

Military



Illuminated AC Rated



General Purpose AC/DC Rated



X Series Toggles



|            |  |           |
|------------|--|-----------|
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# 4.1

## Toggle Switches

### Introduction

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#### Toggle Switches









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##### Description

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### Product Selection Guide

#### Toggle Switches

|                            | Military Purpose Toggles  | Illuminated AC Rated Switches  | General Purpose Toggles—AC Rated  |
|----------------------------|---|--|---|
|                            |    |   |   |
| <b>Product Selection</b>   | Page V11-T4-3   | Page V11-T4-9  | Page V11-T4-20  |
| <b>Circuit Diagram</b>     | Page V11-T4-35  | —  | Page V11-T4-35  |
| <b>Product Description</b> | Eaton's military purpose switches are designed to meet the requirements of MIL-S-83731  | These illuminated switches are available only in single-pole circuitry. A two-pole base is utilized with single-pole housing the lamp. | These AC rated toggle switches offer the widest selection of features and the design flexibility to meet a variety of applications.   |
|                            | General Purpose Toggles—AC/DC Rated   | X Series Toggles   | Heavy Duty Hesitation Switches  |
|                            |    |   |   |
| <b>Product Selection</b>   | Page V11-T4-20  | Page V11-T4-24   | Page V11-T4-27  |
| <b>Circuit Diagram</b>     | Page V11-T4-35  | —  | Page V11-T4-35  |
| <b>Product Description</b> | This line of switches employs a quick-make/quick-break contact mechanism. These switches are especially suited for use in small motor applications. | Eaton's new, competitively priced, AC rated X Series toggles offer a standard high rating for both single- and two-pole applications.  | The most common application for this switch is to help prevent motor damage resulting from the high current generation by counter EMF of the armature at the time of reversing. |

### Military Purpose Toggles



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#### Description

Military Purpose Toggles

|   |          |
|---|----------|
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### Product Description

Eaton's military purpose switches are designed to meet the requirements of MIL-S-83731. Sealed Switches have a silicone rubber lever seal assembled between the lever and the bushing to resist the entrance of contaminants such as dust, sand or water into the contact structure.

The switch mechanisms are completely enclosed to resist the entrance of contaminants into the switch. All metal parts are plated to resist corrosion. The heavy duty switches are offered in both standard toggle lever and lever lock versions. Circuit designations are stamped on the side of each switch.

### Standards and Certifications

- MIL-S-83731

### Product Selection

#### AC/DC Rated (Medium Duty) MIL-S-83731



| Current Ratings    | Poles and Throw | Circuit with Toggle in ... |                      |                            | Base Circuit See Page V11-T4-35 | Dimension "A" Inches (mm) | Dimension "B" Inches (mm) | Military Solder Lug Terminals                               |  |
|--------------------|-----------------|----------------------------|----------------------|----------------------------|---------------------------------|---------------------------|---------------------------|---|--|
|                    |                 | UP Position                | CENTER Position      | DOWN Position  (Keyway)    |                                 |                           |                           | MIL-S-83731 with Sealed Lever                               | Catalog Number                                     |
| <b>Single-Pole</b> |                 |                            |                      |                            |                                 |                           |                           |   |  |
| See <b>A</b> below | 1PST            | ON<br>ON<br>OFF            | NONE<br>NONE<br>NONE | OFF<br>MOM. OFF<br>MOM. ON | A                               | —                         | 0.906 (23.01)             | <b>MS25098-22</b><br><b>MS25098-29</b><br><b>MS25098-30</b> | <b>8261K22</b><br><b>8261K29</b><br><b>8261K30</b> |
| See <b>A</b> below | 1PDT            | ON<br>ON                   | NONE<br>NONE         | ON<br>MOM. ON              | B                               | 0.937 (23.80)             | —                         | <b>MS25098-23</b><br><b>MS25098-26</b>                      | <b>8261K23</b><br><b>8261K26</b>                   |
| <b>Two-Pole</b>    |                 |                            |                      |                            |                                 |                           |                           |   |  |
| See <b>B</b> below | 2PST            | ON<br>ON<br>OFF            | NONE<br>NONE<br>NONE | OFF<br>MOM. OFF<br>MOM. ON | C                               | —                         | 0.906 (23.01)             | <b>MS25100-22</b><br><b>MS25100-29</b><br><b>MS25100-30</b> | <b>8262K22</b><br><b>8262K29</b><br><b>8262K30</b> |
| See <b>C</b> below | 2PDT            | ON<br>ON                   | NONE<br>NONE         | ON<br>MOM. ON              | D                               | 0.937 (23.80)             | —                         | <b>MS25100-23</b><br><b>MS25100-26</b>                      | <b>8262K23</b><br><b>8262K26</b>                   |

#### Current Ratings

| Part Number                 | Current Capacity in Amperes per Pole = 125 Vac, 60 Hz |                |
|-----------------------------|---|----------------|
|                             | Resistive Load  | Inductive Load |
| <b>A</b> All MS25098        | 3.0   | 1.5            |
| <b>B</b> MS25100-22, 29, 30 | 3.0   | 1.5            |
| <b>C</b> MS25100-23, 26     | 1.0   | 1.0            |



#### AC Rated (Heavy Duty) MIL-S-83731 with Lever Seal

| Current Ratings    | Poles and Throw         | Circuit with Toggle in ... |                      |                      | Base Circuit See Page V11-T4-35 | Bushing Length "A" Inches (mm) | Lever Length "B" Inches (mm) | Screw Terminals with Sealed Lever |                     |
|--------------------|-------------------------|----------------------------|----------------------|----------------------|---------------------------------|--------------------------------|------------------------------|-----------------------------------|---------------------|
|                    |                         | UP Position                | CENTER Position      | DOWN Position        |                                 |                                |                              | MS Part Number                    | Catalog Number      |
| <b>Single-Pole</b> |                         |                            |                      |                      |                                 |                                |                              |                                   |                     |
| See A below        | 1PST                    | ON                         | NONE                 | OFF                  | A                               | 0.468 (11.89)                  | 0.687 (17.45)                | MS35058-22                        | 8801K22             |
| See B below        |                         | ON                         | OFF                  | NONE                 |                                 |                                |                              | MS35058-24                        | 8801K23             |
| See B below        |                         | ON                         | NONE                 | MOM. OFF             |                                 |                                |                              | MS35058-29                        | 8813K17             |
| See B below        |                         | ON                         | MOM. OFF             | NONE                 |                                 |                                |                              | MS35058-25                        | 8813K18             |
| See B below        |                         | NONE                       | OFF                  | MOM. ON              |                                 |                                |                              | MS35058-28                        | 8811K18             |
| See B below        | OFF                     | NONE                       | MOM. ON              | MS35058-30           | 8811K17                         |                                |                              |                                   |                     |
| See A below        | 1PDT                    | ON                         | OFF                  | ON                   | B                               | 0.468 (11.89)                  | 0.687 (17.45)                | MS35058-21                        | 8800K16             |
| See B below        |                         | ON                         | NONE                 | ON                   |                                 |                                |                              | MS35058-23                        | 8810K15             |
| See B below        |                         | ON                         | NONE                 | MOM. ON              |                                 |                                |                              | MS35058-26                        | 8804K13             |
| See B below        |                         | MOM. ON                    | OFF                  | MOM. ON              |                                 |                                |                              | MS35058-27                        | 8812K14             |
| See B below        |                         | ON                         | OFF                  | MOM. ON              |                                 |                                |                              | MS35058-31                        | 8809K16             |
| <b>Two-Pole</b>    |                         |                            |                      |                      |                                 |                                |                              |                                   |                     |
| See C below        | 2PST                    | ON                         | NONE                 | OFF                  | C                               | 0.468 (11.89)                  | 0.687 (17.45)                | MS35059-22                        | 8822K20             |
| See D below        |                         | ON                         | OFF                  | NONE                 |                                 |                                |                              | MS35059-24                        | 8822K21             |
| See D below        |                         | ON                         | NONE                 | MOM. OFF             |                                 |                                |                              | MS35059-29                        | 8828K13             |
| See D below        |                         | ON                         | MOM. OFF             | NONE                 |                                 |                                |                              | MS35059-25                        | 8828K12             |
| See D below        |                         | NONE                       | OFF                  | MOM. ON              |                                 |                                |                              | MS35059-28                        | 8826K14             |
| See D below        | OFF                     | NONE                       | MOM. ON              | MS35059-30           | 8826K15                         |                                |                              |                                   |                     |
| See C below        | 2PDT                    | ON                         | OFF                  | ON                   | D                               | 0.468 (11.89)                  | 0.687 (17.45)                | MS35059-21                        | 8820K16             |
| See D below        |                         | ON                         | NONE                 | ON                   |                                 |                                |                              | MS35059-23                        | 8824K14             |
| See D below        |                         | ON                         | NONE                 | MOM. ON              |                                 |                                |                              | MS35059-26                        | 8830K13             |
| See D below        |                         | MOM. ON                    | OFF                  | MOM. ON              |                                 |                                |                              | MS35059-27                        | 8834K5              |
| See D below        |                         | ON                         | OFF                  | MOM. ON              |                                 |                                |                              | MS35059-31                        | 8832K6              |
| See E below        | 1P3T<br>in a<br>2P base | ON <sup>①</sup>            | ON <sup>②</sup>      | ON <sup>④</sup>      | See Page V11-T4-35              | 0.468 (11.89)                  | 0.687 (17.45)                | MS25201-4                         | 8860K4              |
| See E below        |                         | ON <sup>①</sup>            | ON <sup>②</sup>      | MOM. ON <sup>④</sup> |                                 |                                |                              | MS25201-5                         | 8860K5              |
| See E below        |                         | MOM. ON <sup>①</sup>       | ON <sup>②</sup>      | MOM. ON <sup>④</sup> |                                 |                                |                              | MS25201-6                         | 8860K6              |
| See E below        |                         | ON <sup>①</sup>            | ON <sup>③</sup>      | ON <sup>④</sup>      |                                 |                                |                              | MS25201-7                         | 8860K7 <sup>⑤</sup> |
| See E below        |                         | ON <sup>①</sup>            | ON <sup>③</sup>      | MOM. ON <sup>④</sup> |                                 |                                |                              | MS25201-8                         | 8860K8 <sup>⑤</sup> |
| See E below        | MOM. ON <sup>①</sup>    | ON <sup>③</sup>            | MOM. ON <sup>④</sup> | MS25201-9            | 8860K9 <sup>⑤</sup>             |                                |                              |                                   |                     |
| <b>Four-Pole</b>   |                         |                            |                      |                      |                                 |                                |                              |                                   |                     |
| See F below        | 4PST                    | ON                         | NONE                 | OFF                  | E                               | 0.468 (11.89)                  | 0.687 (17.45)                | —                                 | 7660K12             |
| See G below        |                         | ON                         | OFF                  | NONE                 |                                 |                                |                              | MS25068-24                        | 7660K13             |
| See G below        |                         | ON                         | MOM. OFF             | NONE                 |                                 |                                |                              | MS25068-25                        | 7668K7              |
| See G below        |                         | NONE                       | OFF                  | MOM. ON              |                                 |                                |                              | MS25068-28                        | 7666K9              |
| See G below        | OFF                     | NONE                       | MOM. ON              | —                    | 7666K6                          |                                |                              |                                   |                     |
| See F below        | 4PDT                    | ON                         | OFF                  | ON                   | F                               | 0.468 (11.89)                  | 0.687 (17.45)                | MS25068-21                        | 7662K7              |
| See G below        |                         | ON                         | NONE                 | ON                   |                                 |                                |                              | MS25068-23                        | 7664K5              |
| See G below        |                         | ON                         | NONE                 | MOM. ON              |                                 |                                |                              | MS25068-26                        | 7674K5              |
| See G below        |                         | MOM. ON                    | OFF                  | MOM. ON              |                                 |                                |                              | MS25068-27                        | 7672K5              |
| See G below        | ON                      | OFF                        | MOM. ON              | MS25068-31           | 7670K6                          |                                |                              |                                   |                     |

#### Current Ratings

| Switch | Type of Operation | Current Capacity in Amperes per Pole |                |                |                |                |                |                 |                |                |    |
|--------|-------------------|--------------------------------------|----------------|----------------|----------------|----------------|----------------|-----------------|----------------|----------------|----|
|        |                   | 28 Vdc                               |                |                | 115 Vac, 60 Hz |                |                | 115 Vac, 400 Hz |                |                |    |
|        |                   | Lamp Load                            | Resistive Load | Inductive Load | Lamp Load      | Resistive Load | Inductive Load | Lamp Load       | Resistive Load | Inductive Load |    |
| A      | MS35058           | Maintained                           | 7              | 25             | 15             | —              | 10             | 10              | 3              | 10             | 10 |
| B      | MS35058           | Momentary                            | 5              | 20             | 10             | —              | 10             | 7               | —              | —              | —  |
| C      | MS35059           | Maintained                           | 7              | 20             | 15             | —              | 20             | —               | 4              | 20             | 15 |
| D      | MS35059           | Momentary                            | 5              | 18             | 10             | —              | 11             | —               | —              | —              | —  |
| E      | MS25201           | ON-ON-ON                             | 5              | 18             | 10             | 2              | 11             | 8               | 2              | 11             | 8  |
| F      | MS25068           | Maintained                           | 5              | 20             | 12             | —              | —              | —               | 4              | 20             | 15 |
| G      | MS25068           | Momentary                            | 4              | 18             | 10             | —              | —              | —               | 2              | 11             | 5  |

#### Notes

- ① Across terminals 2-3 and 5-6.
- ② Across terminals 1-2 and 5-6.
- ③ Across terminals 2-3 and 4-5.
- ④ Across terminals 1-2 and 4-5.
- ⑤ For "INDEPENDENT ON-ON-ON" circuit arrangement, see Page V11-T4-35.

### AC Rated (Heavy Duty) MIL-S-83731 Lever Lock with Lever Seal



| Current Ratings    | Poles and Throw | Circuit with Toggle in ... |                 |               | Base Circuit See Page V11-T4-35 | Lever Lock Bushing Style <sup>①</sup> | Bushing Length "A" Inches (mm) | Lever Lock Length "B" Inches (mm) | Screw Terminals with Sealed Lever |                |
|--------------------|-----------------|----------------------------|-----------------|---------------|---------------------------------|---------------------------------------|--------------------------------|-----------------------------------|-----------------------------------|----------------|
|                    |                 | UP Position                | CENTER Position | DOWN Position |                                 |                                       |                                |                                   | MS Part Number                    | Catalog Number |
| <b>Single-Pole</b> |                 |                            |                 |               |                                 |                                       |                                |                                   |                                   |                |
| See <b>A</b> below | 1PST            | ON                         | NONE            | ← OFF         | A                               | 3                                     | 0.562 (14.27)                  | 1.000 (25.40)                     | <b>MS25125-C2</b>                 | <b>8857K47</b> |
|                    |                 | ON →                       | NONE            | ← OFF         |                                 | 4                                     |                                |                                   | <b>MS25125-E2</b>                 | <b>8857K48</b> |
|                    |                 | ON →                       | ← OFF           | NONE          |                                 | 5                                     |                                |                                   | <b>MS25125-J4</b>                 | <b>8857K49</b> |
| See <b>A</b> below | 1PDT            | ON                         | ← OFF →         | ON            | B                               | 2                                     | 0.562 (14.27)                  | 1.000 (25.40)                     | <b>MS25125-B1</b>                 | <b>8857K40</b> |
|                    |                 | ON                         | NONE            | ← ON          |                                 | 3                                     |                                |                                   | <b>MS25125-C3</b>                 | <b>8857K45</b> |
|                    |                 | ON →                       | NONE            | ← ON          |                                 | 4                                     |                                |                                   | <b>MS25125-E3</b>                 | <b>8857K44</b> |
| <b>Two-Pole</b>    |                 |                            |                 |               |                                 |                                       |                                |                                   |                                   |                |
| See <b>B</b> below | 2PDT            | ON →                       | ← OFF →         | ← ON          | C                               | 1                                     | 0.562 (14.27)                  | 1.000 (25.40)                     | <b>MS25126-A1</b>                 | <b>8858K39</b> |
|                    |                 | ON                         | ← OFF →         | ON            |                                 | 2                                     |                                |                                   | <b>MS25126-B1</b>                 | <b>8858K40</b> |
|                    |                 | ON →                       | NONE            | ← ON          |                                 | 4                                     |                                |                                   | <b>MS25126-E3</b>                 | <b>8858K44</b> |
| <b>Four-Pole</b>   |                 |                            |                 |               |                                 |                                       |                                |                                   |                                   |                |
| See <b>C</b> below | 4PDT            | ON →                       | NONE            | ← ON          | F                               | 4                                     | 0.562 (14.27)                  | 1.000 (25.40)                     | <b>MS25127-E3</b>                 | <b>8859K44</b> |

← Indicates direction against which lever is locked.

