.57 ± 1.91)</td>
<td>.10 dia. (4.00)</td>
</tr>
<tr>
<td>T10</td>
<td>3</td>
<td>.84</td>
<td>.32 (8,1)</td>
<td>.600 ± .020 (15.24 ± 0.51)</td>
<td>—</td>
</tr>
<tr>
<td>T15</td>
<td>3</td>
<td>1.40</td>
<td>.32 (8,1)</td>
<td>.600 ± .040 (15.24 ± 1.02)</td>
<td>—</td>
</tr>
<tr>
<td>T16</td>
<td>3</td>
<td>2.34</td>
<td>.32 (8,1)</td>
<td>.600 ± .065 (15.24 ± 1.65)</td>
<td>—</td>
</tr>
<tr>
<td>T18</td>
<td>3</td>
<td>2.75</td>
<td>.32 (8,1)</td>
<td>.600 ± .080 (15.24 ± 2.03)</td>
<td>—</td>
</tr>
<tr>
<td>T20</td>
<td>3</td>
<td>1.10</td>
<td>.54 (13,7)</td>
<td>.600 ± .050 (15.24 ± 1.27)</td>
<td>—</td>
</tr>
<tr>
<td>T25</td>
<td>3</td>
<td>1.62</td>
<td>.54 (13,7)</td>
<td>.600 ± .070 (15.24 ± 1.78)</td>
<td>—</td>
</tr>
<tr>
<td>T26</td>
<td>3</td>
<td>2.57</td>
<td>.54 (13,7)</td>
<td>.600 ± .150 (15.24 ± 3.81)</td>
<td>—</td>
</tr>
<tr>
<td>T28</td>
<td>3</td>
<td>2.97</td>
<td>.54 (13,7)</td>
<td>.600 ± .187 (15.24 ± 4.75)</td>
<td>—</td>
</tr>
<tr>
<td>T30</td>
<td>4</td>
<td>1.34</td>
<td>.32 (8,1)</td>
<td>.810 ± .030 (20.57 ± 0.76)</td>
<td>.10 dia. (4.00)</td>
</tr>
<tr>
<td>T40</td>
<td>4</td>
<td>1.29</td>
<td>.32 (8,1)</td>
<td>.730 ± .030 (18.54 ± 0.76)</td>
<td>.10 dia. (4.00)</td>
</tr>
<tr>
<td>T23</td>
<td>4</td>
<td>1.56</td>
<td>.54 (13,7)</td>
<td>.810 ± .060 (20.57 ± 1.65)</td>
<td>.10 dia. (4.00)</td>
</tr>
<tr>
<td>T24</td>
<td>4</td>
<td>1.50</td>
<td>.54 (13,7)</td>
<td>.730 ± .060 (18.54 ± 1.52)</td>
<td>.10 dia. (4.00)</td>
</tr>
<tr>
<td>WP0</td>
<td>5</td>
<td>.80</td>
<td>—</td>
<td>.635 ± .015 (16.13 ± 0.38)</td>
<td>—</td>
</tr>
</tbody>
</table>

**NOTE:** Switch characteristics chart on following page.
### TF Series
#### Mid Size Snap-acting Switches

## ACTUATOR

### SWITCH CHARACTERISTICS

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>MAXIMUM OPERATING FORCE (OZ./GRAMS)</th>
<th>MINIMUM RELEASE FORCE (OZ./GRAMS)</th>
<th>MAXIMUM DIFFERENTIAL TRAVEL</th>
<th>MAXIMUM PRETRAVEL</th>
<th>MINIMUM OVERTRAVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC</td>
<td>(15)</td>
<td>(20)</td>
<td>(50)</td>
<td>(150)</td>
<td>(400)</td>
</tr>
<tr>
<td>CD</td>
<td>(25)</td>
<td>(30)</td>
<td>(85)</td>
<td>(120)</td>
<td></td>
</tr>
<tr>
<td>CF</td>
<td>(75)</td>
<td>(75)</td>
<td>(130)</td>
<td>(170)</td>
<td></td>
</tr>
<tr>
<td>CJ</td>
<td>(150)</td>
<td>(150)</td>
<td>(225)</td>
<td>(225)</td>
<td></td>
</tr>
<tr>
<td>CC</td>
<td>(15)</td>
<td>(20)</td>
<td>(50)</td>
<td>(150)</td>
<td>(400)</td>
</tr>
<tr>
<td>CD</td>
<td>(25)</td>
<td>(30)</td>
<td>(85)</td>
<td>(120)</td>
<td></td>
</tr>
<tr>
<td>CF</td>
<td>(75)</td>
<td>(75)</td>
<td>(130)</td>
<td>(170)</td>
<td></td>
</tr>
<tr>
<td>CJ</td>
<td>(150)</td>
<td>(150)</td>
<td>(225)</td>
<td>(225)</td>
<td></td>
</tr>
</tbody>
</table>

Note: For basic switch operating forces, see page J-6.

### HIGH FORCE, LOW MOTION PIVOT POSITION

Available with actuators A10, A15, T10, T13, T14, T15, T16 and T18.

### LOW FORCE, HIGH MOTION PIVOT POSITION


Note: Lever actuator options are available in either of two pivot positions. Levers located in the forward pivot position have lower forces and higher motions. Levers located in the rear pivot position have higher forces and lower motions.

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

www.cks switches.com
TFS Series
Splash Proof Mid Size Snap-acting Switches

Features/Benefits
- Reliable snap action mechanism
- Low cost - high performance
- RoHS compatible
- IP40

Typical Applications
- Alarm devices / Home security
- Air conditioner
- Food processor
- Water heaters
- Industrial
- Forklifts

Specifications

Contact Rating / Electrical Life:

<table>
<thead>
<tr>
<th>ELECTRICAL RATING</th>
<th>AMPs (GRAMS)</th>
<th>S (200)</th>
<th>D (50)</th>
<th>J (100)</th>
<th>L (150)</th>
<th>H (300)</th>
<th>OPERATING FORCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10A @ 125/250 VAC, T8S; 10A @ 125/250 VAC, T55</td>
<td>10,000 operations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6A @ 125/250 VAC, T8S; 6A @ 125/250 VAC, T55</td>
<td>10,000 operations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3A @ 125/250 VAC, T8S; 3A @ 125/250 VAC, T55</td>
<td>10,000 operations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.1A @ 125/250 VAC, T8S; 0.1A @ 125/250 VAC, T55</td>
<td>10,000 operations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Electrical Operating Frequency: 10-30 operations per min.
Mechanical Life: 1,000,000 operations
Mechanical Operating Frequency: 120 operations per min.
Insulation Resistance: (at 500 VDC/minute) 100 M ohm min.
Dielectric Strength: 1500 VAC (50 - 60 Hz)
Operating Temperature: –40ºC to 85ºC (with no icing)
Operating Force: 200 grams.

Materials

- CASE: Nylon
- COVER: PBT
- ACTUATOR: PBT
- MOVABLE CONTACTS: Silver alloy
- TERMINALS: Brass
- LEVER: Stainless steel
- WIRE: PVC+CU

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. For additional options not shown in catalog, consult Customer Service Center.

Electrical Rating

<table>
<thead>
<tr>
<th>ELECTRICAL RATING</th>
<th>AMPs (GRAMS)</th>
<th>OPERATING FORCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>0.1</td>
<td>• • • • •</td>
</tr>
<tr>
<td>03</td>
<td>3</td>
<td>• • • • •</td>
</tr>
<tr>
<td>06</td>
<td>6</td>
<td>• • • • •</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
<td>• X X X •</td>
</tr>
</tbody>
</table>

- Available
- X Not available

Operating Force

- S 200 grams
- D 50 grams
- J 100 grams
- L 150 grams
- H 300 grams

Actuator Lever

- P00 Button
- T10 Lever - high force
- T20 Lever - low force
- A05 Lever roller - High force, short lever
- A10 Lever roller - high force
- A20 Lever roller - low force
- A25 Lever roller - Low force, short lever

Mounting Hole Size

- NONE 3.1 mm (3 mm screw clearance hole)
- S 2.9 mm (4-40 screw clearance hole)

Terminal Type

- 40 .187” quick connect
TFS Series

Splash Proof Mid Size Snap-acting Switches

**SERIES**

TFS MID SIZE SNAP-ACTING SWITCHES

---

**ELECTRICAL RATING**

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>RoHS COMPLIANT</th>
<th>RoHS COMPATIBLE</th>
<th>ELECTRICAL RATING</th>
</tr>
</thead>
</table>
| 10          | Yes            | Yes             | 10A @ 125/250 VAC, T85  
|             |                |                 | 10A @ 125/250 VAC, T55  
|             |                |                 | 5A @ 30 VDC, T85  
|             |                |                 | 5A @ 30 VDC, T55  
|             |                |                 | 10,000 operations |
| 06          | Yes            | Yes             | 6A @ 125/250 VAC, T85  
|             |                |                 | 6A @ 125/250 VAC, T55  
|             |                |                 | 6A @ 30 VDC, T85  
|             |                |                 | 6A @ 30 ———VDC, T55  
|             |                |                 | 10,000 operations |
| 03          | Yes            | Yes             | 3A @ 125/250 VAC, T85  
|             |                |                 | 3A @ 125/250 VAC, T55  
|             |                |                 | 3A @ 30 VDC, T85  
|             |                |                 | 3A @ 30 VDC, T55  
|             |                |                 | 10,000 operations |
| 01          | Yes            | Yes             | 0.1A @ 125/250 VAC, T85  
|             |                |                 | 0.1A @ 125/250 VAC, T55  
|             |                |                 | 0.1A @ 30 VDC, T85  
|             |                |                 | 0.1A @ 30 VDC, T55  
|             |                |                 | 10,000 operations |

**OPERATING FORCE**

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>BASIC SWITCH OPERATING FORCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>200 grams</td>
</tr>
<tr>
<td>D</td>
<td>50 grams</td>
</tr>
<tr>
<td>J</td>
<td>100 grams</td>
</tr>
<tr>
<td>L</td>
<td>150 grams</td>
</tr>
<tr>
<td>H</td>
<td>300 grams</td>
</tr>
</tbody>
</table>
### ACTUATOR

**P00** BUTTON

- **Max. operating force**: 200 grams
- **Min. release force**: 30 grams
- **Operating position OP**: 14.7 ± 0.4 mm
- **Max. movement differential**: 0.4 mm
- **Min. over travel OT**: 1.0 mm
- **Max. pre-travel PT**: 1.2 mm

**T10** LEVER, HIGH FORCE

- **Max. operating force**: 160 grams
- **Min. release force**: 25 grams
- **Operating position OP**: 15.1 ± 0.6 mm
- **Max. movement differential**: 0.6 mm
- **Min. over travel OT**: 1.1 mm
- **Max. pre-travel PT**: 2.6 mm

**T20** LEVER, LOW FORCE

- **Max. operating force**: 90 grams
- **Min. release force**: 10 grams
- **Operating position OP**: 15 ± 1.1 mm
- **Max. movement differential**: 1.1 mm
- **Min. over travel OT**: 1.2 mm
- **Max. pre-travel PT**: 5.1 mm

**A05** LEVER ROLLER

- **Max. operating force**: 200 grams
- **Min. release force**: 30 grams
- **Operating position OP**: 20.6 ± 0.5 mm
- **Max. movement differential**: 0.5 mm
- **Min. over travel OT**: 1.0 mm
- **Max. pre-travel PT**: 2.1 mm

**A10** LEVER ROLLER

- **Max. operating force**: 130 grams
- **Min. release force**: 20 grams
- **Operating position OP**: 20.4 ± 0.7 mm
- **Max. movement differential**: 0.7 mm
- **Min. over travel OT**: 1.3 mm
- **Max. pre-travel PT**: 3.3 mm

**A20** LEVER ROLLER

- **Max. operating force**: 70 grams
- **Min. release force**: 10 grams
- **Operating position OP**: 20.2 ± 1.2 mm
- **Max. movement differential**: 1.4 mm
- **Min. over travel OT**: 1.5 mm
- **Max. pre-travel PT**: 6.5 mm

---

Dimensions are shown: mm
Specifications and dimensions subject to change

www.ckswitches.com
TFS Series
Splash Proof Mid Size Snap-acting Switches

ACTUATOR

A25 LEVER ROLLER
LOW FORCE, SHORT LEVER

Measure at Point “A”

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. operating force</td>
<td>150 grams</td>
</tr>
<tr>
<td>Min. release force</td>
<td>15 grams</td>
</tr>
<tr>
<td>Operating position OP</td>
<td>20.4 ± 0.9 mm</td>
</tr>
<tr>
<td>Max. movement differential</td>
<td>0.9 mm</td>
</tr>
<tr>
<td>Min. over travel OT</td>
<td>1.2 mm</td>
</tr>
<tr>
<td>Max. pre-travel PT</td>
<td>4.2 mm</td>
</tr>
</tbody>
</table>

TERMINAL TYPE

40 .187" QUICK CONNECT

Circuitry

C SPDT (Single Pole, Double Throw)
Y SPST N.O. (Single Pole, Single Throw, Normally Open)
W SPST N.C. (Single Pole, Single Throw, Normally Closed)

MOUNTING HOLE SIZE

NONE 3.1 mm (3mm SCREW CLEARANCE HOLE)
S 2.9 mm (4-40 SCREW CLEARANCE HOLE)
**TFS Series**

Sealed Mid Size Snap-acting Switches (Water Proof)

**Features/Benefits**
- IP67
- Reliable snap action mechanism
- Low cost - high performance
- RoHS compatible

**Typical Applications**
- Alarm devices / Home security
- Air conditioner
- Food processor
- Water heaters
- Industrial
- Forklifts

**Specifications**

**CONTACT RATING / ELECTRICAL LIFE:**

<table>
<thead>
<tr>
<th>AMPS</th>
<th>CONTACT RATING</th>
<th>ELECTRICAL LIFE</th>
</tr>
</thead>
<tbody>
<tr>
<td>T55</td>
<td>10A @ 125/250 VAC, T85; 10A @ 125/250 VAC, T55</td>
<td>10,000 operations</td>
</tr>
<tr>
<td></td>
<td>5A @ 30 VDC, T85; 5A @ 30 VDC, T55</td>
<td></td>
</tr>
<tr>
<td>T55</td>
<td>6A @ 125/250 VAC, T85; 6A @ 125/250 VAC, T55</td>
<td>10,000 operations</td>
</tr>
<tr>
<td></td>
<td>6A @ 30 VDC, T85; 6A @ 30 VDC, T55</td>
<td></td>
</tr>
<tr>
<td>T55</td>
<td>3A @ 125/250 VAC, T85; 3A @ 125/250 VAC, T55</td>
<td>10,000 operations</td>
</tr>
<tr>
<td></td>
<td>3A @ 30 VDC, T85; 3A @ 30 VDC, T55</td>
<td></td>
</tr>
<tr>
<td>T55</td>
<td>0.1A @ 125/250 VAC, T85; 0.1A @ 125/250 VAC, T55</td>
<td>10,000 operations</td>
</tr>
<tr>
<td></td>
<td>0.1A @ 30 VDC, T85; 0.1A @ 30 VDC, T55</td>
<td></td>
</tr>
</tbody>
</table>

**ELECTRICAL OPERATING FREQUENCY:** 10-30 operations per min.

**MECHANICAL LIFE:** 1,000,000 operations

**MECHANICAL OPERATING FREQUENCY:** 120 operations per min.

**INSULATION RESISTANCE:** (at 500 VDC/minute) 100 M ohm min.

**DIELECTRIC STRENGTH:** 1500 VAC (50 - 60 Hz)

**OPERATING TEMPERATURE:** see wire type

**OPERATING FORCE:** 200 grams

**Materials**

CASE: Nylon

COVER: PBT

ACTUATOR: PBT

MOVABLE CONTACTS: Silver alloy.

TERMINALS: Brass.

LEVER: Stainless steel

WIRE: PVC+CU

**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. For additional options not shown in catalog, consult Customer Service Center.

**Electrical Rating**

<table>
<thead>
<tr>
<th>AMPS</th>
<th>C16AWG</th>
<th>C18AWG</th>
<th>D16AWG</th>
<th>D20AWG</th>
<th>E22AWG</th>
<th>F24AWG</th>
<th>G24AWG</th>
<th>H26AWG</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>03</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>06</td>
<td>•</td>
<td>•</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>10</td>
<td>•</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

- Available
- X Not available

**Wire Type**

- C 16 AWG
- D 18 AWG
- E 20 AWG
- F 22 AWG
- G 24 AWG
- H 26 AWG

**OPERATING TEMPERATURE**

-40°C to + 85°C (with UL1015 wire)
Sealed Mid Size Snap-acting Switches (Water Proof)

**SERIES**

**TFS** MID SIZE SNAP-ACTING SWITCHES – WATERPROOF

Dimensions are shown: mm
Specifications and dimensions subject to change

**ELECTRICAL RATING**

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>RoHS COMPLIANT</th>
<th>RoHS COMPATIBLE</th>
<th>ELECTRICAL RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Yes</td>
<td>Yes</td>
<td>10A @ 125/250 VAC, T85</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10A @ 125/250 VAC, T55</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5A @ 30 VDC, T85</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5A @ 30 VDC, T55</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10,000 operations</td>
</tr>
<tr>
<td>06</td>
<td>Yes</td>
<td>Yes</td>
<td>6A @ 125/250 VAC, T85</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6A @ 125/250 VAC, T55</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6A @ 30 VDC, T85</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6A @ 30 ———– VDC, T55</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10,000 operations</td>
</tr>
<tr>
<td>03</td>
<td>Yes</td>
<td>Yes</td>
<td>3A @ 125/250 VAC, T85</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3A @ 125/250 VAC, T55</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3A @ 30 VDC, T85</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3A @ 30 VDC, T55</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10,000 operations</td>
</tr>
<tr>
<td>01</td>
<td>Yes</td>
<td>Yes</td>
<td>0.1A @ 125/250 VAC, T85</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.1A @ 125/250 VAC, T55</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.1A @ 30 VDC, T85</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.1A @ 30 VDC, T55</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10,000 operations</td>
</tr>
</tbody>
</table>

**OPERATING FORCE**

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>BASIC SWITCH OPERATING FORCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>200 GRAMS</td>
</tr>
<tr>
<td>D</td>
<td>50 grams</td>
</tr>
<tr>
<td>J</td>
<td>100 grams</td>
</tr>
<tr>
<td>L</td>
<td>150 grams</td>
</tr>
<tr>
<td>H</td>
<td>300 grams</td>
</tr>
</tbody>
</table>
### TFS Series
Sealed Mid Size Snap-acting Switches (Water Proof)

#### ACTUATOR

<table>
<thead>
<tr>
<th>BUTTON</th>
<th>LEVER, HIGH FORCE</th>
<th>LEVER, LOW FORCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>P00</td>
<td>T10</td>
<td>T20</td>
</tr>
</tbody>
</table>

#### Measure at Point “A”

<table>
<thead>
<tr>
<th></th>
<th>P00</th>
<th>T10</th>
<th>T20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. operating force</td>
<td>200 grams</td>
<td>160 grams</td>
<td>90 grams</td>
</tr>
<tr>
<td>Min. release force</td>
<td>30 grams</td>
<td>25 grams</td>
<td>10 grams</td>
</tr>
<tr>
<td>Operating position OP</td>
<td>14.7 ± 0.4 mm</td>
<td>15.1 ± 0.6 mm</td>
<td>15 ± 1.1 mm</td>
</tr>
<tr>
<td>Max. movement differential</td>
<td>0.4 mm</td>
<td>0.6 mm</td>
<td>1.1 mm</td>
</tr>
<tr>
<td>Min. over travel OT</td>
<td>1.0 mm</td>
<td>1.1 mm</td>
<td>1.2 mm</td>
</tr>
<tr>
<td>Max. pre-travel PT</td>
<td>1.2 mm</td>
<td>2.6 mm</td>
<td>5.1 mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>A05</th>
<th>A10</th>
<th>A20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. operating force</td>
<td>200 grams</td>
<td>130 grams</td>
<td>70 grams</td>
</tr>
<tr>
<td>Min. release force</td>
<td>30 grams</td>
<td>20 grams</td>
<td>10 grams</td>
</tr>
<tr>
<td>Operating position OP</td>
<td>20.6 ± 0.5 mm</td>
<td>20.4 ± 0.7 mm</td>
<td>20.2 ± 1.2 mm</td>
</tr>
<tr>
<td>Max. movement differential</td>
<td>0.5 mm</td>
<td>0.7 mm</td>
<td>1.4 mm</td>
</tr>
<tr>
<td>Min. over travel OT</td>
<td>1.0 mm</td>
<td>1.3 mm</td>
<td>1.5 mm</td>
</tr>
<tr>
<td>Max. pre-travel PT</td>
<td>2.1 mm</td>
<td>3.3 mm</td>
<td>6.5 mm</td>
</tr>
</tbody>
</table>

**Dimensions are shown in mm**

Specifications and dimensions subject to change.

www.ckswitches.com
TFS Series
Sealed Mid Size Snap-acting Switches (Water Proof)

ACTUATOR

Measure at Point “A”

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. operating force</td>
<td>150 grams</td>
</tr>
<tr>
<td>Min. release force</td>
<td>15 grams</td>
</tr>
<tr>
<td>Operating position</td>
<td>OP</td>
</tr>
<tr>
<td>Max. movement differential</td>
<td>0.9 mm</td>
</tr>
<tr>
<td>Min. over travel OT</td>
<td>1.2 mm</td>
</tr>
<tr>
<td>Max. pre-travel PT</td>
<td>4.2 mm</td>
</tr>
</tbody>
</table>

TERMINAL TYPE

WIRE UL1015

CIRCUITRY

C (SPDT (Single Pole, Double Throw))
Y (SPST N.O. (Single Pole, Single Throw, Normally Open))
W (SPST N.C. (Single Pole, Single Throw, Normally Closed))

WIRE TYPE

C 16 AWG
D 18 AWG
E 20 AWG
F 22 AWG
G 24 AWG
H 26 AWG

MOUNTING HOLE SIZE

NONE 3.1 mm (3mm SCREW CLEARANCE HOLE)
S 2.9 mm (4-40 SCREW CLEARANCE HOLE)

Specifications and dimensions subject to change

Dimensions are shown: (mm)

www.ckswitches.com

22 Jun 22

J–87
TF2 Series
Mid Size Snap-acting Switches

Features/Benefits
• Broad range of operating forces
• Ratings up to 10 AMPS
• Wide variety of actuator styles
• Quick connect terminations

Typical Applications
• Motor controls
• Thermostatics
• Portable tools
• Air Conditioner

Specifications
CONTACT RATING: From low level* to 10 AMPS @125/250 V AC.
ELECTRICAL LIFE: 10,000 cycles
MECHANICAL LIFE: 1,000,000 cycles at 0.1A and 6A
400,000 cycles at 10A
INSULATION RESISTANCE: 1,000 M ohm min.
DIELECTRIC STRENGTH: 1,500 Vrms min. @ sea level.
OPERATING TEMPERATURE: –40ºC to 125ºC (–40ºC to 85ºC).
OPERATING FORCE: From 18 to 330 grams at actuator button available.
MOUNTING: Torque screws 2-5 in/lbs.

Materials
SWITCH HOUSING: Nylon 6/6
ACTUATOR BUTTON: Nylon 6/6
SPRING: Stainless Steel
PIVOT: Brass Alloy
MOVABLE CONTACTS: See electric rating page J-21
MOVABLE BLADE: BeCu
STATIONARY CONTACTS: See electric rating page J-21
TERMINALS: Brass Alloy

NOTE: Specifications and materials listed above are 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. For additional options not shown in catalog, consult Customer Service Center.

Circuitry
C SPDT
W SPST N.C.
Y SPST N.O.