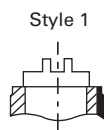
#### Current Ratings

| Switch   | MS Part Number | Type of Operation | Current Capacity in Amperes per Pole |                |                |                |                |                |                 |                |                |
|----------|----------------|-------------------|--------------------------------------|----------------|----------------|----------------|----------------|----------------|-----------------|----------------|----------------|
|          |                |                   | 28 Vdc                               |                |                | 115 Vac, 60 Hz |                |                | 115 Vac, 400 Hz |                |                |
|          |                |                   | Lamp Load                            | Resistive Load | Inductive Load | Lamp Load      | Resistive Load | Inductive Load | Lamp Load       | Resistive Load | Inductive Load |
| <b>A</b> | MS25125        | Maintained        | 5                                    | 20             | 15             | —              | —              | —              | 3               | 10             | 10             |
| <b>B</b> | MS25126        | Maintained        | 7                                    | 20             | 15             | —              | —              | —              | 4               | 20             | 15             |
| <b>C</b> | MS25127        | Maintained        | 5                                    | 20             | 15             | —              | —              | —              | 4               | 20             | 15             |

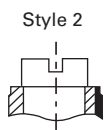
#### Note

① See illustrations below for lever lock bushing styles.

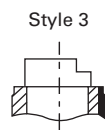
#### Lever Lock Bushing Styles



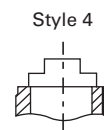
Locked in Three Positions



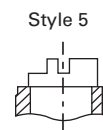
Locked in Center Positions



Locked in Keyway Side



Locked out of Center Position



Locked in Center and Side Opposite Keyway

These illustrations are for pictorial representation only—keyway on right-hand side.

#### AC Rated (Heavy Duty) Military with Unsealed Lever

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| Current Ratings    | Poles and Throw | Circuit with Toggle in ... |                 |                        | Base Circuit See Page V11-T4-35 | Bushing Length "A" Inches (mm) | Lever Length "B" Inches (mm) | Solder Lug Terminals Catalog Number | Screw Terminals Catalog Number |
|--------------------|-----------------|----------------------------|-----------------|------------------------|---------------------------------|--------------------------------|------------------------------|-------------------------------------|--------------------------------|
|                    |                 | UP Position                | CENTER Position | DOWN Position (Keyway) |                                 |                                |                              |                                     |                                |
| <b>Single-Pole</b> |                 |                            |                 |                        |                                 |                                |                              |                                     |                                |
| See <b>A</b> below | 1PST            | ON                         | NONE            | OFF                    | A                               | 0.468 (11.89)                  | 0.688 (17.45)                | <b>7300K38</b>                      | <b>7300K36</b>                 |
| See <b>B</b> below |                 | ON                         | NONE            | MOM. OFF               |                                 |                                |                              |                                     |                                |
|                    |                 | OFF                        | NONE            | MOM. ON                |                                 |                                |                              |                                     |                                |
| See <b>A</b> below | 1PDT            | ON                         | OFF             | ON                     | B                               | 0.468 (11.89)                  | 0.688 (17.45)                | <b>7301K38</b>                      | <b>7301K36</b>                 |
|                    |                 | ON                         | NONE            | ON                     |                                 |                                |                              |                                     |                                |
| See <b>B</b> below |                 | ON                         | NONE            | MOM. ON                |                                 |                                |                              |                                     |                                |
|                    |                 | MOM. ON                    | OFF             | MOM. ON                |                                 |                                |                              |                                     |                                |
|                    |                 | ON                         | OFF             | MOM. ON                |                                 |                                |                              |                                     |                                |
| <b>Two-Pole</b>    |                 |                            |                 |                        |                                 |                                |                              |                                     |                                |
| See <b>C</b> below | 2PST            | ON                         | NONE            | OFF                    | C                               | 0.468 (11.89)                  | 0.688 (17.45)                | <b>7310K38</b>                      | <b>7310K36</b>                 |
| See <b>D</b> below |                 | ON                         | NONE            | MOM. OFF               |                                 |                                |                              |                                     |                                |
|                    |                 | OFF                        | NONE            | MOM. ON                |                                 |                                |                              |                                     |                                |
| See <b>C</b> below | 2PDT            | ON                         | OFF             | ON                     | D                               | 0.468 (11.89)                  | 0.688 (17.45)                | <b>7311K38</b>                      | <b>7311K36</b>                 |
|                    |                 | ON                         | NONE            | ON                     |                                 |                                |                              |                                     |                                |
| See <b>D</b> below |                 | ON                         | NONE            | MOM. ON                |                                 |                                |                              |                                     |                                |
|                    |                 | MOM. ON                    | OFF             | MOM. ON                |                                 |                                |                              |                                     |                                |
|                    |                 | ON                         | OFF             | MOM. ON                |                                 |                                |                              |                                     |                                |

#### Current Ratings

| Type of Operation   | Current Capacity in Amperes per Pole |                |                |                |                |            |                |                |            |
|---------------------|--------------------------------------|----------------|----------------|----------------|----------------|------------|----------------|----------------|------------|
|                     | 30 Vdc                               |                |                | 125 Vac, 60 Hz |                |            | 250 Vac, 60 Hz |                |            |
|                     | Lamp Load                            | Resistive Load | Inductive Load | Resistive Load | Inductive Load | Horsepower | Resistive Load | Inductive Load | Horsepower |
| <b>Single-Pole</b>  |                                      |                |                |                |                |            |                |                |            |
| <b>A</b> Maintained | 5                                    | 20             | 15             | 15             | —              | —          | 6              | —              | —          |
| <b>B</b> Momentary  | 4                                    | 15             | 10             | 15             | —              | —          | 6              | —              | —          |
| <b>Two-Pole</b>     |                                      |                |                |                |                |            |                |                |            |
| <b>C</b> Maintained | 7                                    | 30             | 15             | 25             | —              | —          | 9              | —              | —          |
| <b>D</b> Momentary  | 5                                    | 20             | 10             | 15             | —              | —          | 6              | —              | —          |

## Technical Data and Specifications

### Military Purpose Switches

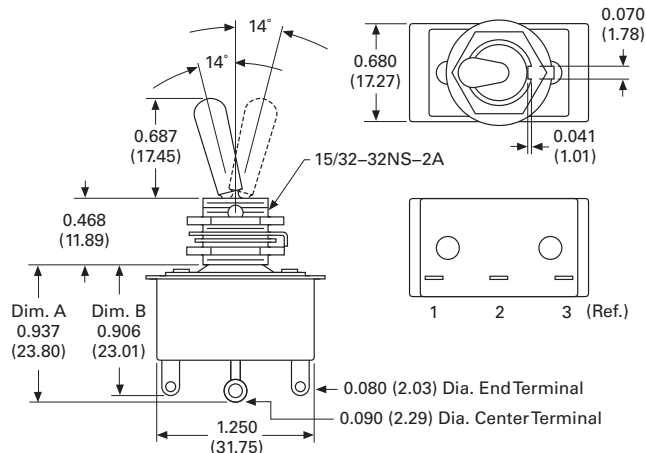
| Description                 | Specification   |
|-----------------------------|---|
| Ratings                     | See Product Selection tables  |
| Circuits                    | 1PST, 1PDT, 2PST, 2PDT, 1P3T (ON-ON-ON), 4PST and 4PDT; maintained and momentary action   |
| Contact action              | Heavy duty—Slow-make/slow-break butt contact<br>Medium duty—Quick-make/quick-break, wiping action   |
| Contact material            | Heavy duty:<br>Movable—silver-plated copper with fine or coin silver contact face button<br>Stationary—copper with fine or coin silver contact face button<br>Medium duty:<br>Movable—copper silver-plated<br>Stationary—bronze silver-plated   |
| Terminal types              | Heavy duty MIL-S-83731 types:<br>Screw terminals—brass designed to accept #6-32 x 6.35 mm (0.250 in) pan head (Catalog Number 11-1893) screws and Si bronze #6 helical lockwasher (Catalog Number 16-1096). Furnished unassembled. Terminal screws are tin dipped to facilitate soldering if required<br>Heavy duty JAN-S-23 types:<br>Screw terminals—brass designed to accept #6-32 x 4.78 mm (0.188 in) binding head (Catalog Number 811-2) screws. Furnished unassembled<br>Solder lug terminals—tintillate plated brass<br>Medium duty MIL-S-83731 types:<br>Solder lugs—brass silver-plated furnished with 0.094 in (2.39 mm) dia. hole |
| Base material               | Thermoset molding material  |
| Mounting means              | Threaded bushing—0.468 in (11.89 mm) dia., 32 threads/inch<br>Keyway—0.068 x 0.035 in (1.73 x 0.89 mm) deep; provides anti-rotation feature<br>Hardware supplied:<br>MIL-S-83731 types—2 hexagon facenuts (Catalog Number 15-966-6), 1 locking ring (Catalog Number 29-761) and 1 internal tooth lockwasher (Catalog Number 16-886).<br>Furnished unassembled<br>JAN-S-23 types—2 hexagon facenuts (Catalog Number 15-966-6). Furnished unassembled   |
| Dielectric                  | 1000V minimum   |
| Operating temperature range | 0° to 150°F (–17.8° to 65.6°C)  |

### Dimensions

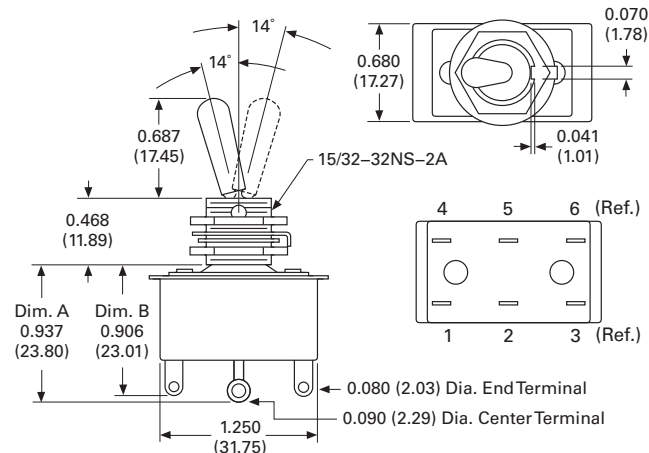
Approximate Dimensions in Inches (mm)

#### AC/DC Rated (Medium Duty) MIL-83731 Switches

##### 1PDT Maintained Action (Solder Lug)

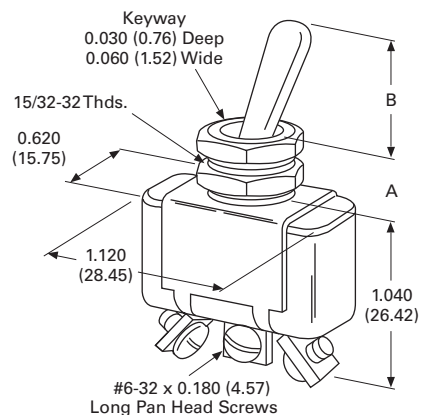


##### 2PDT Maintained Action (Solder Lug)

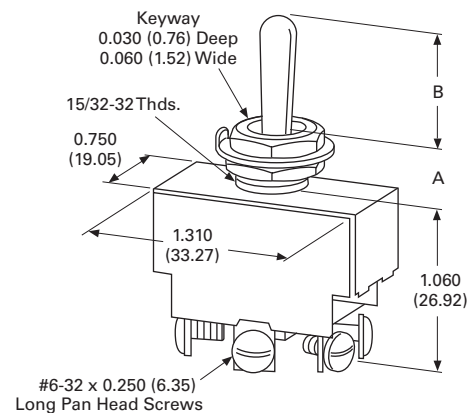


#### AC Rated (Heavy Duty) MIL-83731 Switches with Lever Seal

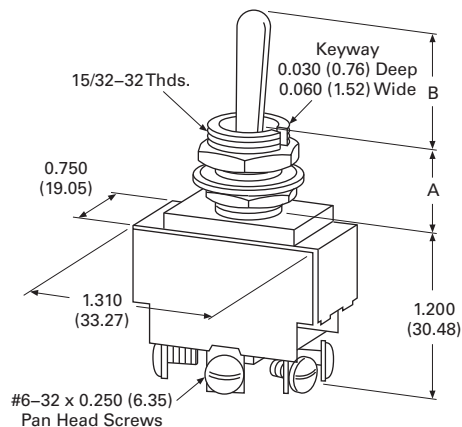
##### Single-Pole Maintained and Momentary Action



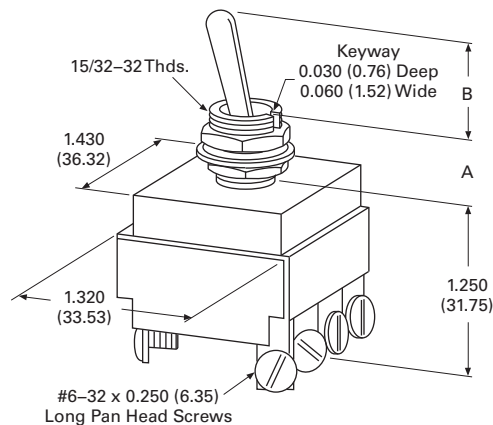
##### Two-Pole Maintained Action



##### Two-Pole Momentary Action and 3 ON Circuits



##### Four-Pole Maintained and Momentary Action



# 4.2

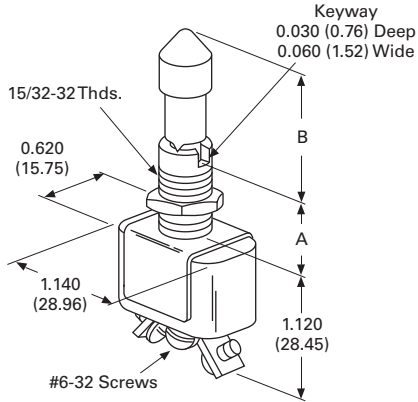
## Toggle Switches

### Military Purpose Toggles

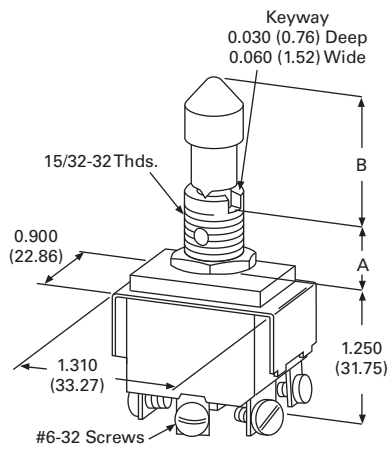
Approximate Dimensions in Inches (mm)

#### AC Rated (Heavy Duty) MIL-83731 Lever Lock Switches with Lever Seal

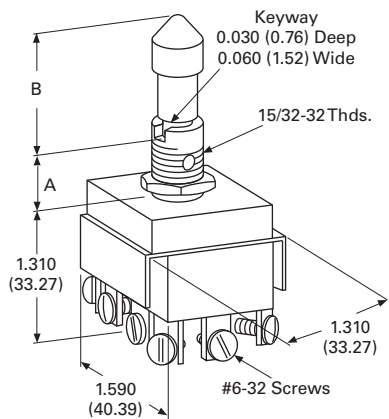
##### Single-Pole



##### Two-Pole

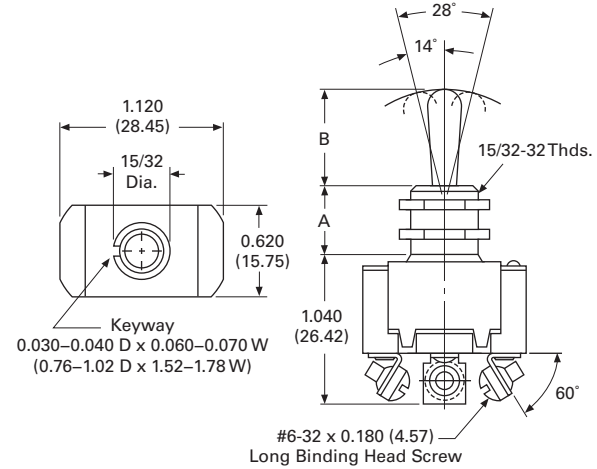


##### Four-Pole

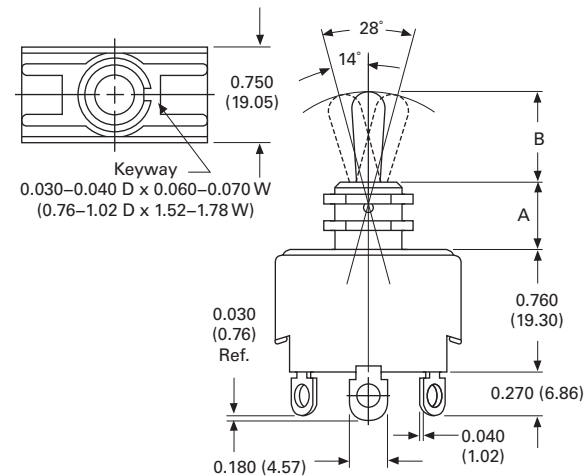


#### AC Rated (Heavy Duty)

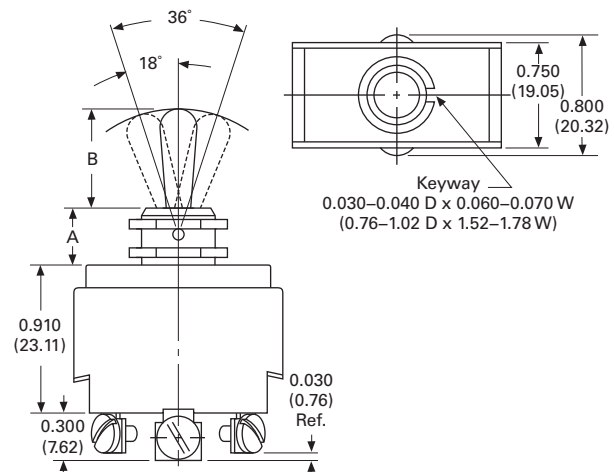
##### 1PDT Maintained Action



##### 2PDT Maintained Action



##### 2PDT Momentary Action





### Illuminated AC Rated Toggles



### Contents

| <i>Description</i>                          | <i>Page</i> |
|---|-------------|
| Illuminated AC Rated Switches               |             |
| Technical Data and Specifications . . . . . | V11-T4-10   |
| Dimensions . . . . .                        | V11-T4-10   |

### Product Description

These illuminated toggles are available only in single-pole circuitry. A two-pole base is utilized with single-pole housing the lamp. On single-throw circuits, the lamp is wired to operate in conjunction with the switch.