Mounting Style
S Standard
V Metric

Actuator
P00 Pin plunger
A10 Lever roller 12.5 mm
A15 Lever roller 25.9 mm
A20 Lever roller 12.5 mm
A25 Lever roller 25.9 mm
T10 Lever 14 mm
T14 Simulated roller 24.5 mm
T15 Lever 27.5 mm
T16 Lever 31.7 mm
T17 Lever 35 mm
T20 Lever 14 mm
T24 Simulated lever 24.5 mm
T25 Lever 27.5 mm
T26 Lever 31.7 mm
T27 Lever 35 mm

Terminations
40 .187" quick connect
4A .250" quick connect
5A .250" off set quick connect
5B .187" off set quick connect
60 Screw style *
10 Solder

Electrical Rating Chart

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>ELECTRICAL RATING</th>
<th>MECHANICAL RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>F5</td>
<td>0.1A 125/250 V AC (T85) Min. 10,000 operations</td>
<td>0.1A 125/250 V AC µT125, 1E4</td>
</tr>
<tr>
<td>H8</td>
<td>6A 125/250 V AC (T85) Min. 10,000 operations</td>
<td>6A 125/250 V AC µT125, 1E4</td>
</tr>
<tr>
<td>K6</td>
<td>10A 125/250 V AC (T85) Min. 10,000 operations</td>
<td>10A 125/250 V AC µT125, 1E4</td>
</tr>
</tbody>
</table>

see chart on following pages for detailed information

* Note: No UL & ENEC 15 safety for Termination option "60"

Materials

* Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max. @ 20 V AC or DC max. Standard electrical life per UL 1054, rated for 6,000 operations.
TF2 Series
Mid Size Snap-acting Switches

TF2 MID SIZE SNAP-ACTING SWITCHES

OPERATING FORCE

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>BASIC SWITCH OPERATING FORCE (grams)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CC</td>
<td>18</td>
</tr>
<tr>
<td>CF</td>
<td>45</td>
</tr>
<tr>
<td>CG</td>
<td>75</td>
</tr>
<tr>
<td>CH</td>
<td>110</td>
</tr>
<tr>
<td>CJ</td>
<td>170</td>
</tr>
<tr>
<td>EC</td>
<td>230</td>
</tr>
<tr>
<td>EE*</td>
<td>330</td>
</tr>
</tbody>
</table>

*Minimums may apply, consult Customer Service Center.

ELECTRICAL RATING

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>CONTACT MATERIAL</th>
<th>MOVABLE CONTACT</th>
<th>STATIONARY CONTACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>F5</td>
<td>RoHS Compliant *</td>
<td>Yes</td>
<td>Silver alloy</td>
</tr>
<tr>
<td>H8</td>
<td>RoHS Compatible *</td>
<td>Yes</td>
<td>Silver alloy</td>
</tr>
<tr>
<td>K6</td>
<td></td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

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

www.ckswitches.com

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

4 Jul 22
TF2 Series
Mid Size Snap-acting Switches

ELECTRICAL RATING

<table>
<thead>
<tr>
<th>INTERNATIONAL RATING SYMBOLS</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>µ</td>
<td>Microgap construction (less than 3 mm).</td>
</tr>
<tr>
<td>~</td>
<td>Alternating current.</td>
</tr>
<tr>
<td>T_</td>
<td>Maximum rated use temperature.</td>
</tr>
<tr>
<td>50E3</td>
<td>Cycles over 50,000 at rated current.</td>
</tr>
<tr>
<td>10E3</td>
<td>Cycles over 10,000 at rated current.</td>
</tr>
<tr>
<td>10(3)</td>
<td>Current Rating. First number represents resistive rating; second number represents inductive (motor) rating.</td>
</tr>
</tbody>
</table>

Electrical Rating

<table>
<thead>
<tr>
<th>ELECTRICAL RATING</th>
<th>AMPS (REF.)</th>
<th>CC (18)</th>
<th>CF (45)</th>
<th>CG (79)</th>
<th>CH (110)</th>
<th>CJ (170)</th>
<th>EC (230)</th>
<th>EE (330)</th>
</tr>
</thead>
<tbody>
<tr>
<td>F5</td>
<td>0.1</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>HB</td>
<td>6</td>
<td>X</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>KS</td>
<td>10</td>
<td>X</td>
<td>X</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td>•</td>
<td></td>
</tr>
</tbody>
</table>

* AVAILABLE
X NOT AVAILABLE

Operating Force

<table>
<thead>
<tr>
<th>OPERATING FORCE</th>
<th>ELECTRICAL RATING</th>
<th>AMPS (REF.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CC (18)</td>
<td>CF (45)</td>
</tr>
<tr>
<td>F5</td>
<td>0.1</td>
<td>•</td>
</tr>
<tr>
<td>HB</td>
<td>6</td>
<td>X</td>
</tr>
<tr>
<td>KS</td>
<td>10</td>
<td>X</td>
</tr>
</tbody>
</table>

OPERATING FORCE

<table>
<thead>
<tr>
<th>OPERATING FORCE</th>
<th>ELECTRICAL RATING</th>
<th>AMPS (REF.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CC (18)</td>
<td>CF (45)</td>
</tr>
<tr>
<td>F5</td>
<td>0.1</td>
<td>•</td>
</tr>
<tr>
<td>HB</td>
<td>6</td>
<td>X</td>
</tr>
<tr>
<td>KS</td>
<td>10</td>
<td>X</td>
</tr>
</tbody>
</table>

MOUNTING STYLE

S STANDARD
For 4-40 screw size

V Metric
For 3 mm screw size

TF2 SWITCH WITH TYPE 40 (187 QC) TERMINALS AND P00 ACTUATOR SHOWN

NOTE: TORQUE MOUNTING SCREWS 2-5 IN/LBS.

TF2 SWITCH WITH TYPE 10 (SOLDER) TERMINALS AND P00 ACTUATOR SHOWN

NOTE: TORQUE MOUNTING SCREWS 2-5 IN/LBS.

International Rating Symbols

All models
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.

Cycles over 10,000 at rated current.

Current Rating. First number represents resistive rating; second number represents inductive (motor) rating.

Specifications and dimensions subject to change.

Dimensions are shown: inches (mm)

4 Jul 22

J-90

www.ckswitches.com
## TF2 Series
### Mid Size Snap-acting Switches

#### ACTUATOR

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>FIG</th>
<th>DIM. A</th>
<th>DIM. B</th>
<th>DIM. C</th>
<th>DIM. D</th>
<th>DIM. E</th>
</tr>
</thead>
<tbody>
<tr>
<td>P00</td>
<td>2</td>
<td>0.795</td>
<td>-</td>
<td>0.578 ± 0.019</td>
<td>0.068</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(20.2)</td>
<td>-</td>
<td>(14,70 ± 0.05)</td>
<td>(1.72)</td>
<td>-</td>
</tr>
<tr>
<td>A10</td>
<td>1</td>
<td>0.822</td>
<td>0.33</td>
<td>0.816 ± 0.050</td>
<td>0.106</td>
<td>Ø 0.19</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(20,9)</td>
<td>(8,4)</td>
<td>(20,73 ± 1.27)</td>
<td>(2.70)</td>
<td>(Ø 4,8)</td>
</tr>
<tr>
<td>A15</td>
<td>1</td>
<td>1.35</td>
<td>0.33</td>
<td>0.816 ± 0.059</td>
<td>0.165</td>
<td>Ø 0.19</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(34,3)</td>
<td>(8,4)</td>
<td>(20,73 ± 1.5)</td>
<td>(4.20)</td>
<td>(Ø 4,8)</td>
</tr>
<tr>
<td>A20</td>
<td>1</td>
<td>1.05</td>
<td>0.56</td>
<td>0.816 ± 0.050</td>
<td>0.183</td>
<td>Ø 0.19</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(26,8)</td>
<td>(14,3)</td>
<td>(20,73 ± 1.27)</td>
<td>(4.65)</td>
<td>(Ø 4,8)</td>
</tr>
<tr>
<td>A25</td>
<td>1</td>
<td>1.58</td>
<td>0.56</td>
<td>0.816 ± 0.086</td>
<td>0.366</td>
<td>Ø 0.19</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(40,2)</td>
<td>(14,3)</td>
<td>(20,73 ± 2.2)</td>
<td>(9,30)</td>
<td>(Ø 4,8)</td>
</tr>
<tr>
<td>T10</td>
<td>3</td>
<td>0.882</td>
<td>0.33</td>
<td>0.602 ± 0.020</td>
<td>0.110</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(22,39)</td>
<td>(8,4)</td>
<td>(15,3 ± 0.50)</td>
<td>(2.80)</td>
<td>-</td>
</tr>
<tr>
<td>T14</td>
<td>4</td>
<td>1.295</td>
<td>0.33</td>
<td>0.737 ± 0.059</td>
<td>0.216</td>
<td>Ø 0.275</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(32,9)</td>
<td>(8,4)</td>
<td>(18,72 ± 1.5)</td>
<td>(5,50)</td>
<td>(Ø 7,0)</td>
</tr>
<tr>
<td>T15</td>
<td>3</td>
<td>1.405</td>
<td>0.33</td>
<td>0.600 ± 0.059</td>
<td>0.232</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(35,69)</td>
<td>(8,4)</td>
<td>(15,24 ± 1.5)</td>
<td>(5,90)</td>
<td>-</td>
</tr>
<tr>
<td>T16</td>
<td>3</td>
<td>1.58</td>
<td>0.33</td>
<td>0.604 ± 0.068</td>
<td>0.196</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(40,01)</td>
<td>(8,4)</td>
<td>(15,35 ± 1.75)</td>
<td>(5,0)</td>
<td>-</td>
</tr>
<tr>
<td>T17</td>
<td>3</td>
<td>1.708</td>
<td>0.33</td>
<td>0.603 ± 0.062</td>
<td>0.216</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(43,39)</td>
<td>(8,4)</td>
<td>(15,33 ± 1.57)</td>
<td>(5,50)</td>
<td>-</td>
</tr>
<tr>
<td>T20</td>
<td>3</td>
<td>1.11</td>
<td>0.56</td>
<td>0.604 ± 0.045</td>
<td>0.204</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(28,3)</td>
<td>(14,3)</td>
<td>(15,34 ± 1.14)</td>
<td>(5,20)</td>
<td>-</td>
</tr>
<tr>
<td>T24</td>
<td>4</td>
<td>1.527</td>
<td>0.56</td>
<td>0.742 ± 0.090</td>
<td>0.342</td>
<td>Ø 0.275</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(38,8)</td>
<td>(14,3)</td>
<td>(18,84 ± 2.29)</td>
<td>(8,70)</td>
<td>(Ø 7,0)</td>
</tr>
<tr>
<td>T25</td>
<td>3</td>
<td>1.631</td>
<td>0.56</td>
<td>0.609 ± 0.090</td>
<td>0.381</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(41,43)</td>
<td>(14,3)</td>
<td>(15,47 ± 2.3)</td>
<td>(9,70)</td>
<td>-</td>
</tr>
<tr>
<td>T26</td>
<td>3</td>
<td>1.811</td>
<td>0.56</td>
<td>0.616 ± 0.125</td>
<td>0.389</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(46,00)</td>
<td>(14,3)</td>
<td>(15,65 ± 3.18)</td>
<td>(9,90)</td>
<td>-</td>
</tr>
<tr>
<td>T27</td>
<td>3</td>
<td>1.94</td>
<td>0.56</td>
<td>0.598 ± 0.150</td>
<td>0.433</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(49,3)</td>
<td>(14,3)</td>
<td>(15,2 ± 3.8)</td>
<td>(11,0)</td>
<td>-</td>
</tr>
</tbody>
</table>

**NOTE:** Switch characteristics chart on following page.

---

### Lever Roller

![FIG. 1 LEVER ROLLER TF2XXX0MA1510C](image1)

### Pin Roller

![FIG. 2 PIN ROLLER TF2XXXMP0010C](image2)

### Lever

![FIG. 3 LEVER TF2XXXST1510C SHOWN](image3)

### Simulated Roller

![FIG. 4 SIMULATED ROLLER TF2XXXST1410C](image4)
## TF2 Series

### Mid Size Snap-acting Switches

<table>
<thead>
<tr>
<th>Lever Type</th>
<th>CC</th>
<th>CF</th>
<th>CG</th>
<th>CH</th>
<th>CJ</th>
<th>EC</th>
<th>EE</th>
<th>Pre-Travel max. mm</th>
<th>Max Differential max. mm</th>
<th>Over Travel Min. mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>P00</td>
<td>OF</td>
<td>18</td>
<td>45</td>
<td>75</td>
<td>110</td>
<td>170</td>
<td>230</td>
<td>330</td>
<td>1.72</td>
<td>0.4</td>
</tr>
<tr>
<td></td>
<td>RF</td>
<td>3</td>
<td>7</td>
<td>14</td>
<td>20</td>
<td>34</td>
<td>42</td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T10</td>
<td>OF</td>
<td>18</td>
<td>45</td>
<td>75</td>
<td>110</td>
<td>170</td>
<td>230</td>
<td>330</td>
<td>2.8</td>
<td>0.5</td>
</tr>
<tr>
<td></td>
<td>RF</td>
<td>6</td>
<td>11</td>
<td>17</td>
<td>25</td>
<td>35</td>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T20</td>
<td>OF</td>
<td>8</td>
<td>27</td>
<td>43</td>
<td>50</td>
<td>85</td>
<td>120</td>
<td>175</td>
<td>5.2</td>
<td>0.9</td>
</tr>
<tr>
<td></td>
<td>RF</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>13</td>
<td>17</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T14</td>
<td>OF</td>
<td>10</td>
<td>28</td>
<td>43</td>
<td>65</td>
<td>110</td>
<td>140</td>
<td>205</td>
<td>5.5</td>
<td>1.1</td>
</tr>
<tr>
<td></td>
<td>RF</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>14</td>
<td>17</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T24</td>
<td>OF</td>
<td>7</td>
<td>16</td>
<td>24</td>
<td>35</td>
<td>56</td>
<td>70</td>
<td>100</td>
<td>8.7</td>
<td>1.7</td>
</tr>
<tr>
<td></td>
<td>RF</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>14</td>
<td>17</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A10</td>
<td>OF</td>
<td>20</td>
<td>55</td>
<td>80</td>
<td>110</td>
<td>170</td>
<td>230</td>
<td>330</td>
<td>2.7</td>
<td>0.45</td>
</tr>
<tr>
<td></td>
<td>RF</td>
<td>5</td>
<td>11</td>
<td>16</td>
<td>28</td>
<td>31</td>
<td>45</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A20</td>
<td>OF</td>
<td>8</td>
<td>35</td>
<td>55</td>
<td>70</td>
<td>100</td>
<td>120</td>
<td>175</td>
<td>4.65</td>
<td>0.8</td>
</tr>
<tr>
<td></td>
<td>RF</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>14</td>
<td>18</td>
<td>28</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A15</td>
<td>OF</td>
<td>8</td>
<td>30</td>
<td>45</td>
<td>65</td>
<td>100</td>
<td>125</td>
<td>180</td>
<td>4.2</td>
<td>1.25</td>
</tr>
<tr>
<td></td>
<td>RF</td>
<td>5</td>
<td>7</td>
<td>12</td>
<td>16</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A25</td>
<td>OF</td>
<td>7</td>
<td>20</td>
<td>30</td>
<td>40</td>
<td>51</td>
<td>65</td>
<td>90</td>
<td>9.3</td>
<td>1.8</td>
</tr>
<tr>
<td></td>
<td>RF</td>
<td>5</td>
<td>7</td>
<td>12</td>
<td>16</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T17</td>
<td>OF</td>
<td>16</td>
<td>25</td>
<td>35</td>
<td>50</td>
<td>80</td>
<td>100</td>
<td>140</td>
<td>5.5</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td>RF</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>11</td>
<td>14</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T27</td>
<td>OF</td>
<td>13</td>
<td>18</td>
<td>24</td>
<td>32</td>
<td>45</td>
<td>55</td>
<td>90</td>
<td>11.10</td>
<td>2.3</td>
</tr>
<tr>
<td></td>
<td>RF</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T16</td>
<td>OF</td>
<td>15</td>
<td>17</td>
<td>32</td>
<td>55</td>
<td>85</td>
<td>110</td>
<td>150</td>
<td>5</td>
<td>1.05</td>
</tr>
<tr>
<td></td>
<td>RF</td>
<td>4</td>
<td>6</td>
<td>12</td>
<td>15</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T26</td>
<td>OF</td>
<td>10</td>
<td>12</td>
<td>18</td>
<td>35</td>
<td>45</td>
<td>65</td>
<td>90</td>
<td>9.9</td>
<td>2.05</td>
</tr>
<tr>
<td></td>
<td>RF</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>8</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T15</td>
<td>OF</td>
<td>18</td>
<td>22</td>
<td>37</td>
<td>50</td>
<td>86</td>
<td>125</td>
<td>180</td>
<td>5.9</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>RF</td>
<td>3</td>
<td>5</td>
<td>9</td>
<td>14</td>
<td>17</td>
<td>24</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T25</td>
<td>OF</td>
<td>5</td>
<td>16</td>
<td>25</td>
<td>30</td>
<td>51</td>
<td>65</td>
<td>90</td>
<td>9.7</td>
<td>2.2</td>
</tr>
<tr>
<td></td>
<td>RF</td>
<td>3</td>
<td>4</td>
<td>6</td>
<td>8</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**HIGH FORCE, LOW MOTION PIVOT POSITION**

**LOW FORCE, HIGH MOTION PIVOT POSITION**

---

**NOTE:** Lever actuator options are available in either of two pivot positions. Levers located in the forward pivot position have lower forces and higher motions. Levers located in the rear pivot position have higher forces and lower motions.

Available with actuators A10, A15, T10, T13, T14, T15, T16 and T18.


Dimensions are shown: mm

Specifications and dimensions subject to change

www.cksswitches.com

---

4 Jul 22

J–92
TF2 Series
Mid Size Snap-acting Switches

TERMINATIONS

40 .187" QUICK CONNECT

4A .250" QUICK CONNECT

5A .250" OFF SET QUICK CONNECT

5B .187" OFF SET QUICK CONNECT

60 SCREW STYLE

10 SOLDER

CSPDT (Single Pole, Double Throw)
WSPST N.C. (Single Pole, Single Throw, Normally Closed)
YS PST N.O. (Single Pole, Single Throw, Normally Open)

CIRCUITRY

Dimensions are shown: inches (mm)
Specifications and dimensions subject to change
TF3 Series
Mid Size Snap-acting Switches (Full Disconnection - Gap >3 mm)

Features/Benefits
- Broad range of operating forces
- Ratings up to 25 AMPS
- Wide variety of actuator styles
- Quick connect terminations
- Extreme operating temperature up to 125°C

Specifications
CONTACT RATING: From 10A to 25A @ 125/250 V AC
ELECTRICAL LIFE: 10,000 cycles
MECHANICAL LIFE: 500,000 cycles
INSULATION RESISTANCE: 100 M ohm min.
DIELECTRIC STRENGTH: 1,500 Vrms min. @ sea level
OPERATING TEMPERATURE: –40°C to 125°C
OPERATING FORCE: Refer to chart for lever style forces
MOUNTING: Torque screws 2-5 in/lbs.

Materials
SWITCH HOUSING: PBT
COVER: PBT
ACTUATOR BUTTON: Nylon
SPRING: SWP
PIVOT: Copper
MOVABLE CONTACTS: Silver Alloy
MOVABLE BLADE: Copper Alloy
STATIONARY CONTACTS: Silver Alloy
TERMINALS: Copper

Typical Applications
- Heavy duty power tools
- Motor controls
- HVAC

Build-A-Switch
To order, simply select desired option from each category and place in the appropriate box. For additional options not shown in catalog, consult Customer Service Center.

Series
TF3
SP, Mom.

Electrical Rating
10 10.1A 125/250 VAC
16 16A 125/250 VAC
20 20.1A 125/250 VAC
25 25A 125/250 VAC

Operating Force

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>OPERATING FORCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CP</td>
<td>Refer to operating force table</td>
</tr>
<tr>
<td>CG</td>
<td></td>
</tr>
<tr>
<td>CJ</td>
<td></td>
</tr>
<tr>
<td>EC</td>
<td></td>
</tr>
<tr>
<td>EE</td>
<td></td>
</tr>
<tr>
<td>EK</td>
<td></td>
</tr>
</tbody>
</table>

Actuator
- P00 Pin plunger
- T10 Lever 14 mm
- T15 Lever 27.5 mm
- T30 Lever 51.3 mm
- T24 Simulated roller 24.5 mm
- A10 Lever roller 12.5 mm
- A15 Lever roller 25.9 mm

Circuitry
- Y SPST N.O.

Terminations
- 40 .187” quick connect
- 4A .250” quick connect

Dimensions are shown: mm
Specifications and dimensions subject to change
31 May 21
## TF3 Series

### Mid Size Snap-acting Switches (Full Disconnection - Gap >3 mm)

#### TF3 MID SIZE SNAP-ACTING SWITCHES (FULL DISCONNECTION)

![Circuit Diagram]

### ELECTRICAL RATING

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>RoHS COMPLIANT</th>
<th>RoHS COMPATIBLE</th>
<th>ELECTRICAL RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Yes</td>
<td>Yes</td>
<td>10.1A @ 125/250 V AC</td>
</tr>
<tr>
<td>16</td>
<td>Yes</td>
<td>Yes</td>
<td>16A @ 125/250 V AC</td>
</tr>
<tr>
<td>20</td>
<td>Yes</td>
<td>Yes</td>
<td>20A @ 125/250 V AC</td>
</tr>
<tr>
<td>25</td>
<td>Yes</td>
<td>Yes</td>
<td>25A @ 125/250 V AC</td>
</tr>
</tbody>
</table>

### OPERATING FORCE WITH ASSOCIATED ACTUATOR

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>OPERATING FORCE MAX. (grams)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CF</td>
</tr>
<tr>
<td>P00</td>
<td>190</td>
</tr>
<tr>
<td>T10</td>
<td>190</td>
</tr>
<tr>
<td>T15</td>
<td>100</td>
</tr>
<tr>
<td>A10</td>
<td>190</td>
</tr>
<tr>
<td>A15</td>
<td>102</td>
</tr>
<tr>
<td>T30</td>
<td>46</td>
</tr>
<tr>
<td>T24</td>
<td>88</td>
</tr>
</tbody>
</table>

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

www.ckswitches.com
### ACTUATOR

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>‘A’</th>
<th>‘B’</th>
<th>‘C’</th>
<th>‘D’</th>
<th>‘E’</th>
</tr>
</thead>
<tbody>
<tr>
<td>P00</td>
<td>20.2</td>
<td>8</td>
<td>14.4 ± 0.5</td>
<td>1.9</td>
<td>-</td>
</tr>
<tr>
<td>T10</td>
<td>21.94</td>
<td>8</td>
<td>15.0 ± 0.8</td>
<td>2.4</td>
<td>-</td>
</tr>
<tr>
<td>T15</td>
<td>35.38</td>
<td>8</td>
<td>15.0 ± 1.5</td>
<td>4.8</td>
<td>-</td>
</tr>
<tr>
<td>A10</td>
<td>20.61</td>
<td>8</td>
<td>20.4 ± 0.7</td>
<td>2.2</td>
<td>Ø 4.8</td>
</tr>
<tr>
<td>A15</td>
<td>33.57</td>
<td>8</td>
<td>20.4 ± 1.4</td>
<td>4.5</td>
<td>Ø 4.8</td>
</tr>
<tr>
<td>T30</td>
<td>65.11</td>
<td>14</td>
<td>15.0 ± 4.7</td>
<td>15</td>
<td>-</td>
</tr>
<tr>
<td>T24</td>
<td>38.43</td>
<td>14</td>
<td>18.4 ± 2.0</td>
<td>7.2</td>
<td>Ø 7</td>
</tr>
</tbody>
</table>

#### TF3 Series
Mid Size Snap-acting Switches (Full Disconnection - Gap >3 mm)

Dimensions are shown: mm
Specifications and dimensions subject to change
TF3 Series

Mid Size Snap-acting Switches (Full Disconnection - Gap >3 mm)

**ACTUATOR**

**T30 Lever 51.3 mm**

**T24 Simulated Roller 24.5 mm**

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>OPERATING FORCE MAX. (grams)</th>
<th>OPERATING POSITION (mm)</th>
<th>PRE-TRAVEL MAX. (mm)</th>
<th>OVER-TRAVEL MIN. (mm)</th>
<th>MAX. DIFFERENTIAL MAX. (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CF</td>
<td>CG</td>
<td>CJ</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P00</td>
<td>190</td>
<td>510</td>
<td>842</td>
<td>14.4 ± 0.5</td>
<td>1.9</td>
</tr>
<tr>
<td>T10</td>
<td>190</td>
<td>510</td>
<td>753</td>
<td>15.0 ± 0.8</td>
<td>2.4</td>
</tr>
<tr>
<td>T15</td>
<td>100</td>
<td>260</td>
<td>374</td>
<td>15.0 ± 1.5</td>
<td>4.8</td>
</tr>
<tr>
<td>A10</td>
<td>190</td>
<td>510</td>
<td>842</td>
<td>20.4 ± 0.7</td>
<td>2.2</td>
</tr>
<tr>
<td>A15</td>
<td>102</td>
<td>275</td>
<td>395</td>
<td>20.4 ± 1.4</td>
<td>4.5</td>
</tr>
<tr>
<td>EC</td>
<td>EE</td>
<td>EK</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T30</td>
<td>46</td>
<td>80</td>
<td>115</td>
<td>15.0 ± 4.7</td>
<td>15</td>
</tr>
<tr>
<td>T24</td>
<td>88</td>
<td>170</td>
<td>235</td>
<td>18.4 ± 2.0</td>
<td>7.2</td>
</tr>
</tbody>
</table>

**TERMINATIONS**

40 .187” Quick Connect

4A .250” Quick Connect
TM Series
Mid Size Snap-acting Switches

Features/Benefits
• Broad range of operating forces available
• Wide variety of actuator and terminal styles
• Cost-effective solution

Specifications
CONTACT RATING: From low level* to 15 AMPS @ 250 V AC.
ELECTRICAL LIFE: 150,000 cycles at 15 AMPS @ 250 V AC, models
with 150 grams operating force, 350,000 cycles at 10 AMPS @
250 V AC, models with 75 grams operating force.
INSULATION RESISTANCE: 1,000 M ohms min.
DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.
OPERATING TEMPERATURE: –67°F to 302°F (~55°C to 150°C),
OPERATING FORCE: 50, 75 and 150 grams at actuator available;
refer to chart for lever style forces.
MOUNTING: Torque screws 2-5 in/lbs.
* Low Level=conditions where no arcing occurs during switching, i.e., 0.4 VA max. @
20 V AC or DC max.