On double-throw circuits, the lamp is independent of the switch. On the sealed versions, a silicone rubber seal is fitted to the paddle lever to provide a moisture- and dust-resistant seal between the lever and bushing.

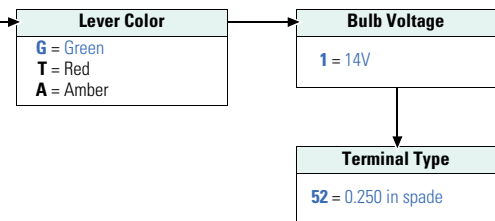
### Catalog Number Selection

#### How To Order—Illuminated AC Rated Toggles

Example: **7071K21** → **G 1 52**

| Rating  | Poles and Throw | Circuit with Toggle in ... |                 |                        | Base Catalog Number              | Circuit Number See Page V11-T4-35 |
|---|-----------------|----------------------------|-----------------|------------------------|----------------------------------|-----------------------------------|
|   |                 | UP Position                | CENTER Position | DOWN Position (Keyway) |                                  |                                   |
| <b>Standard</b>                                 |                 |                            |                 |                        |                                  |                                   |
| 15A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 250 Vac | 1PST            | ON                         | NONE            | OFF                    | <b>7071K21</b>                   | G                                 |
| <b>Sealed</b>                                   |                 |                            |                 |                        |                                  |                                   |
| 15A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 250 Vac | 1PST            | ON                         | NONE            | OFF                    | <b>7073K21</b>                   | G                                 |
|   | 1PDT            | ON<br>MOM. ON              | OFF<br>OFF      | ON<br>MOM. ON          | <b>7073K20</b><br><b>7073K25</b> | H                                 |

Code letters and/or numbers—add to base circuit number.





## General Purpose Toggles



## Product Description

These AC rated toggle switches offer the widest selection of features and the design flexibility to meet a variety of applications.

## Features

The optional features shown below may not be available on all toggle models. Contact your local Eaton Sales Representative.

### 7500, 7600, 7700 and 7900 Series

- 3-independent ON Circuit (2PDT or 4PDT only, see **Page V11-T4-14**)
- Short (11/32 in) bushing
- Tall (15/32 in) bushing
- White nylon designer lever, see Dimensions on **Page V11-T4-16**
- Black nylon designer lever, see Dimensions on **Page V11-T4-16**
- Hardware—furnished assembled
- Reversing jumpers (not for use with 3-independent ON circuit)
- Short (15/32 in) bat lever
- Tall (11/16 in) bat lever (not available with short bushing)
- Rotate keyway 180°
- Lever seal
- Omit one pole (2P, 3P, 4P only. Not for use with 3-independent ON circuit)

## Contents

### Description

General Purpose Toggles—AC Rated

|   | <i>Page</i>      |
|---|------------------|
| Product Selection . . . . .                 | <b>V11-T4-12</b> |
| Technical Data and Specifications . . . . . | <b>V11-T4-16</b> |
| Dimensions . . . . .                        | <b>V11-T4-16</b> |

## Options

### Combi-Term Option

This is an extension of our AC rated general purpose toggle switch. The “Combi-Term” design allows the user the option of screw terminals, 0.25 in quick connects or solder termination all on the same switch. The special clips and screws are provided in a poly bag with the switch.

### Circuits

- 1PST, 1PDT, 2PST, 2PDT, 3PST, 3PDT, 4PST and 4PDT
- Maintained and momentary

## Standards and Certifications

- UL® Recognized
- CSA® Certified (except as noted)
- RoHS Compliant ①



### Note

① Visit [www.eaton.com/vcbu](http://www.eaton.com/vcbu) for the most up-to-date list of verified part numbers.

# 4.4

## Toggle Switches

### General Purpose Toggles—AC Rated

#### Product Selection

4



#### AC Rated Toggle Switches—Single-Pole

| Rating  | Poles and Throw | Circuit with Toggle in ... |                 |                        | Base Circuit See Page V11-T4-35 | Bushing Length "A" Inches (mm) | Lever Length "B" Inches (mm)   | Catalog Number                   |  |                                  |
|---|-----------------|----------------------------|-----------------|------------------------|---------------------------------|--------------------------------|--------------------------------|----------------------------------|--|----------------------------------|
|   |                 | UP Position                | CENTER Position | DOWN Position (Keyway) |                                 |                                |                                | Solder Lugs                      | Screw Terminals  | 0.250 in Spade Terminals         |
| 6A, 125 Vac<br>3A, 250 Vac  | 1PST            | ON                         | NONE            | OFF                    | A                               | 0.344 (8.74)<br>0.469 (11.91)  | 0.563 (14.30)<br>0.563 (14.30) | <b>7580K7</b><br><b>7580K6</b>   | <b>7580K5</b><br><b>7580K4</b>                             | <b>7580K9</b><br><b>7580K8</b>   |
|   | 1PDT            | ON                         | OFF             | ON                     | B                               | 0.469 (11.91)                  | 0.563 (14.30)                  | <b>7581K6</b>                    | <b>7581K4</b>  | <b>7581K8</b>                    |
|   | 1PDT            | ON                         | NONE            | ON                     | B                               | 0.469 (11.91)                  | 0.563 (14.30)                  | <b>7582K6</b>                    | <b>7582K4</b>  | <b>7582K8</b>                    |
|   | 1PDT            | ON<br>MOM. ON              | NONE<br>OFF     | MOM. ON<br>MOM. ON     | B                               | 0.469 (11.91)                  | 0.563 (14.30)                  | <b>7585K6</b><br><b>7587K6</b>   | <b>7585K4</b><br><b>7587K4</b>                             | <b>7585K8</b><br><b>7587K8</b>   |
| 10A, 250 Vac<br>1/2 hp, 250 Vac                                     | 1PST            | OFF                        | NONE            | MOM. ON                | A                               | 0.469 (11.91)                  | 0.563 (14.30)                  | <b>7506K3</b>                    | <b>7506K4</b>  | <b>7506K6</b>                    |
|   | 1PST            | OFF                        | NONE            | MOM. ON                | A                               | 0.469 (11.91)                  | 0.688 (17.48)                  | <b>7506K38</b>                   | <b>7506K36</b>   | <b>7506K40</b>                   |
|   | 1PDT            | MOM. ON<br>ON              | OFF<br>NONE     | MOM. ON<br>MOM. ON     | B                               | 0.469 (11.91)                  | 0.563 (14.30)                  | <b>7509K4</b><br><b>7510K6</b>   | <b>7509K5</b><br><b>7510K7</b>                             | <b>7509K7</b><br><b>7510K9</b>   |
|   | 1PDT            | ON<br>MOM. ON              | OFF<br>OFF      | MOM. ON<br>MOM. ON     | B                               | 0.469 (11.91)                  | 0.688 (17.48)                  | <b>7508K38</b><br><b>7509K38</b> | <b>7508K36</b><br><b>7509K36</b>                           | <b>7508K40</b><br><b>7509K40</b> |
| 15A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 250 Vac<br>1/2 hp, 125V Vac | 1PST            | ON                         | NONE            | OFF                    | A                               | 0.344 (8.74)<br>0.469 (11.91)  | 0.563 (14.30)<br>0.563 (14.30) | <b>7501K12</b><br><b>7501K13</b> | <b>7500K13</b> <sup>①</sup><br><b>7500K14</b> <sup>①</sup> | <b>7501K14</b><br><b>7501K15</b> |
|   | 1PDT            | ON                         | OFF             | ON                     | B                               | 0.469 (11.91)                  | 0.563 (14.30)                  | <b>7503K13</b> <sup>①</sup>      | <b>7502K13</b>   | <b>7503K15</b>                   |
| 15A, 125 Vac<br>10A, 250 Vac<br>1/2 hp, 125 Vac<br>3/4 hp, 250 Vac  | 1PDT            | ON                         | NONE            | ON                     | B                               | 0.469 (11.91)                  | 0.563 (14.30)                  | <b>7505K4</b>                    | <b>7504K4</b> <sup>①</sup>                                 | <b>7505K6</b>                    |
|   | 1PST            | ON                         | NONE            | OFF                    | A                               | 0.469 (11.91)                  | 0.688 (17.48)                  | <b>7546K38</b>                   | <b>7546K36</b>   | <b>7546K40</b>                   |
| 20A, 125 Vac<br>10A, 250 Vac<br>1/2 hp, 125 Vac<br>3/4 hp, 250 Vac  | 1PST            | ON                         | NONE            | OFF                    | A                               | 0.469 (11.91)                  | 0.688 (17.48)                  | <b>7546K38</b>                   | <b>7546K36</b>   | <b>7546K40</b>                   |
| 30A, 125 Vac<br>25A, 250 Vac <sup>②</sup>                           | 1PST            | ON                         | NONE            | OFF                    | A                               | 0.344 (8.74)                   | 0.563 (14.30)                  | —                                | <b>7576K2</b>  | —                                |

**Notes**

- ① Also 4.2A L at 125 Vac rating.
- ② Single-pole switch in two-pole base.

### AC Rated Toggle Switches—Two-Pole



| Rating   | Poles and Throw | Circuit with Toggle in ... |                 |                        | Base Circuit See Page V11-T4-35 | Bushing Length "A" Inches (mm) | Lever Length "B" Inches (mm) | Catalog Number   |                  |                          |                |
|--|-----------------|----------------------------|-----------------|------------------------|---------------------------------|--------------------------------|------------------------------|------------------|------------------|--------------------------|----------------|
|  |                 | UP Position                | CENTER Position | DOWN Position (Keyway) |                                 |                                |                              | Solder Lugs      | Screw Terminals  | 0.250 in Spade Terminals | Combi-Term     |
| 6A, 125 Vac<br>3A, 250 Vac<br>2A, 277 Vac<br>2.5A, L at 125 Vac  | 2PST            | ON                         | NONE            | OFF                    | C                               | 0.469 (11.91)                  | 0.563 (14.30)                | <b>7590K6</b>    | <b>7590K4</b>    | <b>7590K8</b>            | —              |
| 6A, 125 Vac<br>3A, 250 Vac<br>2.5A, L at 125 Vac   | 2PDT            | ON                         | OFF             | ON                     | D                               | 0.469 (11.91)                  | 0.563 (14.30)                | <b>7591K6</b>    | <b>7591K4</b>    | <b>7591K8</b>            | —              |
|  | 2PDT            | ON                         | NONE            | ON                     | D                               | 0.469 (11.91)                  | 0.563 (14.30)                | <b>7592K6</b>    | <b>7592K4</b>    | <b>7592K8</b>            | —              |
| 6A, 125 Vac<br>3A, 250 Vac   | 2PDT            | MOM. ON                    | OFF             | MOM. ON                | D                               | 0.469 (11.91)                  | 0.563 (14.30)                | <b>7597K6</b>    | <b>7597K4</b>    | <b>7597K8</b>            | —              |
|  | 2PDT            | ON                         | ON              | OFF                    | 7530                            | 0.469 (11.91)                  | 0.563 (14.30)                | <b>7530K1</b>    | <b>7530K3</b>    | <b>7530K2</b>            | —              |
| 10A 250 Vac,<br>15A 125 Vac, 1/4 hp<br>125–250 Vac   | 2PDT            | ON                         | ON              | ON                     | 7555                            | 0.469 (11.91)                  | 0.563 (14.30)                | <b>7555K12</b>   | <b>7555K11</b>   | <b>7555K13</b>           | —              |
| 15A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 250 Vac<br>1/2 hp, 125 Vac   | 2PST            | ON                         | NONE            | OFF                    | C                               | 0.344 (8.74)                   | 0.563 (14.30)                | <b>7561K5</b>    | <b>7560K6</b>    | <b>7561K7</b>            | —              |
|  |                 |                            |                 |                        |                                 | 0.469 (11.91)                  | 0.563 (14.30)                | <b>7561K4</b>    | <b>7560K5</b>    | <b>7561K6</b>            | —              |
| 15A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 125–250 Vac  | 2PDT            | ON                         | OFF             | ON                     | D                               | 0.344 (8.74)                   | 0.563 (14.30)                | <b>7563K5</b>    | <b>7562K5</b>    | <b>7563K7</b>            | —              |
|  |                 |                            |                 |                        |                                 | 0.469 (11.91)                  | 0.563 (14.30)                | <b>7563K4</b>    | <b>7562K4</b>    | <b>7563K6</b>            | —              |
| 15A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 250 Vac  | 2PDT            | ON                         | NONE            | ON                     | D                               | 0.469 (11.91)                  | 0.563 (14.30)                | <b>7565K5</b>    | <b>7564K6</b>    | <b>7565K7</b>            | —              |
| 15A, 125 Vac<br>10A, 250 Vac<br>1/2 hp, 250 Vac  | 2PST            | OFF                        | NONE            | MOM. ON                | C                               | 0.469 (11.91)                  | 0.563 (14.30)                | <b>7566K4</b>    | <b>7566K5</b>    | <b>7566K7</b>            | —              |
|  | 2PDT            | ON                         | OFF             | MOM. ON                | D                               | 0.469 (11.91)                  | 0.563 (14.30)                | <b>7568K3</b> ①  | <b>7568K2</b> ①  | <b>7568K4</b> ①          | —              |
|  |                 | MOM. ON                    | OFF             | MOM. ON                |                                 |                                |                              | <b>7569K1</b>    | <b>7569K2</b>    | <b>7569K3</b>            | —              |
|  |                 | ON                         | NONE            | MOM. ON                |                                 |                                |                              | <b>7570K4</b>    | <b>7570K5</b>    | <b>7570K7</b>            | —              |
| 2PDT   | MOM. ON         | OFF                        | MOM. ON         | D                      | 0.469 (11.91)                   | 0.688 (17.48)                  | <b>7569K38</b>               | <b>7569K36</b>   | <b>7569K40</b>   | —                        |                |
| 20A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 250 Vac<br>1/2 hp, 125 Vac   | 2PST            | ON                         | NONE            | OFF                    | C                               | 0.469 (11.91)                  | 0.688 (17.48)                | <b>7630K38</b>   | <b>7630K36</b>   | <b>7630K40</b>           | —              |
|  | 2PDT            | ON                         | NONE            | ON                     | D                               | 0.469 (11.91)                  | 0.688 (17.48)                | <b>7632K38</b>   | <b>7632K36</b>   | <b>7632K40</b>           | —              |
| Section A<br>10A 250 Vac;<br>15A 125 Vac,<br>3/4 hp 250 Vac,<br>4.2A L 125 Vac;<br>Section B<br>10A 250 Vac,<br>15A 125 Vac,<br>1/4 hp 250 Vac | 2PDT            | OFF                        | 1 ON            | 2 ON                   | 7571                            | 0.469 (11.91)                  | 0.563 (14.30)                | <b>7571K2</b>    | <b>7571K4</b>    | <b>7571K6</b>            | —              |
| 20A, 125 Vac<br>10A, 250 Vac<br>1 hp, 120–240 Vac  | 2PST            | ON                         | NONE            | OFF                    | C                               | 0.469 (11.91)                  | 0.688 (17.48)                | <b>7803K11</b>   | <b>7803K31</b>   | <b>7803K21</b> ②         | <b>7803K41</b> |
|  | 2PDT            | ON                         | OFF             | ON                     | D                               | 0.469 (11.91)                  | 0.688 (17.48)                | <b>7803K12</b>   | <b>7803K32</b>   | <b>7803K22</b> ③         | <b>7803K42</b> |
|  |                 | ON                         | NONE            | ON                     |                                 |                                |                              | <b>7803K13</b>   | <b>7803K33</b>   | <b>7803K23</b> ③         | <b>7803K43</b> |
|  | MOM. ON         | OFF                        | MOM. ON         |                        |                                 |                                | <b>7803K17</b> ②             | <b>7803K37</b> ② | <b>7803K27</b> ② | <b>7803K47</b> ②         |                |

#### Notes

- ① Also 1/2 hp at 125–250 Vac Rating.
- ② Not CSA Certified.
- ③ Also 7.5A, 277 Vac, 3/4 hp, 120–240–277 Vac.

# 4.4

## Toggle Switches

### General Purpose Toggles—AC Rated

4



#### AC Rated Toggle Switches—Three-Pole

| Rating  | Poles and Throw | Circuit with Toggle in ... |                 |               | Base Circuit See Page V11-T4-35 | Bushing Length "A" Inches (mm) | Lever Length "B" Inches (mm) | Catalog Number                  |                             |                             |                             |
|---|-----------------|----------------------------|-----------------|---------------|---------------------------------|--------------------------------|------------------------------|---------------------------------|-----------------------------|-----------------------------|-----------------------------|
|   |                 | UP Position                | CENTER Position | DOWN Position |                                 |                                |                              | Solder Lugs                     | Screw Terminals             | 0.250 in Spade Terminals    | Combi-Term                  |
| 15A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 250 Vac<br>1 hp, 3 Ph<br>125–600 Vac<br>1 hp, 1 and 2 Ph<br>125–480 Vac | 3PST            | ON                         | NONE            | OFF           | E                               | 0.469 (11.91)                  | 0.688 (17.48)                | <b>7700K1</b>                   | <b>7700K2</b>               | <b>7700K3</b>               | —                           |
|   | 3PDT            | ON                         | OFF             | ON            | F                               | 0.469 (11.91)                  | 0.688 (17.48)                | <b>7701K1</b>                   | <b>7701K2</b>               | <b>7701K3</b>               | —                           |
|   |                 | ON                         | NONE            | ON            | F                               |                                |                              | <b>7702K1</b>                   | <b>7702K2</b>               | <b>7702K3</b>               | —                           |
| 15A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 250 Vac   | 3PDT            | MOM. ON                    | OFF             | ON            | F                               | 0.469 (11.91)                  | 0.688 (17.48)                | <b>7704K1</b>                   | <b>7704K2</b>               | <b>7704K3</b>               | —                           |
|   |                 | MOM. ON                    | NONE            | ON            | F                               |                                |                              | <b>7705K1</b>                   | <b>7705K2</b>               | <b>7705K3</b>               | —                           |
| 20A, 125 Vac<br>10A, 250 Vac<br>1 hp, 120 Vac<br>1, 2 and 3 Ph  | 3PDT            | ON                         | OFF             | ON            | F                               | 0.469 (11.91)                  | 0.688 (17.48)                | <b>7804K12</b><br><sup>②④</sup> | <b>7804K32</b> <sup>②</sup> | <b>7804K22</b> <sup>②</sup> | <b>7804K42</b> <sup>②</sup> |






#### AC Rated Toggle Switches—Four-Pole

| Rating   | Poles and Throw | Circuit with Toggle in ... |                 |               | Base Circuit See Page V11-T4-35 | Bushing Length "A" Inches (mm) | Lever Length "B" Inches (mm) | Catalog Number              |                             |                             |                             |
|--|-----------------|----------------------------|-----------------|---------------|---------------------------------|--------------------------------|------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
|  |                 | UP Position                | CENTER Position | DOWN Position |                                 |                                |                              | Solder Lugs                 | Screw Terminals             | 0.250 in Spade Terminals    | Combi-Term                  |
| 15A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 250 Vac                    | 4PST            | ON                         | NONE            | OFF           | E                               | 0.469 (11.91)                  | 0.688 (17.48)                | <b>7691K14</b>              | <b>7690K8</b>               | —                           | —                           |
|  | 4PDT            | ON                         | OFF             | ON            | F                               | 0.469 (11.91)                  | 0.688 (17.48)                | <b>7693K2</b>               | <b>7692K13</b>              | —                           | —                           |
| ON   |                 | NONE                       | ON              | F             | <b>7695K5</b>                   |                                |                              | <b>7694K4</b>               | —                           | —                           |                             |
| 20A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 250 Vac<br>1/2 hp, 125 Vac | 4PST            | ON                         | NONE            | OFF           | E                               | 0.469 (11.91)                  | 0.688 (17.48)                | <b>7933K38</b>              | <b>7933K36</b>              | <b>7933K40</b>              | —                           |
|  | 4PDT            | ON                         | OFF             | ON            | F                               | 0.469 (11.91)                  | 0.688 (17.48)                | <b>7934K38</b>              | <b>7934K36</b>              | <b>7934K40</b>              | —                           |
| ON   |                 | NONE                       | ON              | F             | <b>7935K38</b>                  |                                |                              | <b>7935K36</b>              | <b>7935K40</b>              | —                           |                             |
| 20A, 125 Vac<br>10A, 250 Vac<br>1 hp, 125–240 Vac<br>2 and 3 Ph    | 4PDT            | ON                         | OFF             | ON            | F                               | 0.469 (11.91)                  | 0.688 (17.48)                | <b>7805K12</b> <sup>②</sup> | <b>7805K32</b> <sup>②</sup> | <b>7805K22</b> <sup>②</sup> | <b>7805K42</b> <sup>②</sup> |




#### Notes

- ① Also 1/2 hp at 125–250 Vac Rating.
- ② Not CSA Certified.
- ③ Also 7.5A, 277 Vac, 3/4 hp, 120–240–277 Vac.
- ④ 1 hp at 240–480 Vac single- or two-phase and 240–600 Vac three-phase.




### AC Rated Sealed ① Toggle Switches—Single-Pole

| Rating  | Poles and Throw | Circuit with Toggle in ...  |   |  | Base Circuit See Page V11-T4-35 | Bushing Length "A" Inches (mm) | Lever Length "B" Inches (mm) | Catalog Number |  |  |
|---|-----------------|---|---|--|---------------------------------|--------------------------------|------------------------------|----------------|--|--|
|   |                 | UP Position  | CENTER Position  | DOWN Position (Keyway)  |                                 |                                |                              | Solder Lugs    | Screw Terminals                                    | 0.250 in Spade Terminals                           |
| 10A, 250 Vac<br>1/2 hp, 250 Vac   | 1PST            | OFF   | NONE  | MOM. ON  | A                               | 0.469 (11.91)                  | 0.563 (14.30)                | —              | <b>7506K20</b>                                     | <b>7506K21</b>                                     |
|   | 1PDT            | MOM. ON<br>ON<br>ON   | OFF<br>NONE<br>OFF  | MOM. ON<br>MOM. ON<br>MOM. ON  | B                               | 0.469 (11.91)                  | 0.563 (14.30)                | —<br>—<br>—    | <b>7509K20</b><br><b>7510K20</b><br><b>7508K20</b> | <b>7509K21</b><br><b>7510K21</b><br><b>7508K21</b> |
| 15A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 250 Vac<br>1/2 hp, 125V–250 Vac | 1PST            | ON  | NONE  | OFF  | A                               | 0.469 (11.91)                  | 0.563 (14.30)                | <b>7501K22</b> | <b>7500K20</b> ②                                   | <b>7501K21</b>                                     |
| 15A, 125 Vac<br>10A, 250 Vac<br>1/2 hp, 125 Vac<br>3/4 hp, 250 Vac      | 1PDT            | ON  | OFF   | ON   | B                               | 0.469 (11.91)                  | 0.563 (14.30)                | —              | <b>7502K20</b>                                     | <b>7503K21</b>                                     |
|   | 1PDT            | ON  | NONE  | ON   | B                               | 0.469 (11.91)                  | 0.563 (14.30)                | —              | <b>7504K20</b> ②                                   | <b>7505K21</b>                                     |

### AC Rated Sealed ① Toggle Switches—Two-Pole

| Rating   | Poles and Throw | Circuit with Toggle in ...  |   |  | Base Circuit See Page V11-T4-35 | Bushing Length "A" Inches (mm)   | Lever Length "B" Inches (mm)     | Catalog Number |                  |                          |
|--|-----------------|---|---|--|---------------------------------|----------------------------------|----------------------------------|----------------|------------------|--------------------------|
|  |                 | UP Position  | CENTER Position  | DOWN Position (Keyway)  |                                 |                                  |                                  | Solder Lugs    | Screw Terminals  | 0.250 in Spade Terminals |
| 15A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 250 Vac<br>1/2 hp, 125 Vac | 2PST            | ON  | NONE  | OFF  | C                               | 0.469 (11.91)                    | 0.563 (14.30)                    | —              | <b>7560K20</b>   | <b>7561K21</b>           |
| 15A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 125–250 Vac                | 2PDT            | ON  | OFF   | ON   | D                               | 0.469 (11.91)                    | 0.563 (14.30)                    | —              | <b>7562K20</b>   | <b>7563K21</b>           |
| 15A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 250 Vac                    | 2PDT            | ON  | NONE  | ON   | D                               | 0.469 (11.91)                    | 0.563 (14.30)                    | —              | <b>7564K20</b>   | <b>7565K21</b>           |
| 15A, 125 Vac<br>10A, 250 Vac<br>1/2 hp, 250 Vac                    | 2PST            | OFF   | NONE  | MOM. ON  | C                               | 0.469 (11.91)                    | 0.563 (14.30)                    | —              | <b>7566K20</b>   | <b>7566K21</b>           |
|  | 2PDT            | ON  | OFF   | MOM. ON  | D                               | 0.469 (11.91)                    | 0.563 (14.30)                    | —              | <b>7568K20</b> ② | <b>7568K21</b> ②         |
|  |                 | MOM. ON<br>ON   | OFF<br>NONE   | MOM. ON<br>MOM. ON   | —<br>—                          | <b>7569K20</b><br><b>7570K20</b> | <b>7569K21</b><br><b>7570K21</b> |                |                  |                          |

### AC Rated Special Circuit Toggle Switches—Two-Pole

| Rating  | Poles and Throw | Circuit with Toggle in ...  |   |  | Base Circuit See Page V11-T4-35 | Bushing Length "A" Inches (mm) | Lever Length "B" Inches (mm) | Catalog Number |                 |                          |
|---|-----------------|---|---|--|---------------------------------|--------------------------------|------------------------------|----------------|-----------------|--------------------------|
|   |                 | UP Position  | CENTER Position  | DOWN Position (Keyway)  |                                 |                                |                              | Solder Lugs    | Screw Terminals | 0.250 in Spade Terminals |
| 15A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 125–250 Vac | 2PDT            | 2-3, 5-6  | OFF   | 2-6, 5-3   | D                               | 0.469 (11.91)                  | 0.563 (14.30)                | <b>7563K24</b> | <b>7562K23</b>  | <b>7563K25</b>           |
| 15A, 125 Vac<br>10A, 250 Vac<br>3/4 hp, 250 Vac     | 2PDT            | 2-3, 5-6  | NONE  | 2-6, 5-3   | D                               | 0.469 (11.91)                  | 0.563 (14.30)                | <b>7565K24</b> | <b>7564K23</b>  | <b>7565K25</b>           |

#### Notes

- ① Seal is lever seal only and is dust and splash resistant. Panel seal is available, Part Number **32-341**.
- ② Also 1/2 hp at 125–250 Vac Rating.

### Technical Data and Specifications

#### General Purpose Toggles—AC Rated

| Description                 | Specification  |
|-----------------------------|--|
| Ratings                     | See Product Selection tables; Switch ratings at 125 Vac also apply to 28 Vdc   |
| Contact mechanism           | Slow-make/slow-brake butt contact  |
| Terminal types              | Screw terminals—brass designed to accept #6-32x 3/16 binding head (Cat. No. 811-2) screws<br>Furnished unassembled<br>Solder lug terminals—tintillate-plated brass<br>Spade terminals—combi-term—brass   |
| Base material               | Thermoset molding material   |
| Mounting means              | Threaded bushing—0.468 in (11.89 mm) dia., 32 threads/in<br>Keyway—0.068 x 0.035 in (1.73 x 0.89 mm) deep, provides anti-rotation feature<br>Hardware supplied—1 hexagon locknut (Cat. No. 15-192) and 1 bright nickel-plated knurled facenut (Cat. No. 15-124F1), except 7700–7705, which have bright nickel hexagon facenut (Cat. No. 15-966-2)<br>Furnished unassembled |
| Finish                      | Bright nickel-plated toggle lever and bushing  |
| Dielectric withstand        | 1000V rms minimum  |
| Operating temperature range | 0° to 150°F (–17.8° to 65.6°C)   |

#### Contact Material

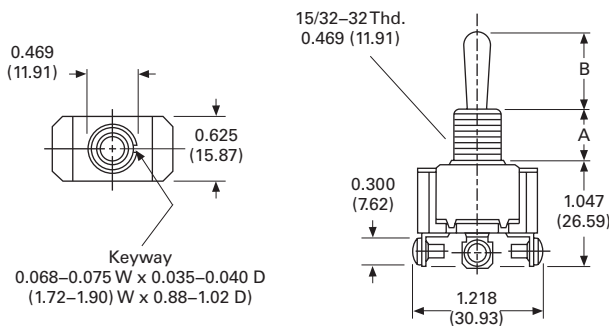
| Ampere   | Movable                                     | Stationary                               |
|--|---|--|
| <b>7500, 7600, 7700 and 7900 Series Switches</b> |   |  |
| 3 to 6   | Silver-plated copper                        | Silver-plated copper                     |
| 10 to 20   | Silver-plated copper with silver buttons    | Silver-plated copper with silver buttons |
| 20 to 30   | Silver-plated copper with cad oxide buttons | Copper with cad oxide buttons            |
| <b>7800 Series Switches</b>                      |   |  |
| 3 to 6   | Silver-plated copper                        | Silver-plated copper                     |
| 10 to 20   | Copper with silver buttons                  | Copper with silver buttons               |

### Dimensions

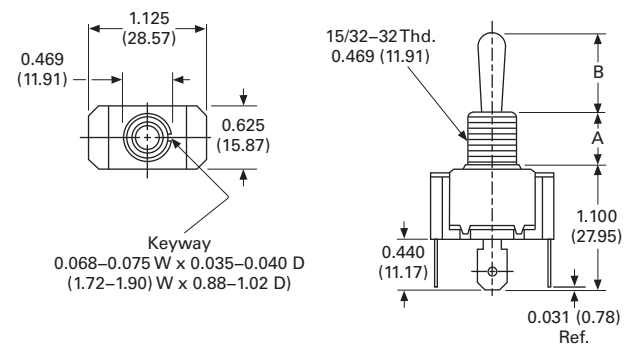
Approximate Dimensions in Inches (mm)

#### 7500, 7600, 7700 and 7900 Series

##### 1PST Maintained and Momentary (Screw Terminals)



##### 1PDT Maintained and Momentary (Spade Terminals)

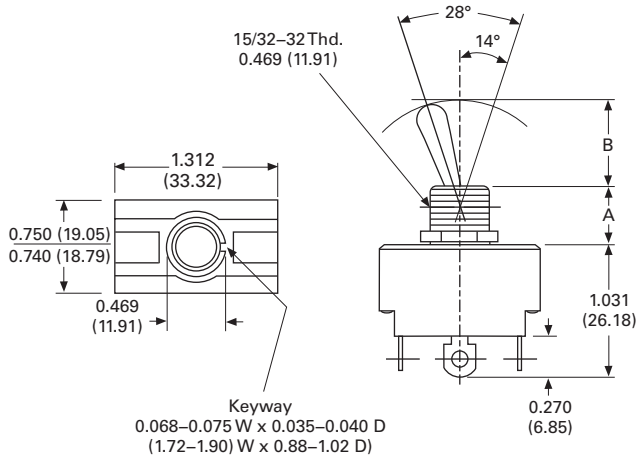




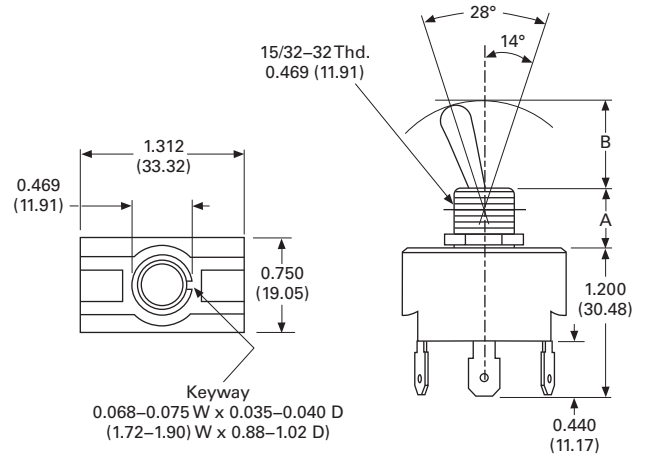
Approximate Dimensions in Inches (mm)