Materials
SWITCH HOUSING: Thermoplastic or general purpose phenolic
(UL 94V-0).
ACTUATOR BUTTON: Thermoplastic (UL 94V-0).
SPRING: Copper alloy.
PIVOT: Brass alloy.
MOVABLE CONTACTS: Gold alloy for ratings 1 AMP @ 125 V AC
or less. Fine silver for ratings greater than 1 AMP @ 125 V AC.
STATIONARY CONTACTS: Gold alloy for ratings greater than 1 AMP.
TERMINALS: Brass alloy for ratings up to 10 AMPS @ 250 V AC.
Copper alloy for 15 AMPS @ 250 V AC ratings.

Build-A-Switch
To order, simply select desired option from each category and place in the appropriate box. For additional options not shown in
catalog, consult Customer Service Center.
Available extended electrical life per UL 1054, rated for 100,000 operations, consult factory.

Electrical Rating

| Series | Operating Force | CG | 2.65 oz./75 grams |
| GJ | 5.29 oz./150 grams |
| CF | 1.76 oz./50 grams |

Actuator

| P00 | Pin plunger |
| A10 | .81" lever roller, high force |
| A15 | 1.34" lever roller, high force |
| A20 | 1.02" lever roller, low force |
| A25 | 1.56" lever roller, low force |
| T10 | .84" lever, high force |
| T13 | 1.34" simulated roller, high force |
| T14 | 1.29" simulated roller, high force |
| T15 | 1.40" lever, high force |
| T16 | 2.34" lever, high force |
| T17 | 2.00" lever, high force |
| T18 | 2.75" lever, high force |
| T20 | 1.06" lever, low force |
| T23 | 1.56" simulated roller, low force |
| T24 | 1.50" simulated roller, low force |
| T25 | 1.62" lever, low force |
| T26 | 2.56" lever, low force |
| T27 | 2.22" lever, low force |
| T28 | 2.97" lever, low force |

Terminations

| 40 | .187" quick connect |
| 10 | Solder |
| 4A | .250" quick connect |
| 60 | Screw |

Circuitry

| C | SPDT |
| W | SPST N.C. |
| Y | SPST N.O. |

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
TM Series
Mid Size Snap-acting Switches

OPERATING FORCE

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>OPERATING FORCE (OZ./GRAMS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CG</td>
<td>2.65</td>
</tr>
<tr>
<td>CJ</td>
<td>5.29</td>
</tr>
<tr>
<td>CF</td>
<td>1.76</td>
</tr>
</tbody>
</table>

Operating Force option ‘CF’ not available with ‘T18, T27 and T28’ actuator options. Operating force varies with actuator option, see ACTUATOR option section.

ELECTRICAL RATING

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>CONTACT MATERIAL MOVABLE CONTACT</th>
<th>CONTACT MATERIAL STATIONARY CONTACT</th>
<th>ELECTRICAL RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>D6</td>
<td>Fine Silver</td>
<td>Fine Silver</td>
<td>10 AMPS @ 125 &amp; 250 V AC; 1/3 HP @ 125 &amp; 250 V AC; 1/2 AMP @ 125 V DC; 1/4 AMP @ 250 V DC.</td>
</tr>
<tr>
<td>F5</td>
<td>Gold alloy</td>
<td>Gold alloy</td>
<td>From low level to 1 AMP @ 125 V AC, 1 AMP @ 30 V DC.</td>
</tr>
<tr>
<td>G6</td>
<td>Fine Silver</td>
<td>Fine Silver</td>
<td>15 AMPS @ 125 &amp; 250 V AC; 0.25 AMP @ 250 V DC; 0.5 AMP @ 125 V DC; 1/2 HP @ 125 &amp; 250 V AC; 3 AMPS @ 125 V AC “L”.</td>
</tr>
<tr>
<td>H3</td>
<td>Fine Silver</td>
<td>Fine Silver</td>
<td>5 AMPS @ 250 V AC; 1/6 HP @ 125 &amp; 250 V AC.</td>
</tr>
</tbody>
</table>

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

* All models 

Contact 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.
TM Series
Mid Size Snap-acting Switches

ELECTRICAL RATING

AVAILABLE COMBINATIONS

<table>
<thead>
<tr>
<th>ELECTRICAL RATING</th>
<th>1.76/50 CF</th>
<th>2.65/75 CG</th>
<th>5.29/150 CJ</th>
</tr>
</thead>
<tbody>
<tr>
<td>D6</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>F5</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>G6</td>
<td>X</td>
<td>X</td>
<td>•</td>
</tr>
<tr>
<td>H3</td>
<td>•</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

• AVAILABLE
X NOT AVAILABLE

MOUNTING STYLE

S Standard
V Metric

Recommended maximum screw size: 4-40.

Recommended maximum screw size: 3 mm.

NOTE: Torque mounting screws 2-5 in/lbs.

* All models

Contact 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.

---

Dimensions are shown: Inch (mm)

Specifications and dimensions subject to change
ACTUATOR

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>FIG.</th>
<th>DIM. A</th>
<th>DIM. B</th>
<th>DIM. C</th>
<th>DIM. D</th>
</tr>
</thead>
<tbody>
<tr>
<td>P00</td>
<td>2</td>
<td>.80 (20,3)</td>
<td>—</td>
<td>.678 ± .015 (14,68 ± 0,38)</td>
<td>—</td>
</tr>
<tr>
<td>A10</td>
<td>1</td>
<td>.81 (20,6)</td>
<td>.36 (9,1)</td>
<td>.810 ± .020 (20,57 ± 0,51)</td>
<td>.9 dia. (4,80)</td>
</tr>
<tr>
<td>A15</td>
<td>1</td>
<td>1.34 (34,0)</td>
<td>.36 (9,1)</td>
<td>.810 ± .040 (20,57 ± 1,00)</td>
<td>.9 dia. (4,80)</td>
</tr>
<tr>
<td>A20</td>
<td>1</td>
<td>1.53 (39,6)</td>
<td>.58 (14,7)</td>
<td>.810 ± .050 (20,57 ± 1,27)</td>
<td>.9 dia. (4,80)</td>
</tr>
<tr>
<td>A25</td>
<td>1</td>
<td>1.56 (39,6)</td>
<td>.58 (14,7)</td>
<td>.810 ± .080 (20,57 ± 2,03)</td>
<td>.9 dia. (4,80)</td>
</tr>
<tr>
<td>T10</td>
<td>3</td>
<td>.84 (21,3)</td>
<td>.36 (9,1)</td>
<td>.600 ± .020 (15,24 ± 0,51)</td>
<td>—</td>
</tr>
<tr>
<td>T13</td>
<td>4</td>
<td>1.34 (34,0)</td>
<td>.36 (9,1)</td>
<td>.810 ± .040 (20,57 ± 1,02)</td>
<td>.9 dia. (4,80)</td>
</tr>
<tr>
<td>T14</td>
<td>4</td>
<td>1.28 (32,5)</td>
<td>.36 (9,1)</td>
<td>.743 ± .050 (18,9 ± 1,3)</td>
<td>.9 dia. (4,80)</td>
</tr>
<tr>
<td>T15</td>
<td>3</td>
<td>1.40 (35,6)</td>
<td>.36 (9,1)</td>
<td>.600 ± .040 (15,24 ± 1,02)</td>
<td>—</td>
</tr>
<tr>
<td>T16</td>
<td>3</td>
<td>2.34 (59,4)</td>
<td>.36 (9,1)</td>
<td>.600 ± .062 (15,24 ± 1,57)</td>
<td>—</td>
</tr>
<tr>
<td>T17</td>
<td>3</td>
<td>2.00 (50,8)</td>
<td>.36 (9,1)</td>
<td>.600 ± .052 (15,24 ± 1,57)</td>
<td>—</td>
</tr>
<tr>
<td>T18</td>
<td>3</td>
<td>2.75 (69,9)</td>
<td>.36 (9,1)</td>
<td>.600 ± .093 (15,24 ± 2,36)</td>
<td>—</td>
</tr>
<tr>
<td>T20</td>
<td>3</td>
<td>1.06 (26,9)</td>
<td>.58 (14,7)</td>
<td>.600 ± .045 (15,24 ± 1,14)</td>
<td>—</td>
</tr>
<tr>
<td>T23</td>
<td>4</td>
<td>1.56 (39,6)</td>
<td>.58 (14,7)</td>
<td>.810 ± .065 (20,57 ± 1,65)</td>
<td>.9 dia. (4,80)</td>
</tr>
<tr>
<td>T24</td>
<td>4</td>
<td>1.50 (38,1)</td>
<td>.58 (14,7)</td>
<td>.743 ± .090 (18,82 ± 2,29)</td>
<td>.9 dia. (4,80)</td>
</tr>
<tr>
<td>T25</td>
<td>3</td>
<td>1.62 (41,1)</td>
<td>.58 (14,7)</td>
<td>.600 ± .080 (15,24 ± 2,03)</td>
<td>—</td>
</tr>
<tr>
<td>T26</td>
<td>3</td>
<td>2.56 (65,0)</td>
<td>.56 (14,7)</td>
<td>.600±.125 (15,24±3,18)</td>
<td>—</td>
</tr>
<tr>
<td>T27</td>
<td>3</td>
<td>2.22 (56,4)</td>
<td>.58 (14,7)</td>
<td>.600±.125 (15,24±3,18)</td>
<td>—</td>
</tr>
<tr>
<td>T28</td>
<td>3</td>
<td>2.97 (75,4)</td>
<td>.58 (14,7)</td>
<td>.600±.187 (15,24±4,75)</td>
<td>—</td>
</tr>
</tbody>
</table>

**HIGH FORCE, LOW MOTION PIVOT POSITION**

Available with actuators A10, A15, T10, T13, T14, T15, T16, T17 and T18.