**7500, 7600, 7700 and 7900 Series, continued**

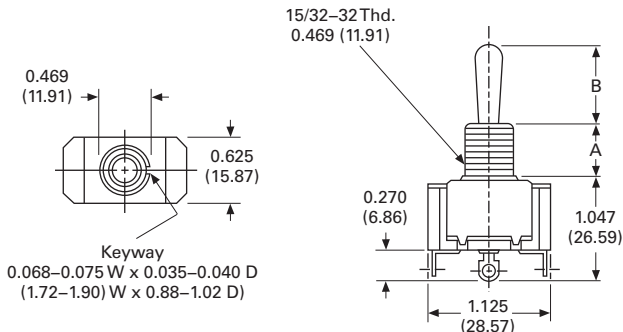
**2PDT Maintained (Solder Lugs)**



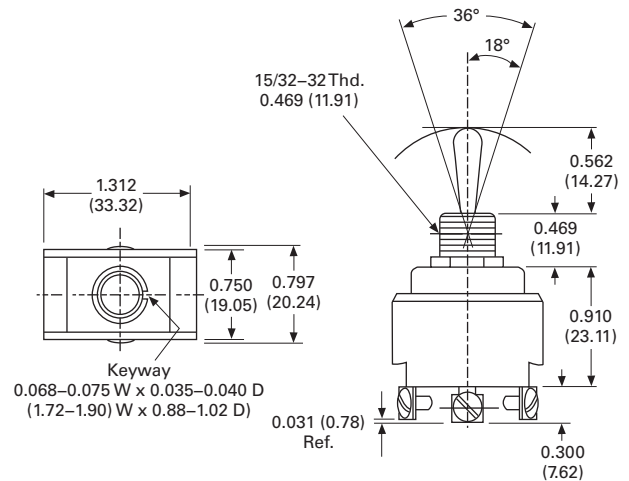
**2PDT Maintained (Spade Terminals)**



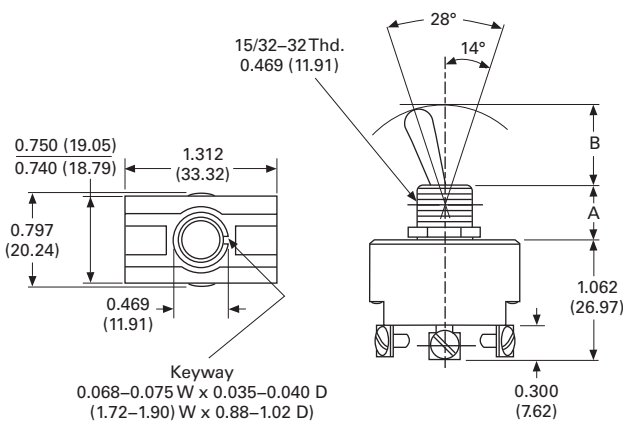
**1PDT Maintained and Momentary (Solder Lugs)**



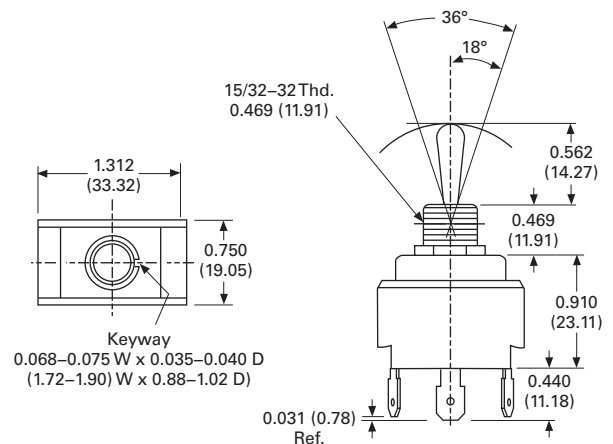
**2PDT Momentary (Screw Terminals)**



**2PDT Maintained (Screw Terminals)**



**2PDT Momentary (Spade Terminals)**



# 4.4

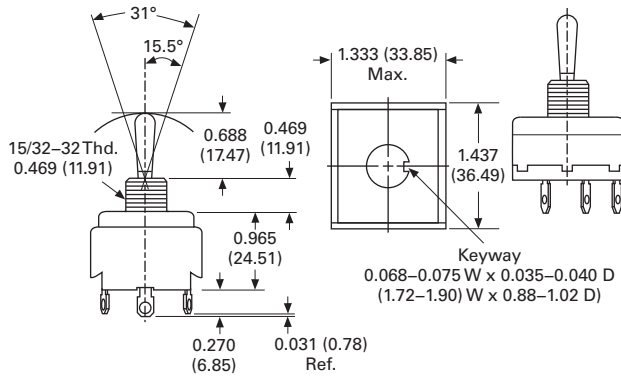
## Toggle Switches

### General Purpose Toggles—AC Rated

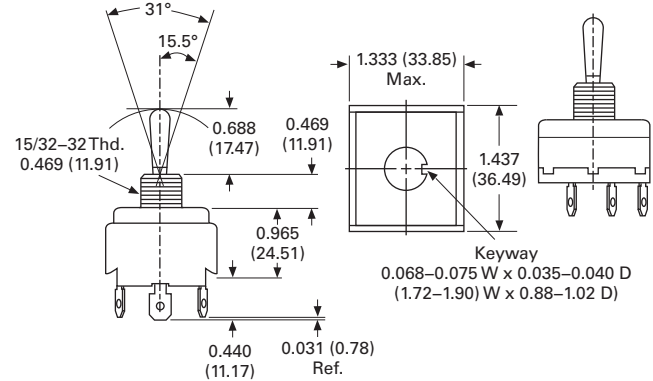
Approximate Dimensions in Inches (mm)

#### 7500, 7600, 7700 and 7900 Series, continued

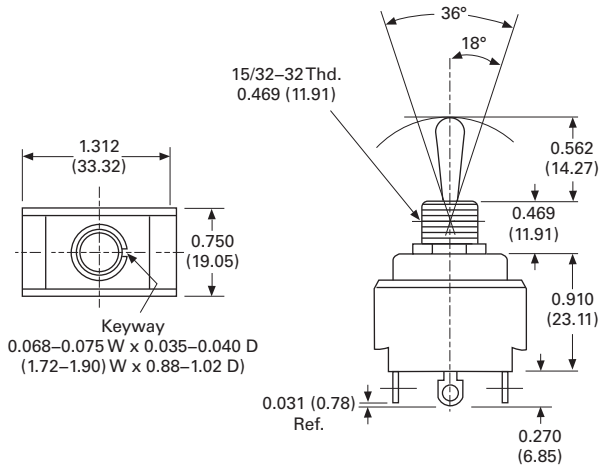
##### 3PDT Maintained and Momentary (Solder Lugs)



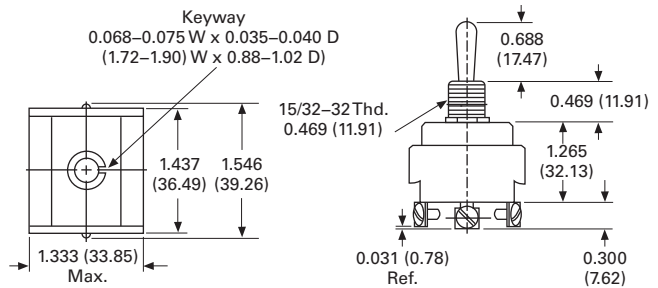
##### 3PDT Maintained and Momentary (Spade Terminals)



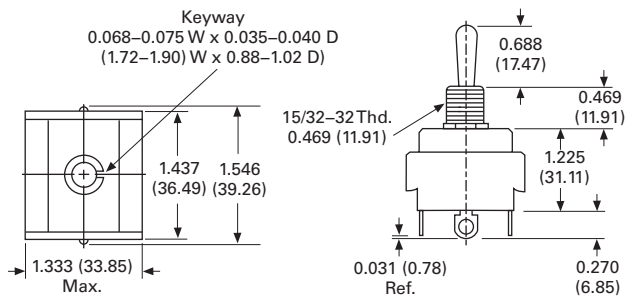
##### 2PDT Momentary (Solder Lugs)



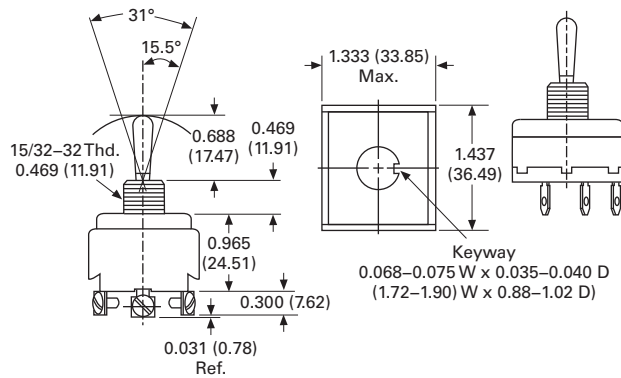
##### 4PDT Maintained and Momentary (Screw Terminals)



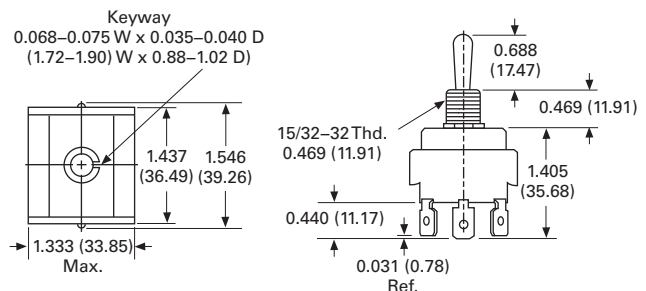
##### 4PDT Maintained and Momentary (Solder Lugs)



##### 3PDT Maintained and Momentary (Screw Terminals)



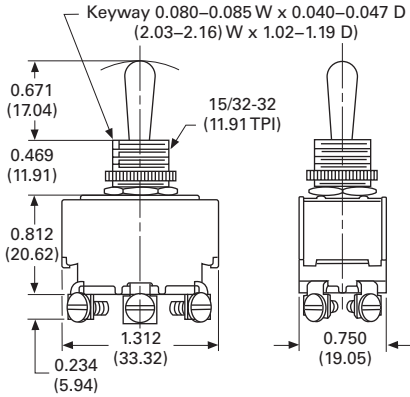
##### 4PDT Maintained and Momentary (Spade Terminals)



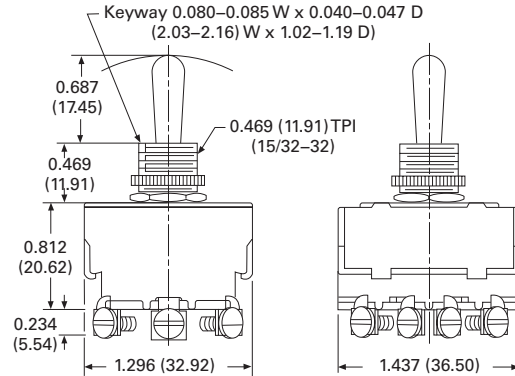
Approximate Dimensions in Inches (mm)

### 7800 Series

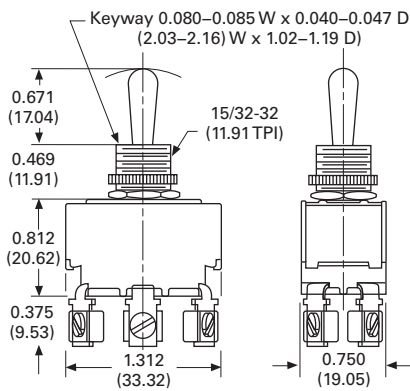
#### 2PDT Maintained (Screw Terminals)



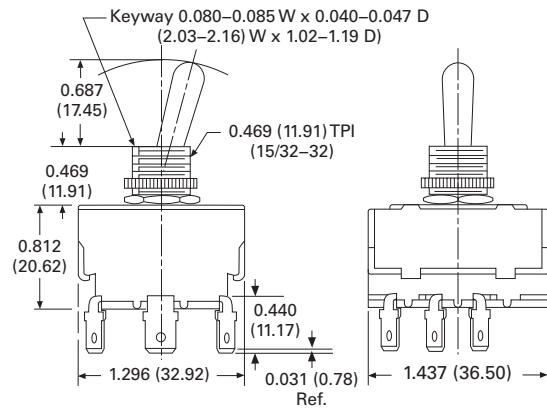
#### 4PDT Maintained (Screw Terminals)



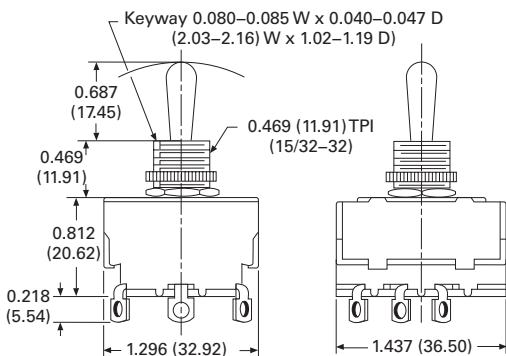
#### 2PDT Maintained (Combi-Terminals)



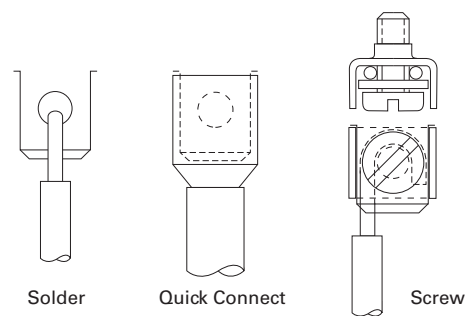
#### 3PDT Maintained (0.25 in Spade Terminals)



#### 3PDT Maintained (Screw Terminals)



#### Combi-Term Termination Options



# 4.5

## Toggle Switches

### General Purpose Toggles—AC/DC Rated

#### General Purpose Toggles



4

#### Contents

##### Description

General Purpose Toggles—AC/DC Rated

|                                   |           |
|-----------------------------------|-----------|
| Technical Data and Specifications | V11-T4-21 |
| Dimensions                        | V11-T4-21 |

Page

#### Product Description

This line of switches employs a quick-make/quick-break contact mechanism. The resultant high-speed movement eliminates the “teasing” of the switch and reduces the pitting of the

contact surfaces due to arcing. Self-cleaning and wiping contact action assures positive contact on switch operation. These switches are especially suited for use in small motor applications.

#### Options

- Lever—11/16 in
- Lever seal
- Mounting hardware; furnished assembled
- Other lead lengths

#### Standards and Certifications

- UL Recognized
- CSA Certified
- RoHS Compliant <sup>Ⓛ</sup>



#### Note

<sup>Ⓛ</sup> Visit [www.eaton.com/vcbu](http://www.eaton.com/vcbu) for the most up-to-date list of verified part numbers.

#### Product Selection

##### AC/DC Rated Toggle Switches—Single-Pole



| Rating                         | Poles and Throw | Circuit with Toggle in ... |                 |               | Base Circuit See Page V11-T4-35 | Bushing Length “B” Inches (mm) | Lever Length “A” Inches (mm) | Catalog Number  |                 |                 |
|--------------------------------|-----------------|----------------------------|-----------------|---------------|---------------------------------|--------------------------------|------------------------------|-----------------|-----------------|-----------------|
|                                |                 | UP Position                | CENTER Position | DOWN Position |                                 |                                |                              | Solder Lugs     | Screw Terminals | Wire Leads      |
| 3A, 250 Vdc                    | 1PST            | ON                         | NONE            | OFF           | A                               | 0.344 (8.74)                   | 0.500 (12.70)                | <b>8280K115</b> | <b>8295K107</b> | <b>8290K115</b> |
| 6A, 125 Vac/Vdc<br>3A, 250 Vdc | 1PST            | ON                         | NONE            | OFF           | A                               | 0.344 (8.74)                   | 0.500 (12.70)                | <b>8381K107</b> | <b>8396K107</b> | <b>8391K107</b> |
|                                |                 | MOM. ON                    | NONE            | OFF           |                                 |                                |                              | <b>8381K108</b> | <b>8396K108</b> | <b>8391K108</b> |
|                                | 1PDT            | ON                         | NONE            | ON            | B                               | 0.469 (11.91)                  | 0.500 (12.70)                | <b>8928K478</b> | —               | —               |

##### AC/DC Rated Toggle Switches—Two-Pole



| Rating                  | Poles and Throw | Circuit with Toggle in ... |                 |               | Base Circuit See Page V11-T4-35 | Bushing Length “B” Inches (mm) | Lever Length “A” Inches (mm) | Catalog Number               |                              |                 |
|-------------------------|-----------------|----------------------------|-----------------|---------------|---------------------------------|--------------------------------|------------------------------|------------------------------|------------------------------|-----------------|
|                         |                 | UP Position                | CENTER Position | DOWN Position |                                 |                                |                              | Solder Lugs                  | Screw Terminals              | Wire Leads      |
| 7A, 125V<br>3A, 250 Vdc | 2PST            | ON                         | NONE            | OFF           | C                               | 0.469 (11.91)                  | 0.500 (12.70)                | <b>8370K107</b>              | <b>8372K107</b>              | <b>8371K107</b> |
|                         |                 | MOM. ON                    | NONE            | OFF           |                                 |                                |                              | <b>8928K481</b> <sup>Ⓛ</sup> | <b>8928K482</b> <sup>Ⓛ</sup> | —               |
|                         | 2PDT            | ON                         | NONE            | ON            | D                               | 0.344 (8.74)                   | 0.500 (12.70)                | <b>8373K108</b>              | <b>8375K108</b>              | <b>8374K108</b> |
|                         |                 | ON                         | NONE            | ON            |                                 |                                |                              | <b>8373K107</b>              | <b>8375K107</b>              | <b>8374K107</b> |

#### Note

<sup>Ⓛ</sup> Rating: 6A, 125 Vac/Vdc and 3A, 250 Vdc.

**Technical Data and Specifications**

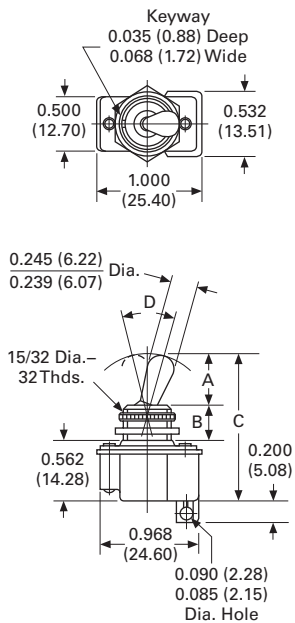
**General Purpose Toggles—AC/DC Rated**

| Description                 | Specification   |
|-----------------------------|---|
| Ratings                     | See Product Selection table; Switch ratings at 125 Vac also apply to 28 Vdc   |
| Circuits                    | 1PST, 1PDT, 2PST, 2PDT<br>Maintained and momentary toggle action  |
| Contact mechanism           | Quick-make/quick-break wiping action  |
| Contact material            | Bronze silver-plated  |
| Terminal types              | Screw terminals—brass designed to accept #5-40 x 5/32 in (Cat. No. 11-26) screws<br>Furnished unassembled<br>Solder lug terminals—brass silver-plated with 0.085–0.090 in (2.16–2.29 mm) dia. hole<br>Integrated wire leads—18 gauge, 6 in long and skinned 3/4 in<br>Special wire leads lengths beyond 6 in are available at additional charge |
| Base material               | Thermoset molding material  |
| Mounting means              | Threaded bushing—0.468 in (11.89 mm) dia., 32 threads/inch<br>Keyway—0.068 x 0.035 in (1.73 x 0.89 mm) deep, provides anti-rotation feature<br>Hardware supplied—1 hexagon locknut (Cat. No. 15-192) and 1 bright nickel-plated knurled facenut (Cat. No. 15-124F1)<br>Furnished unassembled  |
| Finish                      | Bright nickel-plated toggle lever and bushing   |
| Operating temperature range | 0° to 150°F (–17.8° to 65.6°C)  |

**Dimensions**

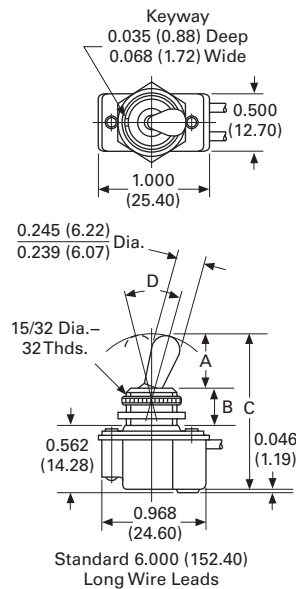
Approximate Dimensions in Inches (mm)

**8280K115**  
**1PST Maintained**  
**(Solder Lug)**



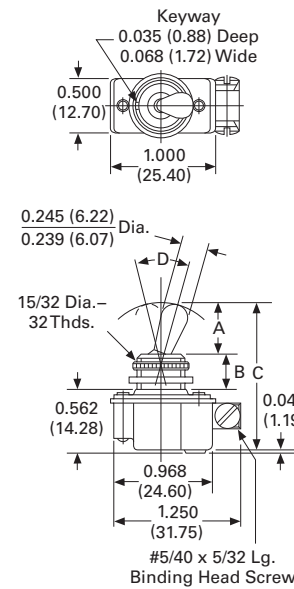
| "A"<br>Lever<br>Dim. | "B"<br>Bushing<br>Dim. | "C"<br>Overall<br>Dim. | "D"<br>Throw<br>Dim. |
|----------------------|------------------------|------------------------|----------------------|
| 0.500<br>(12.70)     | 0.344<br>(8.74)        | 1.411<br>(35.84)       | 29-1/2°              |

**8290K115**  
**1PST Maintained**  
**(Wire Lead)**



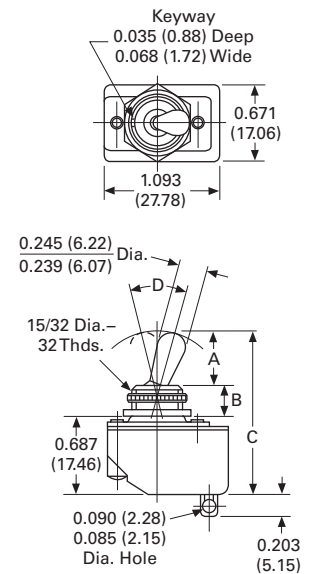
| "A"<br>Lever<br>Dim. | "B"<br>Bushing<br>Dim. | "C"<br>Overall<br>Dim. | "D"<br>Throw<br>Dim. |
|----------------------|------------------------|------------------------|----------------------|
| 0.500<br>(12.70)     | 0.344<br>(8.74)        | 1.406<br>(35.71)       | 29-1/2°              |

**8295K107**  
**1PST Maintained**  
**(Screw Terminals)**



| "A"<br>Lever<br>Dim. | "B"<br>Bushing<br>Dim. | "C"<br>Overall<br>Dim. | "D"<br>Throw<br>Dim. |
|----------------------|------------------------|------------------------|----------------------|
| 0.500<br>(12.70)     | 0.344<br>(8.74)        | 1.406<br>(35.71)       | 29-1/2°              |

**8381K107 and K108**  
**1PST Maintained**  
**(Solder Lug)**



| "A"<br>Lever<br>Dim. | "B"<br>Bushing<br>Dim. | "C"<br>Overall<br>Dim. | "D"<br>Throw<br>Dim. |
|----------------------|------------------------|------------------------|----------------------|
| 0.500<br>(12.70)     | 0.344<br>(8.74)        | 1.531<br>(38.89)       | 29-1/2°              |
| 0.500<br>(12.70)     | 0.469<br>(11.91)       | 1.656<br>(42.06)       | 25-1/2°              |

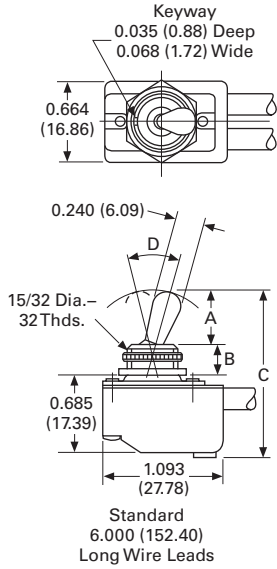
# 4.5

## Toggle Switches

### General Purpose Toggles—AC/DC Rated

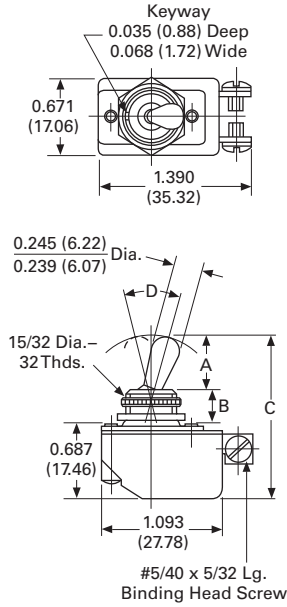
Approximate Dimensions in Inches (mm)

**8391K107 and K108**  
1PST Maintained  
(Wire Lead)



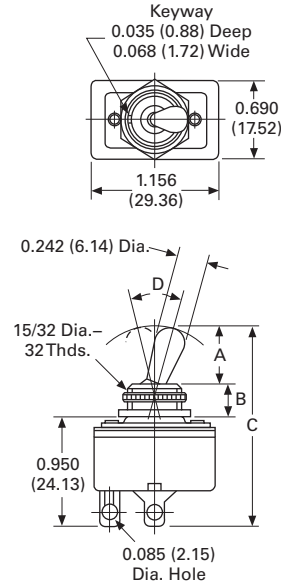
| "A"<br>Lever<br>Dim. | "B"<br>Bushing<br>Dim. | "C"<br>Overall<br>Dim. | "D"<br>Throw<br>Dim. |
|----------------------|------------------------|------------------------|----------------------|
| 0.500<br>(12.70)     | 0.344<br>(8.74)        | 1.531<br>(38.89)       | 29-1/2°              |
| 0.500<br>(12.70)     | 0.469<br>(11.91)       | 1.656<br>(42.06)       | 25-1/2°              |

**8396K107 and K108**  
1PST Maintained  
(Screw Terminals)



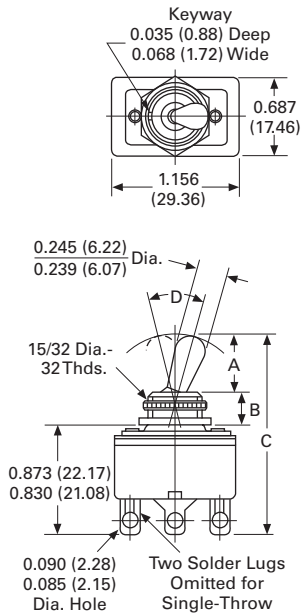
| "A"<br>Lever<br>Dim. | "B"<br>Bushing<br>Dim. | "C"<br>Overall<br>Dim. | "D"<br>Throw<br>Dim. |
|----------------------|------------------------|------------------------|----------------------|
| 0.500<br>(12.70)     | 0.344<br>(8.74)        | 1.531<br>(38.89)       | 29-1/2°              |
| 0.500<br>(12.70)     | 0.469<br>(11.91)       | 1.656<br>(42.06)       | 25-1/2°              |

**8928K478**  
1PST Momentary  
(Solder Lug)



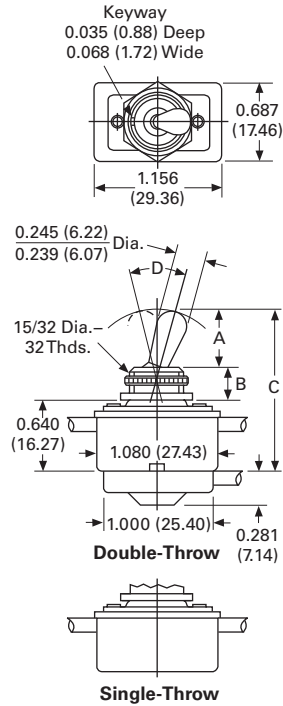
| "A"<br>Lever<br>Dim. | "B"<br>Bushing<br>Dim. | "C"<br>Overall<br>Dim. | "D"<br>Throw<br>Dim. |
|----------------------|------------------------|------------------------|----------------------|
| 0.500<br>(12.70)     | 0.344<br>(8.74)        | 1.980<br>(50.29)       | 29-1/2°              |
| 0.500<br>(12.70)     | 0.469<br>(11.91)       | 1.656<br>(42.06)       | 25-1/2°              |

**8370 and 8373K107 and K108**  
**2PST/2PDT Maintained**  
**(Solder Lug)**



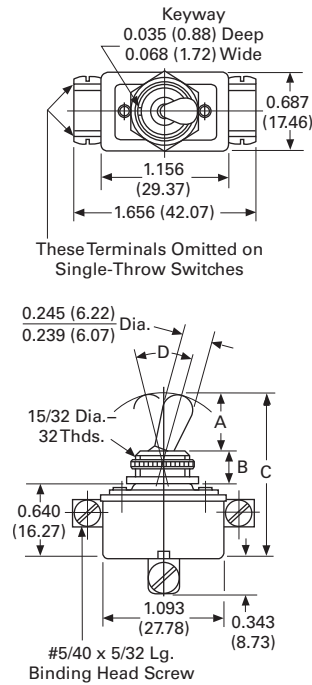
| "A"<br>Lever<br>Dim. | "B"<br>Bushing<br>Dim. | "C"<br>Overall<br>Dim. | "D"<br>Throw<br>Dim. |
|----------------------|------------------------|------------------------|----------------------|
| 0.500<br>(12.70)     | 0.344<br>(8.74)        | 1.694<br>(43.03)       | 29-1/2°              |
| 0.500<br>(12.70)     | 0.469<br>(11.91)       | 1.820<br>(46.23)       | 25-1/2°              |

**8371 and 8374K107 and K108**  
**1PST Maintained**  
**(Wire Lead)**



| "A"<br>Lever<br>Dim. | "B"<br>Bushing<br>Dim. | "C"<br>Overall<br>Dim. | "D"<br>Throw<br>Dim. |
|----------------------|------------------------|------------------------|----------------------|
| 0.500<br>(12.70)     | 0.344<br>(8.74)        | 1.484<br>(37.69)       | 29-1/2°              |
| 0.500<br>(12.70)     | 0.469<br>(11.91)       | 1.515<br>(38.48)       | 25-1/2°              |

**8373 and 8375K107 and K108**  
**2PST/2PDT Maintained**  
**(Screw Terminals)**



| "A"<br>Lever<br>Dim. | "B"<br>Bushing<br>Dim. | "C"<br>Overall<br>Dim. | "D"<br>Throw<br>Dim. |
|----------------------|------------------------|------------------------|----------------------|
| 0.500<br>(12.70)     | 0.344<br>(8.74)        | 1.484<br>(37.69)       | 29-1/2°              |
| 0.500<br>(12.70)     | 0.469<br>(11.91)       | 1.609<br>(40.87)       | 25-1/2°              |

X Series Toggles



### Product Description

Eaton’s new, competitively priced, AC rated X Series toggles offer a standard high rating for both single- and two-pole applications. The new X Series toggle line offers a wide range of switching circuits, functions and accessories. Ratings for single- and two-pole include 20A at 125 Vac and 10A at 277 Vac to handle more severe inductive, motor and lamp loads.

In addition, X Series toggles have a high standard horsepower rating of 1-1/2 hp, 125–250 Vac for two-pole applications.

The easy-to-install toggles also have an industry-standard 0.48 in diameter mounting hole. For added convenience and delivery support, select industry-standard switch circuit part numbers are available from stock. With so many features, X Series toggles can be used in a variety of applications.

### Contents

| <b>Description</b>                          | <b>Page</b>      |
|---|------------------|
| X Series Toggles                            |                  |
| Product Selection . . . . .                 | <b>V11-T4-25</b> |
| Accessories . . . . .                       | <b>V11-T4-25</b> |
| Technical Data and Specifications . . . . . | <b>V11-T4-25</b> |
| Dimensions . . . . .                        | <b>V11-T4-26</b> |

### Application Description

- Commercial and industrial equipment
- Household appliances
- Industrial machinery and automation
- Medical equipment
- Military communications and surveillance
- Rail systems
- Signaling and communications
- Test and lab equipment
- Telecommunications, cable and broadcasting

### Standards and Certifications

- UL Recognized component for Canada File E2702
- RoHS Compliant ①



**Note**

① Visit [www.eaton.com/vcbu](http://www.eaton.com/vcbu) for the most up-to-date list of verified part numbers.