**LOW FORCE, HIGH MOTION PIVOT POSITION**


**NOTE:** Lever actuator options are available in either of two pivot positions. Levers located in the forward pivot position have lower forces and higher motions. Levers located in the rear pivot position have higher forces and lower motions.
## TM Series
Mid Size Snap-acting Switches

### ACTUATOR

### SWITCH CHARACTERISTICS

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>MAXIMUM OPERATING FORCE (OZ./GRAMS)</th>
<th>MINIMUM RELEASE FORCE (OZ./GRAMS)</th>
<th>MINIMUM RETURN FORCE (OZ./GRAMS)</th>
<th>MAXIMUM DIFFERENTIAL TRAVEL</th>
<th>MAXIMUM PRETRAVEL</th>
<th>MINIMUM OVERTRAVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>T10</td>
<td>CF (80) 2.12 .317 3.17 6.35</td>
<td>CG (78) .49 1.19 1.69</td>
<td>CJ (150) .25 1.06</td>
<td>.013 (0.33)</td>
<td>.090 (2.03)</td>
<td>.035 (0.89)</td>
</tr>
<tr>
<td></td>
<td>60 90 14 28 48</td>
<td></td>
<td>7 15 30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T13</td>
<td>CF (80) 1.06 .59 2.82</td>
<td>CG (78) .21 3.35 1.71</td>
<td>CJ (150) .11 1.40 1.35</td>
<td>.030 (0.76)</td>
<td>.160 (4.06)</td>
<td>.065 (1.65)</td>
</tr>
<tr>
<td></td>
<td>30 50 6 10 20</td>
<td></td>
<td>3 4 10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T13</td>
<td>CF (80) 1.06 .76 3.17</td>
<td>CG (78) .25 3.35 1.71</td>
<td>CJ (150) .11 1.40 1.35</td>
<td>.050 (1.27)</td>
<td>.140 (3.56)</td>
<td>.062 (1.57)</td>
</tr>
<tr>
<td></td>
<td>30 50 7 10 20</td>
<td></td>
<td>3 4 10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T15</td>
<td>CF (80) 1.06 .59 2.28</td>
<td>CG (78) .21 3.22 1.71</td>
<td>CJ (150) .11 1.40 1.35</td>
<td>.032 (0.81)</td>
<td>.160 (4.06)</td>
<td>.075 (1.90)</td>
</tr>
<tr>
<td></td>
<td>30 50 6 9 20</td>
<td></td>
<td>3 4 10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T16</td>
<td>.53 .71 1.41 .11 3.5 1.35</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15 20 3 5 10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T17</td>
<td>.71 .88 1.76 .14 4.28</td>
<td>N/A .14 28</td>
<td>N/A .04 14</td>
<td>.078 (1.98)</td>
<td>.375 (9.52)</td>
<td>.160 (4.06)</td>
</tr>
<tr>
<td></td>
<td>20 25 4 6 12</td>
<td></td>
<td>1 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T18</td>
<td>N/A .71 1.23 35</td>
<td>N/A .14 28</td>
<td>N/A .04 14</td>
<td>.078 (1.98)</td>
<td>.375 (9.52)</td>
<td>.160 (4.06)</td>
</tr>
<tr>
<td></td>
<td>20 20 4 6 12</td>
<td></td>
<td>1 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T20</td>
<td>1.06 .59 3.17 .21 3.22 1.71</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>30 30 6 9 20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T23</td>
<td>.53 .06 1.59 .11 3.5 1.35</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15 30 3 5 10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T24</td>
<td>.53 .12 1.76 .11 3.5 1.35</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15 35 3 5 10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T25</td>
<td>.71 .06 1.41 .07 1.32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>20 30 2 4 9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T26</td>
<td>N/A .35 1.71 35</td>
<td>N/A .07 18</td>
<td>N/A .04 11</td>
<td>.110 (2.78)</td>
<td>.500 (12.7)</td>
<td>.250 (6.35)</td>
</tr>
<tr>
<td></td>
<td>20 20 2 4 9</td>
<td></td>
<td>1 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T27</td>
<td>N/A .60 1.88 35</td>
<td>N/A .11 21</td>
<td>N/A .04 11</td>
<td>.125 (3.18)</td>
<td>.500 (12.7)</td>
<td>.200 (5.08)</td>
</tr>
<tr>
<td></td>
<td>25 25 3 6 9</td>
<td></td>
<td>1 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T28</td>
<td>N/A .42 1.63 35</td>
<td>N/A .07 14</td>
<td>N/A .04 11</td>
<td>.187 (4.15)</td>
<td>.750 (19.05)</td>
<td>.280 (7.11)</td>
</tr>
<tr>
<td></td>
<td>18 18 2 4 9</td>
<td></td>
<td>1 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A10</td>
<td>2.12 .317 3.17 6.35</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>60 90 14 28 48</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A15</td>
<td>1.06 .59 2.82 .21 3.35 1.71</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>30 45 6 10 20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A20</td>
<td>1.06 .76 3.17 .25 3.35 1.71</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>30 50 7 10 20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A25</td>
<td>.53 .06 1.59 .11 3.5 1.35</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15 30 3 5 10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P00</td>
<td>1.76 .26 5.29 .71 1.99 2.12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>50 75 20 28 60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** For basic switch operating forces, see page J-26.

---

**Specifications and dimensions subject to change**

Dimensions are shown: Inch (mm)

www.ckswitches.com
TM Series
Mid Size Snap-acting Switches

TERMINATIONS

40 .187" QUICK CONNECT

60 SCREW TERMINALS

Torque screws to 6 in. lbs max.

Not available with 'F5' rating option.

10 SOLDER

4A .250" QUICK CONNECT

Not available with 'F5' rating option.

CIRCUITRY

C SPDT (Single Pole, Double Throw)

W SPST N.C. (Single Pole, Single Throw, Normally Closed)

Y SPST N.O. (Single Pole, Single Throw, Normally Open)
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

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 ohm min.
DIELECTRIC STRENGTH: 1,500 Vrms min. @ sea level.
OPERATING TEMPERATURE: -67ºF to 302ºF (-55ºC to 150ºC).
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.

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 alloy 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 alloy 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. For additional options not shown in catalog, consult Customer Service Center.

<table>
<thead>
<tr>
<th>Series</th>
<th>Operating Force</th>
<th>Mounting Style</th>
<th>Circuitry</th>
</tr>
</thead>
<tbody>
<tr>
<td>HB</td>
<td></td>
<td>S</td>
<td>C</td>
</tr>
</tbody>
</table>

H B S

Contact Separation
2 .020"  1 .010"  4 .040"  7 .070"

Electrical Rating
B4 20 A, 125, 250, 480 V AC;
0.25 A, 250 V DC; 0.5 A, 125 V DC
A2 5 A, 125, 250 V AC
B6 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
F5 1 A,125 V AC; 1 A, 30 V DC
F9 22 A, 125, 277 V AC; 15 A, 480 V AC;
1/4 HP, 125 V AC; 1/2 HP, 250 V AC

Actuator
P0 Pin plunger
A0 Lever roller
D0 Stub plunger
F0 Reverse acting lever roller
J0 High overtravel plunger
R0 Perpendicular roller plunger
T0 Lever
T5 Sealed Lever
Y0 Reverse acting lever

Terminations
11 Flat base, solder, 4-40 screws
41 Flat base, .250" quick connect
55 Step base, cup washers, 6-32 screws

Dimensions are shown: mm
Specifications and dimensions subject to change
www.ckswitches.com

J-105
18 Jan 21
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.

FUNCTION

S SINGLE POLE SWITCH

CONTACT SEPARATION

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>NOMINAL CONTACT SEPARATION (in./mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>.020 (0.51)</td>
</tr>
<tr>
<td>1</td>
<td>.010 (0.25)</td>
</tr>
<tr>
<td>4</td>
<td>.040 (1.02)</td>
</tr>
<tr>
<td>7</td>
<td>.070 (1.78)</td>
</tr>
</tbody>
</table>

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').

NOTE: To select switching function, see CIRCUITY section, page J-52.
**OPERATING FORCE**

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>MAXIMUM OPERATING FORCE (OZ./GRAMS)</th>
<th>STANDARD CONTACT SEPARATION (inch)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KG</td>
<td>18 210</td>
<td>.020</td>
</tr>
<tr>
<td>GF</td>
<td>4 115</td>
<td>.010</td>
</tr>
<tr>
<td>KA</td>
<td>9 255</td>
<td>.010</td>
</tr>
<tr>
<td>KC</td>
<td>13 370</td>
<td>.020</td>
</tr>
<tr>
<td>KH</td>
<td>20 570</td>
<td>.040</td>
</tr>
<tr>
<td>PB</td>
<td>26 740</td>
<td>.070</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CONTACT SEPARATION</th>
<th>OUNCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>.010</td>
</tr>
<tr>
<td>7</td>
<td>.020</td>
</tr>
<tr>
<td>9</td>
<td>.040</td>
</tr>
<tr>
<td>13</td>
<td>.070</td>
</tr>
</tbody>
</table>

**ELECTRICAL RATING**

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>MOVABLE CONTACT</th>
<th>STATIONARY CONTACT</th>
<th>ELECTRICAL RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>B4</td>
<td>Fine silver.</td>
<td>Fine silver welded to copper base.</td>
<td>20 AMPS @ 125, 250 &amp; 480 V AC; 0.25 AMPS @ 250 V DC; 0.5 AMPS @ 125 V DC (UL). 5 AMPS @ 125 &amp; 250 V AC (UL).</td>
</tr>
<tr>
<td>A2</td>
<td>Precious metal alloy.</td>
<td>Precious metal alloy.</td>
<td>20 AMPS @ 125, 250 &amp; 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).</td>
</tr>
<tr>
<td>B6</td>
<td>Gold alloy.</td>
<td>Gold alloy.</td>
<td>Low level* to 1 AMP @ 125 V AC; 1 AMP @ 30 V DC (UL).</td>
</tr>
<tr>
<td>F5</td>
<td>Fine silver.</td>
<td>Fine silver welded to copper base.</td>
<td>22 AMPS @ 125 &amp; 277 V AC; 15 AMPS @ 460 V AC; 1/4 HP @ 125 V AC; 1/2 HP @ 250 V AC; 277 V AC (UL).</td>
</tr>
</tbody>
</table>

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

**AVAILABLE COMBINATIONS**

<table>
<thead>
<tr>
<th>ELECTRICAL RATING</th>
<th>OPERATING FORCE (oz.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
</tr>
<tr>
<td>A2</td>
<td>*</td>
</tr>
<tr>
<td>B4</td>
<td>x</td>
</tr>
<tr>
<td>B6</td>
<td>x</td>
</tr>
<tr>
<td>F5</td>
<td>x</td>
</tr>
<tr>
<td>F9</td>
<td>x</td>
</tr>
</tbody>
</table>

* 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.
**HB Series**

**Single Pole Standard Precision Snap-acting Switches**

### MOUNTING STYLE

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>NO. POLES</th>
<th>FIG.</th>
<th>DIM. A</th>
<th>DIM. B</th>
<th>DIM. C</th>
<th>DIM. D</th>
</tr>
</thead>
<tbody>
<tr>
<td>A0</td>
<td>SP</td>
<td>1</td>
<td>.86 (21.6)</td>
<td>1.120 ± .000 (28.45 ± 1.52)</td>
<td>.36 dia. (9.70)</td>
<td>1.03 (26.2)</td>
</tr>
<tr>
<td>D0</td>
<td>SP</td>
<td>3</td>
<td>.92 (23.4)</td>
<td>.844 ± .020 (21.44 ± 0.51)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>F0</td>
<td>SP</td>
<td>2</td>
<td>.09 (2.3)</td>
<td>1.120 ± .050 (28.45 ± 1.27)</td>
<td>.38 dia. (9.70)</td>
<td>.74 (18.8)</td>
</tr>
<tr>
<td>J0</td>
<td>SP</td>
<td>4</td>
<td>.86 (21.8)</td>
<td>.860 ± .030 (21.84 ± 0.76)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>P0</td>
<td>SP</td>
<td>5</td>
<td>.92 (23.4)</td>
<td>.625 ± .010 (15.88 ± 0.25)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>R5</td>
<td>SP</td>
<td>6</td>
<td>.92 (23.4)</td>
<td>.62 (15.7)</td>
<td>.50 dia. (12.70)</td>
<td>.61 (15.5)</td>
</tr>
<tr>
<td>T0</td>
<td>SP</td>
<td>7</td>
<td>1.310 (33.27)</td>
<td>.720 ± .000 (18.28 ± 1.52)</td>
<td>1.03 dia. (26.20)</td>
<td>–</td>
</tr>
<tr>
<td>TS*</td>
<td>SP</td>
<td>7</td>
<td>1.47 (37.3)</td>
<td>.720 ± .000 (18.28 ± 1.52)</td>
<td>1.03 dia. (26.20)</td>
<td>–</td>
</tr>
<tr>
<td>Y0</td>
<td>SP</td>
<td>8</td>
<td>.05 (1.3)</td>
<td>.720 ± .030 (18.29 ± 0.76)</td>
<td>.74 dia. (18.80)</td>
<td>2.65 (6.70)</td>
</tr>
</tbody>
</table>