## Product Selection

### Single-Pole <sup>①</sup>



#### Circuit with Toggle in ...

| Poles and Throw | Circuit with Toggle in ... |                 |                            | Terminal Type—Catalog Number |          |             |
|-----------------|----------------------------|-----------------|----------------------------|------------------------------|----------|-------------|
|                 | UP Position                | CENTER Position | DOWN Position <sup>②</sup> | 0.250 in Spade               | Screw    | Solder Lugs |
| 1PST            | ON                         | NONE            | OFF                        | XTD1A1A2                     | XTD1A2A2 | XTD1A3A2    |
| 1PST            | ON <sup>③</sup>            | NONE            | OFF                        | XTD1F1A2                     | XTD1F2A2 | XTD1F3A2    |
| 1PDT            | ON                         | OFF             | ON                         | XTD2B1A                      | XTD2B2A  | XTD2B3A     |
| 1PDT            | ON                         | NONE            | ON                         | XTD2C1A                      | XTD2C2A  | XTD2C3A     |
| 1PDT            | ON                         | NONE            | ON <sup>③</sup>            | XTD2D1A                      | XTD2D2A  | XTD2D3A     |
| 1PDT            | ON <sup>③</sup>            | OFF             | ON <sup>③</sup>            | XTD2E1A                      | XTD2E2A  | XTD2E3A     |
| 1PDT            | ON                         | OFF             | ON <sup>③</sup>            | XTD2G1A                      | XTD2G2A  | XTD2G3A     |

### Two-Pole <sup>④</sup>



#### Circuit with Toggle in ...

| Poles and Throw | Circuit with Toggle in ... |                 |                            | Terminal Type—Catalog Number |          |             |
|-----------------|----------------------------|-----------------|----------------------------|------------------------------|----------|-------------|
|                 | UP Position                | CENTER Position | DOWN Position <sup>②</sup> | 0.250 in Spade               | Screw    | Solder Lugs |
| 2PST            | ON                         | NONE            | OFF                        | XTD3A1A2                     | XTD3A2A2 | XTD3A3A2    |
| 2PST            | ON <sup>③</sup>            | NONE            | OFF                        | XTD3F1A2                     | XTD3F2A2 | XTD3F3A2    |
| 2PDT            | ON                         | OFF             | ON                         | XTD4B1A                      | XTD4B2A  | XTD4B3A     |
| 2PDT            | ON                         | NONE            | ON                         | XTD4C1A                      | XTD4C2A  | XTD4C3A     |
| 2PDT            | ON                         | NONE            | ON <sup>③</sup>            | XTD4D1A                      | XTD4D2A  | XTD4D3A     |
| 2PDT            | ON <sup>③</sup>            | OFF             | ON <sup>③</sup>            | XTD4E1A                      | XTD4E2A  | XTD4E3A     |
| 2PDT            | ON                         | OFF             | ON <sup>③</sup>            | XTD4G1A                      | XTD4G2A  | XTD4G3A     |

#### Notes

- ① Ratings: 20A at 125 Vac, 10A at 277 Vac, 3/4 hp, 125–250 Vac; recommended up to 15A at 28 Vdc.
- ② Keyway position.
- ③ Indicates momentary position.
- ④ Ratings: 20A at 125 Vac, 10A at 277 Vac, 1-1/2 hp, 125–250 Vac; recommended up to 15A at 28 Vdc.

## Accessories

See Accessories on [Page V11-T4-31](#).

## Technical Data and Specifications

### X Series Toggles

| Description           | Specification  |
|-----------------------|--|
| Single-pole rating    | 20A, 125 Vac; 10A, 277 Vac; 3/4 hp 125–250 Vac; Recommended up to 15A at 28Vdc   |
| Two-pole rating       | 20A, 125 Vac; 10A, 277 Vac; 1-1/2 hp 125–250 Vac; Recommended up to 15A at 28Vdc |
| Available circuits    | 1PST, 1PDT, 2PST, 2PDT   |
| Terminal types        | Brass screw, brass solder lugs, brass nickel-plated 0.250 in spade               |
| Hardware included     | Zinc nickel-plated knurl nut, zinc nickel-plated hex nut                         |
| Mounting means        | Threaded bushing 12.0 +0.1, –0 mm; 16.5 +1, –1 mm                                |
| Keyway                | 1.8 mm located in DOWN position  |
| Base material         | Thermoset molding material   |
| Finish                | Bright nickel-plated toggle lever and bushing                                    |
| Contact mechanism     | Slow-make/slow-break butt contact  |
| Contact resistance    | 50 ohm maximum   |
| Dielectric strength   | AC 1500V, 1 minute   |
| Operating temperature | 32° to 149°F (0° to 65°C)  |
| Insulation resistance | DC 500V 100M ohm minute  |
| Seal level rating     | IP40   |
| Packaging             | Sealed in polybag labeled with part number                                       |

# 4.6

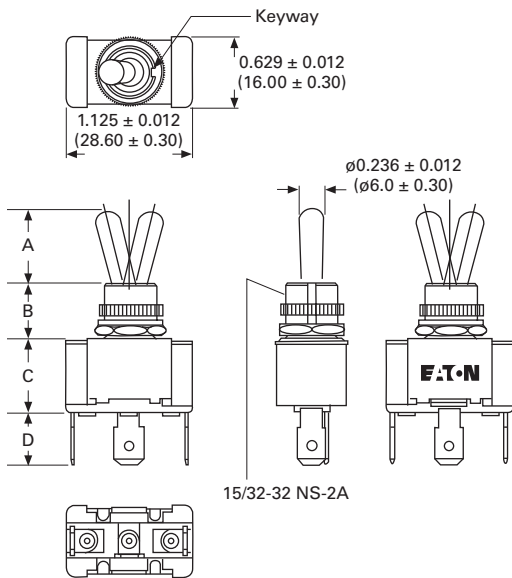
## Toggle Switches

### X Series Toggles

#### Dimensions

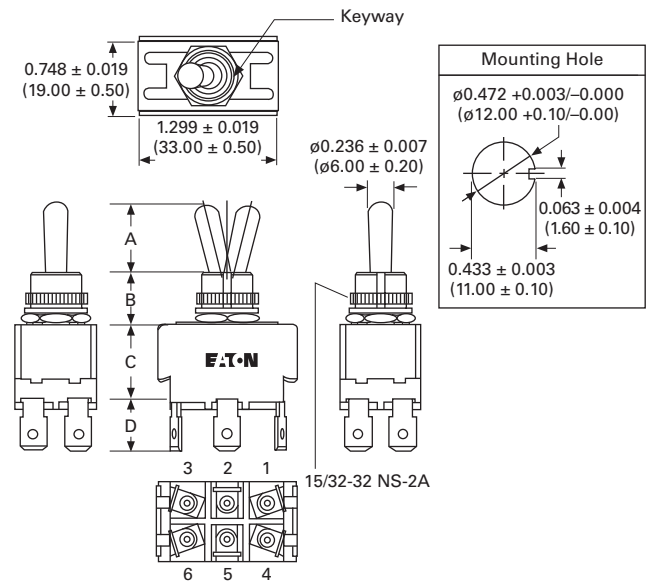
Approximate Dimensions in Inches (mm)

##### Single-Pole



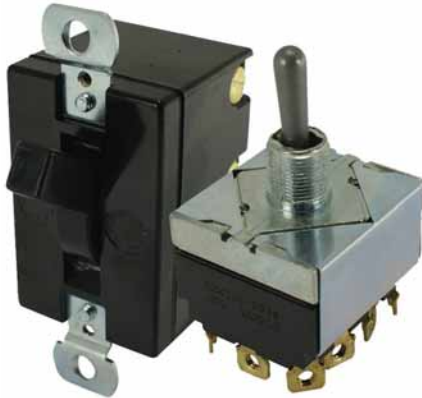
- A**  $0.649 \pm 0.039$   
(16.50 ± 1.00)
- B**  $0.468 \pm 0.012$   
(11.90 ± 0.30)
- C**  $0.677 \pm 0.019$   
(17.20 ± 0.50)
- D**  $0.452 \pm 0.019$   
(11.50 ± 0.50)

##### Two-Pole



- A**  $0.649 \pm 0.039$   
(16.50 ± 1.00)
- B**  $0.468 \pm 0.012$   
(11.90 ± 0.30)
- C**  $0.740 \pm 0.019$   
(18.80 ± 0.50)
- D**  $0.452 \pm 0.019$   
(11.50 ± 0.50)

### Heavy Duty Hesitation Switches



### Contents

#### Description

|   | <i>Page</i>      |
|---|------------------|
| Heavy Duty Hesitation Switches          |                  |
| Product Selection .....                 | <b>V11-T4-28</b> |
| Technical Data and Specifications ..... | <b>V11-T4-29</b> |
| Dimensions .....                        | <b>V11-T4-29</b> |

### Product Description

#### One-Hole Panel Mount

These heavy duty toggle switches are available in either two- or three-position. The three-position switches offer a unique positive center stop feature, which assures that the lever cannot be thrown from one side through the center OFF position without stopping. This design feature is a major factor in their widespread acceptance for motor reversing and speed control applications.

The most common application for the switch is to help prevent motor damage resulting from the high current generation by counter EMF of the armature at the time of reversing. This type of device is referred to within the industry as an anti-plugging, hesitation, positive stop or positive off switch. Typical applications include bench tools, coach and truck (electric lift) and X-ray equipment.

#### Flush Mount

These three-position switches also offer the positive center stop feature where the lever cannot be thrown from one side through the center OFF position without stopping. The high ratings of this series allow it to be used with a broad range of heavy duty applications. Copper contacts and brass screw terminals are standard.

### Standards and Certifications

- UL Recognized (except where noted)
- CSA Certified (where noted)






#### Product Selection

4






#### Heavy Duty Hesitation Switches—One-Hole Panel Mount

| Rating   | Poles and Throw <sup>②</sup> | Circuit with Toggle in ...  |   |  | Base Circuit See Page V11-T4-35 | Bushing Length "A" Inches (mm) | Lever Length "B" Inches (mm) | Lever Type | Catalog Number   |                |                          |
|--|------------------------------|---|---|--|---------------------------------|--------------------------------|------------------------------|------------|------------------|----------------|--------------------------|
|  |                              | UP Position  | CENTER Position  | DOWN Position (Keyway)  |                                 |                                |                              |            | Solder Terminals | Screw Lugs     | 0.250 in Spade Terminals |
| 15A, 125 Vac <sup>①</sup><br>10A, 250 Vac<br>3/4 hp, 250 Vac | 2PDT                         | ON  | OFF   | ON   | D                               | 0.468 (11.89)                  | 0.687 (17.45)                | Bat        | <b>7992K11</b>   | <b>7992K10</b> | <b>7992K12</b>           |
| 15A, 125 Vac <sup>①</sup><br>10A, 250 Vac<br>3/4 hp, 250 Vac | 3PDT                         | ON  | OFF   | ON   | F                               | 0.468 (11.89)                  | 0.687 (17.45)                | Bat        | <b>7991K11</b>   | <b>7991K10</b> | <b>7991K12</b>           |
| 15A, 125 Vac <sup>①</sup><br>10A, 250 Vac<br>3/4 hp, 250 Vac | 4PDT                         | ON  | OFF   | ON   | F                               | 0.468 (11.89)                  | 0.687 (17.45)                | Bat        | <b>7990K11</b>   | <b>7990K10</b> | <b>7990K12</b>           |



#### Heavy Duty Hesitation Switches—Flush Mount

| Rating                               | Poles and Throw | Circuit with Toggle in ...  |   |  | Lever Type | Termination Type | Catalog Number                               |
|--------------------------------------|-----------------|---|---|--|------------|------------------|--|
|                                      |                 | UP Position  | CENTER Position  | DOWN Position (Keyway)  |            |                  |  |
| 20A, 125 Vac/Vdc<br>10A, 250 Vac/Vdc | 2PDT            | ON  | NONE  | ON   | Square     | Screw            | <b>7810K1</b><br><b>7810K2</b> <sup>③④</sup> |
| 30A, 125 Vac/Vdc<br>20A, 250 Vac/Vdc | 2PDT            | ON  | OFF   | ON   | Square     | Screw            | <b>7811K5</b> <sup>③⑤</sup>                  |
|                                      | 3PDT            | ON  | OFF   | ON   | Square     | Screw            | <b>7812K2</b>                                |
|                                      | 4PDT            | ON  | OFF   | ON   | Square     | Screw            | <b>7813K2</b>                                |

#### Notes

- ① Listed rating for 125 Vac also applies at 28 Vdc.
- ② Supplied in a four-pole base.
- ③ CSA Certified.
- ④ Also rated 5A, 600 Vac; 1-1/2 hp, 250 Vdc; 2 hp, 240 Vac.
- ⑤ Also rated 2 hp, 250 Vac/Vdc.

### Technical Data and Specifications

#### Heavy Duty Hesitation Switches

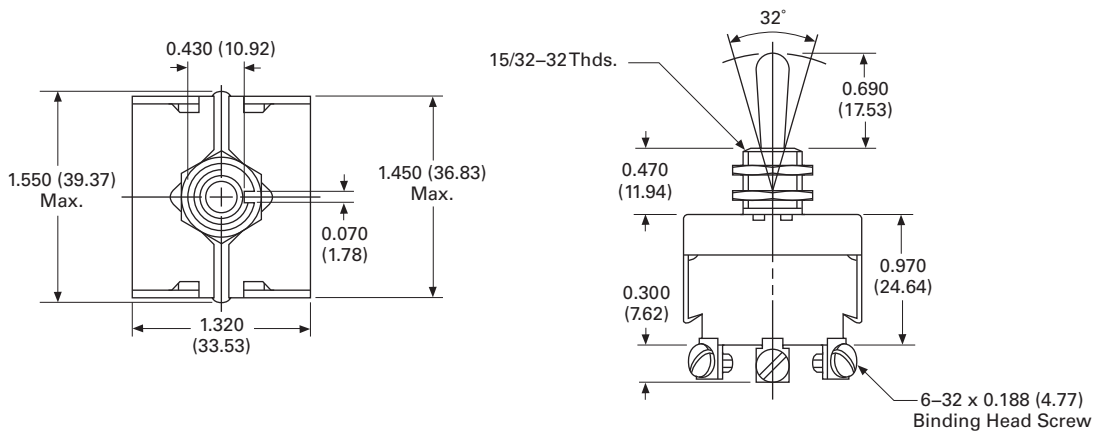
| Description                 | Specification   |
|-----------------------------|---|
| Ratings                     | See Product Selection tables; Switch ratings at 125 Vac also apply to 28 Vdc  |
| Circuits                    | 2PDT, 3PDT, 4PDT; maintained action   |
| Contact mechanism           |   |
| One-hole panel mount        | AC rated devices—slow-make/Slow-break butt contact<br>AC/DC rated devices—Quick-make/quick-break wiping contacts  |
| Flush mount                 | Quick-make/quick-break wiping contacts  |
| Contact material            |   |
| One-hole panel mount        | AC rated devices:<br>Movable—silver-plated copper with fine or coin silver contact face button<br>Stationary—copper with fine or coin silver contact face button<br>AC/DC rated devices:<br>Movable—copper<br>Stationary—bronze   |
| Flush mount                 | Movable—copper<br>Stationary—copper   |
| Terminal types              | Screw terminals—brass   |
| Mounting means              |   |
| One-hole panel mount        | AC rated devices:<br>Threaded bushing—0.468 in (11.89 mm) dia., 32 threads/in<br>Keyway—0.068 x 0.035 in (1.73 x 0.89 mm) deep, provide anti-rotation feature<br>Hardware supplied—<br>1 hexagon locknut (Catalog Number 15-192) and 1 hex facenet (Catalog Number 15-966-6)<br>Furnished unassembled |
| Flush mount                 | Flush mounting panel tabs   |
| Dielectric withstand        | 1000V rms minimum   |
| Operating temperature range | 0° to 150°F (–17.8° to 65.6°C)  |

### Dimensions

Approximate Dimensions in Inches (mm)