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

**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.

**Specifications and dimensions subject to change**

www.ckswitches.com
## HB Series

### Single Pole Standard Precision Snap-acting Switches

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>ACTUATOR</th>
<th>* SEALED ACTUATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>GF</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>KA</td>
<td>9.5</td>
<td>10</td>
</tr>
<tr>
<td>KC</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>KG</td>
<td>3.5</td>
<td>10</td>
</tr>
<tr>
<td>KH</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>PB</td>
<td>4.5</td>
<td>130</td>
</tr>
</tbody>
</table>

### MAXIMUM OPERATING FORCE (OZ./GRAMS)

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>ACTUATOR</th>
<th>* SEALED ACTUATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>GF</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>KA</td>
<td>4</td>
<td>110</td>
</tr>
<tr>
<td>KC</td>
<td>0.02</td>
<td>0.08</td>
</tr>
<tr>
<td>KG</td>
<td>0.062</td>
<td>0.03</td>
</tr>
<tr>
<td>KH</td>
<td>0.08</td>
<td>0.02</td>
</tr>
<tr>
<td>PB</td>
<td>0.125</td>
<td>0.07</td>
</tr>
</tbody>
</table>

### MINIMUM RELEASE FORCE (OZ./GRAMS)

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>ACTUATOR</th>
<th>* SEALED ACTUATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>GF</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>KA</td>
<td>0.312</td>
<td>0.20</td>
</tr>
<tr>
<td>KC</td>
<td>0.02</td>
<td>0.20</td>
</tr>
<tr>
<td>KG</td>
<td>0.312</td>
<td>0.20</td>
</tr>
<tr>
<td>KH</td>
<td>0.38</td>
<td>0.20</td>
</tr>
<tr>
<td>PB</td>
<td>0.38</td>
<td>0.20</td>
</tr>
</tbody>
</table>

### MAXIMUM DIFFERENTIAL TRAVEL (IN/MM)

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>ACTUATOR</th>
<th>* SEALED ACTUATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>GF</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>KA</td>
<td>0.005</td>
<td>0.005</td>
</tr>
<tr>
<td>KC</td>
<td>0.002</td>
<td>0.002</td>
</tr>
<tr>
<td>KG</td>
<td>0.004</td>
<td>0.003</td>
</tr>
<tr>
<td>KH</td>
<td>0.003</td>
<td>0.003</td>
</tr>
<tr>
<td>PB</td>
<td>0.005</td>
<td>0.005</td>
</tr>
</tbody>
</table>

### MAXIMUM PRETRAVEL (IN/MM)

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>ACTUATOR</th>
<th>* SEALED ACTUATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>GF</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>KA</td>
<td>0.25</td>
<td>0.25</td>
</tr>
<tr>
<td>KC</td>
<td>0.05</td>
<td>0.20</td>
</tr>
<tr>
<td>KG</td>
<td>0.25</td>
<td>0.20</td>
</tr>
<tr>
<td>KH</td>
<td>0.03</td>
<td>0.03</td>
</tr>
<tr>
<td>PB</td>
<td>0.03</td>
<td>0.03</td>
</tr>
</tbody>
</table>

### MINIMUM OVERTRAVEL (IN/MM)

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>ACTUATOR</th>
<th>* SEALED ACTUATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>GF</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>KA</td>
<td>0.156</td>
<td>0.156</td>
</tr>
<tr>
<td>KC</td>
<td>0.05</td>
<td>0.05</td>
</tr>
<tr>
<td>KG</td>
<td>0.156</td>
<td>0.156</td>
</tr>
<tr>
<td>KH</td>
<td>0.156</td>
<td>0.156</td>
</tr>
<tr>
<td>PB</td>
<td>0.156</td>
<td>0.156</td>
</tr>
</tbody>
</table>

### NOTE:
For basic switch operating forces, see page J-71. * Actuators sealed against the entrance of airborne contaminants and/or splashing liquids.
HB Series
Single Pole Standard Precision Snap-acting Switches

TERMINATIONS

11 FLAT BASE, SOLDER TERMINALS AND 4-40 SCREWS

41 FLAT BASE, .250° QUICK CONNECT TERMINALS

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

55 STEP BASE, 6-32 SCREWS AND CUP WASHERS

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

CIRCUITRY

C DT (Double Throw, Normally Closed & Normally Open)
A Series
General Purpose Snap-acting Switches

Features/Benefits
• Low cost—high performance
• Long electrical life
• Single and double pole
• Sealed actuator option available

Specifications
CONTACT RATING: From low level* to 25 AMPS @ 277 V AC.
ELECTRICAL LIFE: 75,000 cycles at 25 AMPS @ 250 V AC,
200,000 cycles at 15 AMPS @ 250 V AC.
INSULATION RESISTANCE: 1,000 M ohm min.
DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.
OPERATING TEMPERATURE: –67ºF to 302ºF (–55ºC to 150ºC).
OPERATING FORCE: 20 oz. (567 grams) max. SP models.
40 oz. (1134 grams) max. DP models at actuator button.
MOUNTING: Torque screws 3 in/lbs max.
MOUNTING NUT: 20 in/lbs max. torque

NOTE: Specifications and materials listed above are for switches with standard options.
C&K does provide specific and custom switches at 30 AMPS @ 277 VAC. Please consult Customer Service Center.

Build-A-Switch
To order, simply select desired option from each category and place in the appropriate box. For additional options not shown in catalog, consult Customer Service Center.

Materials
SWITCH HOUSING: Heat resistant phenolic (UL 94V-0).
ACTUATOR BUTTON: Heat resistant phenolic (UL 94V-0).
SPRING: Copper alloy.
PIVOT: Brass alloy for models up to 15 AMPS.
Copper for 25 AMP models.
MOVABLE CONTACTS: Gold alloy for ratings 1 AMP or less.
Fine silver for ratings up to 15 AMPS. Silver alloy for ratings of 25 AMPS.
STATIONARY CONTACTS: Gold alloy on brass base alloy for ratings 1 AMP or less. Fine silver welded on brass base alloy for ratings greater than 1 AMP up to 15 AMPS. Fine silver welded on copper alloy for ratings 25 AMPS.
TERMINALS: Brass alloy for 1 AMP up to 15 AMPS. Copper alloy for 25 AMPS.

Electrical Rating
C2 15 A, 125, 250 V AC; 3/4 HP, 125 V AC; 1 1/2 HP, 250 V AC
F3 25 A, 125, 250 V AC; 1 HP, 125 V AC; 2 HP, 250 V AC; 2 A, 24 V DC
F5 1 A, 125 V AC, 30 V DC

Actuator
P0 Pin plunger
T0 Lever
A0 Lever roller
A2 Lever roller, high force
BB Large red button
B1 Large black button
J0 High overtravel plunger
L0 Leaf
Q0 High operating position plunger
W0 Leaf roller

Terminations
4A .250" quick connect

Circuitry
C DT
W ST N.C.
Y ST N.O.
A Series
General Purpose Snap-acting Switches

SERIES

A GENERAL PURPOSE SNAP-ACTING SWITCHES

NO. POLES

S SINGLE POLE SWITCH

Mounting holes will accept pins or screws of .139 dia. (3.53) max., on 1.000 (25.40) centers.

D DOUBLE POLE SWITCH

Mounting holes will accept pins or screws of .139 dia. (3.53) max., on 1.000 (25.40) centers.

NOTE: To select switching function, see CIRCUITRY section, page J-81.

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

www.ckswitches.com

27 Oct 21
A Series
General Purpose Snap-acting Switches

OPERATING FORCE

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>NO. POLES</th>
<th>BASIC SWITCH OPERATING FORCE (OZ./GRAMS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KH</td>
<td>SP</td>
<td>20 567</td>
</tr>
<tr>
<td>PD</td>
<td>DP</td>
<td>30 850</td>
</tr>
<tr>
<td>GG</td>
<td>SP</td>
<td>5 142</td>
</tr>
<tr>
<td>PF</td>
<td>DP</td>
<td>40 1134</td>
</tr>
</tbody>
</table>

**NOTE:** Operating force varies with actuator, see ACTUATOR option section.

ELECTRICAL RATING

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>CONTACT MATERIAL</th>
<th>MOVABLE CONTACT</th>
<th>STATIONARY CONTACT</th>
<th>ELECTRICAL RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>C2</td>
<td>Fine silver.</td>
<td>Fine silver welded on brass base alloy.</td>
<td>15 AMPS @ 125 &amp; 250 V AC; 3/4 HP @ 125 V AC; 1 1/2 HP @ 250 V AC.</td>
<td></td>
</tr>
<tr>
<td>F3</td>
<td>Silver alloy.</td>
<td>Silver welded on copper base alloy.</td>
<td>25 AMPS @ 125 &amp; 250 V AC; 1 HP @ 125 V AC; 2 HP @ 250 V AC; 2 AMPS @ 24 V DC.</td>
<td></td>
</tr>
<tr>
<td>F5</td>
<td>Gold alloy.</td>
<td>Gold alloy on brass base alloy.</td>
<td>From low level* to 1 AMP @ 125 V AC, 30 V DC.</td>
<td></td>
</tr>
</tbody>
</table>

* All models with all options. Contact 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.

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

AVAILABLE COMBINATIONS

<table>
<thead>
<tr>
<th>ELECTRICAL RATING</th>
<th>OPERATING FORCE (OZ./GRAMS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GG 142</td>
<td>SP 20 567</td>
</tr>
<tr>
<td>KH 30 850</td>
<td>SP 20 567</td>
</tr>
<tr>
<td>PD 40 1134</td>
<td>SP 20 567</td>
</tr>
<tr>
<td>PF 40 1134</td>
<td>SP 20 567</td>
</tr>
</tbody>
</table>

* AVAILABLE
X NOT AVAILABLE
# A Series

## General Purpose Snap-acting Switches

## ACTUATOR

<table>
<thead>
<tr>
<th>OPTION CODE</th>
<th>FIG.</th>
<th>DIM. A</th>
<th>DIM. B</th>
<th>DIM. C</th>
<th>DIM. D</th>
<th>DIM. E</th>
<th>DIM. F</th>
</tr>
</thead>
<tbody>
<tr>
<td>P0</td>
<td>1</td>
<td>.50</td>
<td>.286 ± .030</td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(.24 ± .015)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A0</td>
<td>3</td>
<td>1.38</td>
<td>.718 ± .062</td>
<td>.375 dia.</td>
<td>.50</td>
<td>.50</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(1.8 ± .075)</td>
<td>(9.53 ± .5)</td>
<td>(12.7)</td>
<td>(12.7)</td>
<td></td>
</tr>
<tr>
<td>A2</td>
<td>4</td>
<td>1.25</td>
<td>.718 ± .062</td>
<td>.375 dia.</td>
<td>.50</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(1.8 ± .075)</td>
<td>(9.53 ± .5)</td>
<td>(12.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B1</td>
<td>6</td>
<td>1.50</td>
<td>.40 ± .01</td>
<td>.98 dia.</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(.10 ± .005)</td>
<td>(24.9 ± .5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BB</td>
<td>6</td>
<td>1.50</td>
<td>.40 ± .01</td>
<td>.98 dia.</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(.10 ± .005)</td>
<td>(24.9 ± .5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J0</td>
<td>5</td>
<td>.50</td>
<td>.810 ± .030</td>
<td>.38</td>
<td>.25 dia.</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(20.6 ± .08)</td>
<td>(9.7)</td>
<td>(6.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>L0</td>
<td>2</td>
<td>1.62</td>
<td>.312 ± .062</td>
<td>.50</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(17.9 ± .5)</td>
<td>(12.7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q0</td>
<td>5</td>
<td>.50</td>
<td>.670 ± .030</td>
<td>.38</td>
<td>.25 dia.</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(20.6 ± .08)</td>
<td>(9.7)</td>
<td>(6.4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T0</td>
<td>7</td>
<td>1.50</td>
<td>.318 ± .062</td>
<td>.50</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(8.08 ± .5)</td>
<td>(12.7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W0</td>
<td>8</td>
<td>1.50</td>
<td>.807 ± .062</td>
<td>.375 dia.</td>
<td>.50</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(20.34 ± .5)</td>
<td>(9.53)</td>
<td>(12.7)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**FIG. 1**

High Overtravel Plunger

**FIG. 2**

Leaf

**FIG. 3**

Lever Roller

**FIG. 4**

Lever roller (High Force)

**FIG. 5**

High Overtravel Plunger

*Torque 20 in/lbs max. (Nut)*

**FIG. 6**

B1 – Black Button

BB – Red Button

**FIG. 7**

Lever

**FIG. 8**

Leaf Roller

---

**NOTE:** The “H0” high overtravel plunger option provides .100 (2.54) min. overtravel and longer mechanical life (1,000,000 operations typical).
NOTE: For basic switch operating forces, see page J-77.

TERMINATIONS

4A .250" QUICK CONNECT

NOTE: Terminals can be supplied at various angles. Other terminal styles can be supplied for special applications. Consult Customer Service Center for special requirements.

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

W ST N.C. (Single Throw, Normally Closed)

Y ST N.O. (Single Throw, Normally Open)

NOTE: To select number of poles, see NO. POLES section, page J-56

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

www.ckswitches.com
TL Series
Door Interlock Switches

Features/Benefits
- Push/pull motion
- Multiple mounting configurations
- Wide variety of termination options
- Ratings up to 15 AMPS

Typical Applications
- Computer enclosures
- Panel builders
- Industrial enclosures

Specifications
CONTACT RATING: 15 AMPS @ 125 & 250 V AC; 0.25 AMP @ 250 V DC; 0.5 AMP @ 125 V DC; 1/2 HP @ 125 & 250 V AC; 3 AMPS @ 125 V AC "L".
ELECTRICAL LIFE: 150,000 cycles at 15 AMPS @ 250 V AC.
INSULATION RESISTANCE: 1,000 M ohm min.
DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.
OPERATING TEMPERATURE: -67°F to 302°F (-55°C to 150°C).

Materials
SWITCH HOUSING: Thermoplastic or general purpose phenolic (UL 94V-0).
MOUNTING BRACKET: Stainless steel.
PLUNGER: Stainless steel.
ACTUATOR BUTTON: Thermoplastic (UL 94V-0).
SPRING: Copper alloy.
PIVOT: Brass alloy.
MOVABLE CONTACT: Fine silver.
STATIONARY CONTACTS: Fine silver.
TERMINALS: Copper alloy.

Build-A-Switch
To order, simply select desired option from each category and place in the appropriate box. For additional options not shown in catalog, consult Customer Service Center.

Model
- 11TL One TM Series SPDT switch
- 12TL One TM Series SPDT switch
- 23TL Two TM Series SPDT switches

Terminations
- 60 Screw
- 40 .187" Quick connect
- 4A .250" Quick connect

Plunger
- 2 Stainless steel, not tapped
- 4 Stainless steel, tapped
TL Series
Door Interlock Switches

MODEL

11TL  WITH SMALL BRACKET

11TL602
SPDT

12TL  WITH LARGE BRACKET

12TL602
SPDT

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

Torque screws to 6in lbs max
TL Series
Door Interlock Switches

MODEL

23TL WITH TWO SWITCHES

TERMINATIONS

60 SCREW TERMINALS

40 .187” QUICK CONNECT

4A .250” QUICK CONNECT

PLUNGERS

2 STAINLESS STEEL, NOT TAPPED

4 STAINLESS STEEL, TAPPED 4-40 x .375 (9.52) min. depth
SL Series
Sealed Interlock Door Switches

Features/Benefits
• IP67 rated encapsulated wires version
• Dust tight for the quick connect terminal version
• From 0.1A to 10A max. / AC or DC Voltage
• Push (MOM) / pull motion (maintained)
• Threaded or non-threaded plunger
• Excellent sealed solution for harsh or outdoors applications
• Ruggedize design for door detect applications (harsh environments)

Typical Applications
• Industrial food equipment
• String converters
• Test lab equipment
• Panel builders
• Industrial enclosures

Specifications
ELECTRICAL LIFE: 10,000 cycles
CONTACT RATING: 0.1A @ 125/250 VAC or 30VDC; 3A @ 125/250 VAC or 30VDC; 6A @ 125/250 VAC or 30VDC; 10A @ 125/250 VAC or 5A@ 30VDC
ELECTRICAL OPERATING FREQUENCY: 10-30 operations/minute
MECHANICAL LIFE: 1,000,000 operations
MECHANICAL OPERATING FREQUENCY: 120 operations/minute
INSULATION RESISTANCE: (at 500 VDC/minute) 100 M ohm min.
DIELECTRIC STRENGTH: 1,500 VAC (50-60 Hz)
OPERATING TEMPERATURE: –40ºC to 85ºC (with no incing)
OPERATING FORCE: 200 grams

Materials
MOUNTING BRACKET: Stainless steel
PLUNGER: Stainless steel
SPRING: Copper alloy
SWITCH MATERIALS:
CASE: Nylon
COVER: PBT ACTUATOR: PBT
MOVABLE CONTACT: Silver alloy
TERMINALS: Brass
ROLLER LEVER: Stainless steel
WIRE: PVC + CU

Build-A-Switch
To order, simply select desired option from each category and place in the appropriate box. For additional options not shown in catalog, consult Customer Service Center.

Model
11SL SPDT Sealed Switch - Small Bracket
12SL SPDT Sealed Switch - Large Bracket
23SL DPDT Sealed Switch - Extended Bracket

Terminations
40 0.187” Quick Connect
W0 16AWG Wires - UL1015 (T55)

Elect Rating
01 0.1A @ 125/250 VAC or 30VDC
03 3A @ 125/250 VAC or 30VDC
06 6A @ 125/250 VAC or 30VDC
10 10A @ 125/250 VAC or 5A@ 30VDC

Plunger Style
2 Stainless Steel, not tapped
4 Stainless Steel, tapped
SL Series
Sealed Interlock Door Switches

MODEL

11SL WITH SMALL BRACKET

11SL404
SPDT

12SL WITH LARGE BRACKET

12SL404
SPDT

Specifications and dimensions subject to change

Dimensions are shown: Inches (mm)

www.ckswitches.com
SL Series
Sealed Interlock Door Switches

MODEL

23SL  WITH TWO SWITCHES

TERMINATIONS

23SL404
SPDT

3-#187 QUICK CONNECT TERMINAL

WIRE UL1015

20.2
3.1
2.75
10.3
15.9

33
7.8
22.2
27.8

COM : BLACK / UL1015 16AWG OR EQUIVALENT
NC : RED / UL1015 16AWG OR EQUIVALENT
NO : BLUE / UL1015 16AWG OR EQUIVALENT

Specifications and dimensions subject to change

Dimensions are shown: Inches (mm)

Operating Force
LBS MAX
8

www.ckswitches.com
SL Series
Sealed Interlock Door Switches

PLUNGERS

2 STAINLESS STEEL, NOT TAPPED

4 STAINLESS STEEL, TAPPED 4-40 X 0.375 (9.52) MIN. DEPTH

ELECTRICAL RATING

<table>
<thead>
<tr>
<th>Code</th>
<th>AMPs</th>
<th>Wire Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>0.1 @ 125/250 VAC OR 30VDC</td>
<td>16AWG</td>
</tr>
<tr>
<td>03</td>
<td>3</td>
<td>16AWG</td>
</tr>
<tr>
<td>06</td>
<td>6</td>
<td>16AWG</td>
</tr>
<tr>
<td>10</td>
<td>10</td>
<td>16AWG</td>
</tr>
</tbody>
</table>

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change
DS Series
Interlock Snap Switches

Features/Benefits
• Snap-in mounting
• Reliable snap action mechanism
• Latch or momentary
• RoHS compliant
• Halogen free material

Typical Applications
• Interlock switch
• Detection switch
• Circuit interrupt

Specifications
FUNCTION: Single pole double throw / Double pole double throw
MOUNTING TYPE: Snap in style

Electrical
ELECTRICAL LIFE: see ratings chart below
DIELECTRIC STRENGTH: 1500 V (50-60 Hz @ sea level)
INSULATION RESISTANCE: 100 MΩ min.
INITIAL CONTACT RESISTANCE: 30 milli-ohms

Materials
HOUSING, COVER, ACTUATOR, KNOB: PA 66/6 halogen free, UL94V-0
NO & NC FIXED TERMINALS: Copper alloy
COMMON TERMINALS: Copper alloy, silver plate
CONTACTS: Silver alloy / F5 rating gold plated over silver alloy
RETURN SPRINGS: Stainless steel

Operating Environment
OPERATING TEMPERATURE: -40°C to +85°C

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

Build-A-Switch
To order, simply select desired option from each category and place in the appropriate box.

Designation
DS

Number of Poles
1 SPDT
2 DPDT

Rating
F5 0.1 (0.5)A @ 125/250 V AC 50/60 Hz 50E3
0.1A G.P. @ 125/250 V AC 50/60 Hz 50E3
F7 0.1 (0.5)A @ 125/250 V AC 50/60 Hz 10E4
0.1A G.P. @ 125/250 V AC 50/60 Hz 10E4
D6 10 (4)A @125/250 V AC 50/60 Hz 50E3
10A G.P. @ 125/250 V AC 1/3HP @125/250 V AC 50/60 Hz 10E3
D7* 16A G.P. @125/250 V AC 3/4HP 125/250 V AC 50/60 Hz 10E3
16 (6) A @125/250 V AC 50/60 Hz 10E3
* Note - 16A version has Q3 terminals only

International Rating Symbols

Cycles 10,000
10E4 Cycles 100,000
50E3 Cycles 50,000
10(4) Current rating: First number represents resistive rating. Second number represents inductive (motor) rating
GP General purpose rating UL1054

Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change
DS Series
Interlock Snap Switches

NUMBER OF POLES

1 SPDT

2 DPDT

Specifications and dimensions subject to change
www.ckswitches.com
**ACTUATOR STYLE / SPECIFICATIONS**

**A SHORT BUTTON**

**B LONG BUTTON**

**C MOMENTARY/PULLED OUT**

---

**SPDT Specification**

<table>
<thead>
<tr>
<th>BUTTON STYLE</th>
<th>OVER TRAVEL POSITION</th>
<th>OVER TRAVEL POSITION MAX</th>
<th>OPERATING POSITION</th>
<th>OPERATING POSITION PULL</th>
<th>FREE POSITION AT REST</th>
<th>OPERATING FORCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>3.20</td>
<td>NA</td>
<td>8.90 ± 1.25</td>
<td>NA</td>
<td>11.45 ± 0.75</td>
<td>425 gf</td>
</tr>
<tr>
<td>B</td>
<td>10.15</td>
<td>NA</td>
<td>19.55 ± 1.25</td>
<td>NA</td>
<td>22.25 ± 0.75</td>
<td>425 gf</td>
</tr>
<tr>
<td>C</td>
<td>13.20</td>
<td>24.90</td>
<td>16.75 ± 1.25</td>
<td>21.60 ± 1.25</td>
<td>19.30 ± 0.75</td>
<td>PUSH 385gf PULL 475gf</td>
</tr>
</tbody>
</table>

**DPDT Specification**

<table>
<thead>
<tr>
<th>BUTTON STYLE</th>
<th>OVER TRAVEL POSITION</th>
<th>OVER TRAVEL POSITION MAX</th>
<th>OPERATING POSITION</th>
<th>OPERATING POSITION PULL</th>
<th>FREE POSITION AT REST</th>
<th>OPERATING FORCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>3.20</td>
<td>NA</td>
<td>8.90 ± 1.25</td>
<td>NA</td>
<td>11.45 ± 0.75</td>
<td>680 gf</td>
</tr>
<tr>
<td>B</td>
<td>10.15</td>
<td>NA</td>
<td>19.55 ± 1.25</td>
<td>NA</td>
<td>22.25 ± 0.75</td>
<td>680gf</td>
</tr>
<tr>
<td>C</td>
<td>13.20</td>
<td>24.90</td>
<td>16.75 ± 1.25</td>
<td>21.60 ± 1.25</td>
<td>19.30 ± 0.75</td>
<td>PUSH 560gf PULL 750gf</td>
</tr>
</tbody>
</table>

---

**TERMINALS**

Q1 4.8 x 0.5
Q2 4.8 x 0.8
Q3 6.3 x 0.8

---

Dimensions are shown: mm
Specifications and dimensions subject to change

C&K

31 oct 16

www.ckswitches.com

DS Series
Interlock Snap Switches

J-127