#### One-Hole Panel Mount

##### 7990K10—4PDT



# 4.7

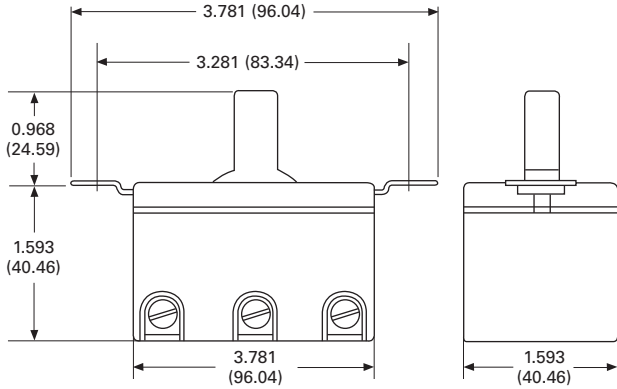
## Toggle Switches

### Heavy Duty Hesitation Switches

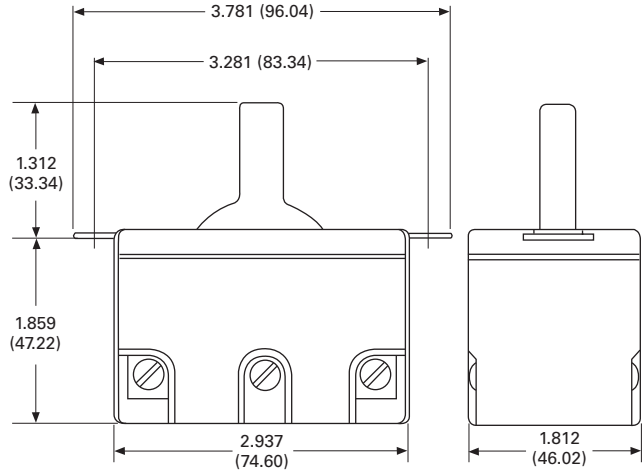
Approximate Dimensions in Inches (mm)

#### Flush Mount

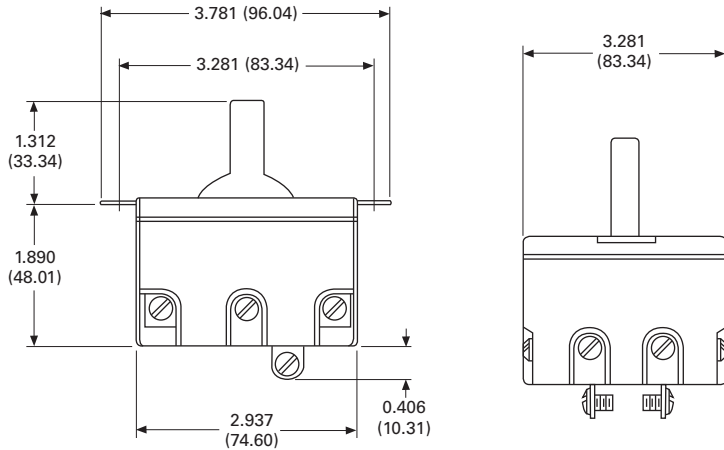
##### 7810K2-2PDT



##### 7811K2-2PDT



##### 7813K2-4PDT



## Mounting Hardware

### Product Description

#### One-Hole Mounting Switches

All bushing mounted switches are furnished with two mounting nuts. One nut is mounted behind the panel to prevent the bushing sleeve from being distorted if the front panel is overtightened

Eaton accepts no responsibility for damage to switches mounted without the backup nuts.

### Product Selection

#### Mounting Hardware for One-Hole Mounting Switches—Mounting Nuts <sup>①</sup>

| Size     | Description                      | Material                        | Thickness<br>Dim. "A" in<br>Inches (mm) | Inside<br>Diameter<br>Dim "B" in<br>Inches (mm) | OD or Dimension<br>Across Flats<br>Dim. "C" in<br>Inches (mm) | Dimension<br>Across Corners<br>Dim. "D" in<br>Inches (mm) | Catalog<br>Number |
|----------|----------------------------------|---------------------------------|---|---|---|---|-------------------|
| 3/8-27   | Hexagon locknut                  | Nickel-plated brass             | 0.125 (3.18)                            | —   | 0.562 (14.27)   | 0.625 (15.88)   | 15-2526-2         |
| 3/8-24   |                                  | Bright nickel-plated brass      |   | —   |   |   | 15-1525-6         |
| 11/32-32 |                                  | Nickel-plated brass             | 0.063 (1.60)                            | —   | 0.473 (12.01)   | 0.531 (13.49)   | 15-1525-2         |
| 15/32-32 | Hexagon locknut                  | Zinc-chromate treated           | 0.075 (1.91)                            | —   | 0.625 (15.88)   | —   | 15-192            |
|          |                                  | Bright nickel-plated brass      | 0.078 (1.98)                            | —   | 0.546 (13.87)   | 0.625 (15.88)   | 15-2525-58        |
|          |                                  | Zinc-chromate treated           | 0.188 (4.76)                            | 0.783 (19.89)                                   | 1.125 (25.80)   | —   | 15-2528-2         |
|          | Hexagon facenut                  | Nickel-plated brass             | 0.078 (1.98)                            | —   | 0.562 (14.27)   | 0.656 (16.66)   | 15-966-2          |
|          |                                  | Semi-lustre nickel-plated brass |   | —   |   |   | 19-966-6          |
|          | Knurled facenut                  | Bright nickel-plated brass      | 0.066 (1.68)                            | —   | 0.562 (14.27)   | —   | 15-124F1          |
|          |                                  | Black cupric oxide-plated brass |   | —   |   | —   | 15-124F5          |
|          |                                  | Brass nickel-plated brass       | 0.109 (2.77)                            | —   | 0.625 (15.88)   | —   | 15-90             |
|          | Chamfered dress nut              | Bright nickel-plated brass      | 0.151 (3.84)                            | 0.312 (7.92)                                    | 0.687 (17.45)   | —   | 15-994-2          |
|          | Standard knurl nut with shoulder | Nickel-plated brass             | 0.109 (2.77)                            | —   | 0.593 (15.06)   | —   | 15-2534-14        |
|          | Dress nut                        | Satin chrome-plated brass       | 0.125 (3.18)                            | —   | 0.562 (14.27)   | —   | 15-2523-4         |
|          |                                  | Black nylon                     | 0.187 (4.75)                            | 0.390 (9.91)                                    | 0.640 (16.26)   | —   | 15-1048-3         |
|          | Knurled dress nut                | Chrome-plated brass             | 0.187 (4.75)                            | 0.312 (7.92)                                    | 0.640 (16.26)   | —   | 15-189-5          |
| 3/4-32   | Hexagon facenut                  | Nickel-plated steel             | 0.093 (2.36)                            | —   | 0.937 (23.80)   | 1.078 (27.38)   | 15-1043           |
| #8-40    | Hexagon locknut with facenut     | Nickel-plated steel             | 0.060 (1.52)                            | —   | 0.245 (6.22)  | 0.216 (5.49)  | 15-1047           |

#### Note

<sup>①</sup> Hardware items are sold for use with Eaton switches only. Minimum ordering quantity on all items is 100.

### Mounting Washers and Locking Ring ①

Approximate Dimensions in Inches (mm)

| Size              | Description  | Material          | Thickness<br>Dim. "A" | Inside Diameter<br>Dim "B" | OD or Dimension<br>Across Flats<br>Dim. "C" | Dimension<br>Across Corners<br>Dim. "D" | Catalog<br>Number |
|-------------------|--------------|-------------------|-----------------------|----------------------------|---|---|-------------------|
| For 15/32 bushing | Locking ring | Zinc-plated steel | 0.040 (1.02)          | 0.475 (12.07)              | 0.718 (18.24)                               | —                                       | 29-761-5          |

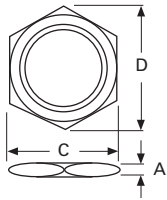
## 4

### Dimensions

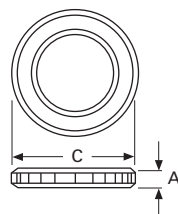
Approximate Dimensions in Inches (mm)

### Mounting Hardware

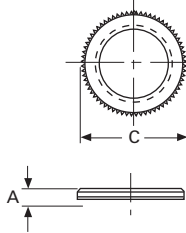
Hexagon Locknuts or Facenuts



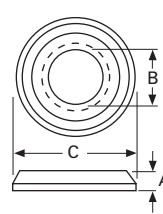
Knurled Facenut



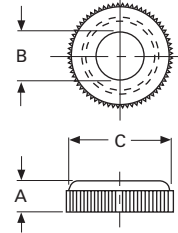
Knurled Nut with Shoulder



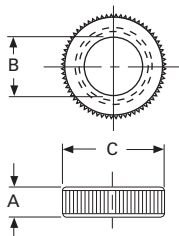
Chamfered Dress Nut  
Catalog No. 15-994-2



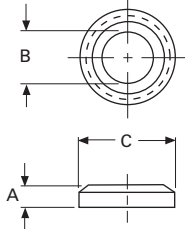
Knurled Dress Nut  
Catalog No. 15-189-5



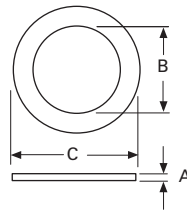
Knurled Dress Nut  
Catalog No. 15-1048-3



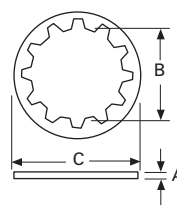
Dress Nut  
Catalog No. 15-2523-4



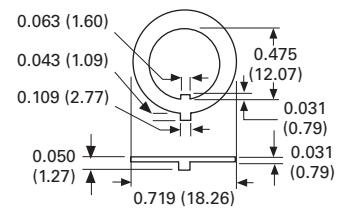
Plain Washer



Internal Tooth  
Lockwasher



Locking Ring



### Note

① Hardware items are sold for use with Eaton switches only.



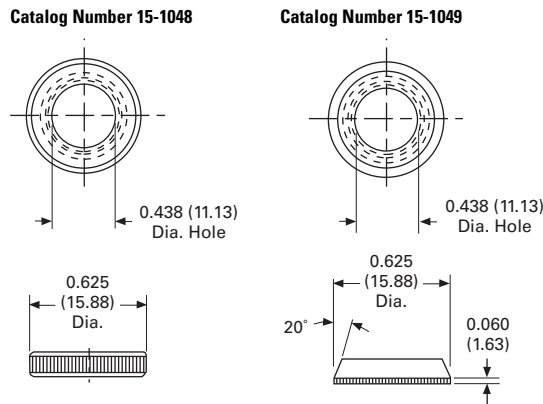
### Decorator Facenuts

#### Product Selection <sup>①</sup>

| Type             | Color        | Catalog Number |
|------------------|--------------|----------------|
| Knurled facenuts | Bright black | 15-1048-3      |
|                  | Bright clear | 15-1048-7      |
| Beveled facenuts | Bright black | 15-1049-3      |
|                  | Bright clear | 15-1049-7      |

#### Dimensions

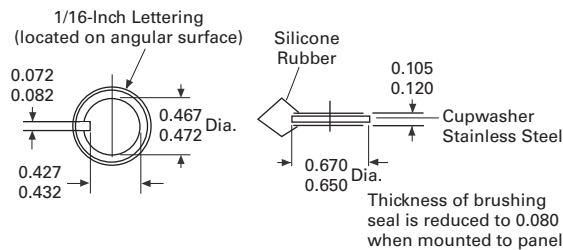
Approximate Dimensions in Inches (mm)



#### Panel Seal

- Prevents moisture and contaminants from entering panel enclosure
- Behind panel mounting
- Stainless-steel cup washer ensures proper seating of silicone rubber seal
- Seal withstands 20 psi water pressure
- Cat. No. 32-341

#### Dimensions—32-341



### Replacement Terminal Screws

#### Product Selection

| Screw Size                     | Catalog Number <sup>②</sup> |
|--------------------------------|-----------------------------|
| #5-40 x 1/8 in                 | 11-1117                     |
| #5-40 x 5/32 in                | 11-26                       |
| #5-40 x 3/16 in binding head   | 811-7206                    |
| #5-40 x 1/4 in binding head    | 811-14                      |
| #6-32 x 3/16 in binding head   | 811-2                       |
| #6-32 x 1/4 in binding head    | 811-161                     |
| #6-32 x 1/4 in binding head    | 811-7248                    |
| #6-32 x 1/4 in pan head, brass | 11-1893                     |
| #6-32 x 3/8 in binding head    | 811-129                     |
| #8-32 x 3/16 in binding head   | 11-1618                     |
| #8-32 x 1/4 in                 | 11-1369                     |
| #8-32 x 1/4 in                 | 811-408-2                   |
| #8-32 x 3/8 in binding head    | 11-1766                     |
| #8-32 x 3/8 in binding head    | 11-6074-4                   |
| #6-32 x 7/32 in binding head   | 11-6085-2                   |

#### Toggle Boot

- Prevents moisture and contaminants from entering lever to bushing enclosure
- Front panel mounting
- Threaded mounting nut ensures proper assembly of silicon rubber boot
- Brass nut: 15/32-32 NS-2A
- Black color

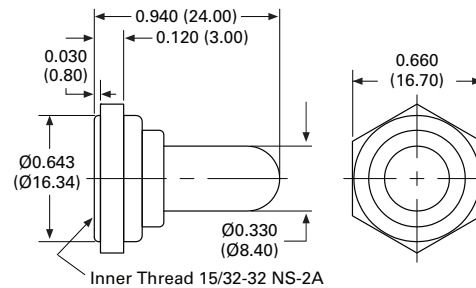
#### Product Selection

SW1RY3030



| Mounting Description   | Color | Catalog Number |
|--|-------|----------------|
| Front panel mounting<br>Molded in brass mounting nut (15/32-32 NS-2A) ensures proper assembly of silicon rubber boot | Black | SW1RY3030      |

#### Dimensions—15/32-32 NS-2A

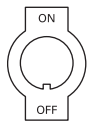





#### Notes

- Decorator facenuts for 15/32 in bushing switches, 15/32-32 thread.
- Hardware items are sold for use with Eaton switches only.

### Indicating Plates

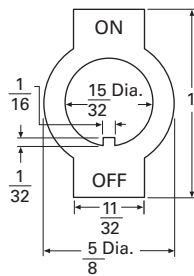
#### Product Selection—Indicating Plates for 15/32-Inch Bushing Mounted Switches

| Keyway Location   | Marking Opposite Keyway | Keyway Side | Material       | Finish           | Catalog Number                  |                   |
|---|-------------------------|-------------|----------------|------------------|---------------------------------|-------------------|
| <br>Keyway on bottom | ON                      | OFF         | 0.032 in steel | Plain            | <b>30-5632</b>                  |                   |
|   |                         |             |                | Statuary bronze  | <b>30-5632-3</b>                |                   |
|   |                         |             |                | 0.032 in brass   | Burnished nickel                | <b>30-5632-4</b>  |
|   |                         |             |                |                  | Black cupric oxide <sup>①</sup> | <b>30-2899-3</b>  |
|   | RAD                     | PHO         |                | 0.032 in steel   | Statuary bronze                 | <b>30-5632-7</b>  |
|   |                         |             |                |                  | Burnished nickel                | <b>30-5632-6</b>  |
|   | RUN                     | START       |                | 0.032 in steel   | Burnished nickel                | <b>30-5632-11</b> |
|   |                         |             |                |                  |                                 | <b>30-5632-15</b> |
|   | HOT                     | COLD        |                |                  |                                 | <b>30-5632-16</b> |
|   |                         |             |                |                  |                                 | <b>30-5632-17</b> |
|   | HI                      | LOW         |                |                  |                                 | <b>30-5632-17</b> |
|   |                         |             |                |                  |                                 | <b>30-5632-17</b> |
|   | ON                      | STOP        |                |                  |                                 | <b>30-5632-17</b> |
|   |                         |             |                |                  |                                 | <b>30-5632-17</b> |
| FOR   | REV                     |             | 0.032 in steel | Burnished nickel | <b>30-2899-2</b>                |                   |
|   |                         |             |                |                  | <b>30-2899-6</b>                |                   |
| AUTO  | TEST                    |             |                |                  | <b>30-2899-6</b>                |                   |
|   |                         |             |                |                  | <b>30-2899-7</b>                |                   |
| PUSH  | START                   |             |                |                  | <b>30-2899-7</b>                |                   |
|   |                         |             |                |                  | <b>30-2899-9</b>                |                   |
| RUN   | TEST                    |             |                |                  | <b>30-2899-9</b>                |                   |
|   |                         |             |                |                  | <b>30-2899-9</b>                |                   |
| BLANK   | BLANK                   |             | 0.032 in steel | Burnished nickel | <b>30-5632-8</b>                |                   |
|   |                         |             |                |                  | <b>30-5632-8</b>                |                   |
| <br>Keyway on side   | ON                      | OFF         | 0.032 in steel | Burnished nickel | <b>30-5632-13</b>               |                   |
|   | OFF                     | ON          |                |                  | <b>30-2899-8</b>                |                   |
| <br>Keyway on top   | T                       | B           | 0.032 in steel | Burnished nickel | <b>30-5632-12</b>               |                   |
|   | OFF                     | ON          |                |                  | <b>30-5632-14</b>               |                   |
|   | SET                     | RUN         |                |                  | <b>30-2899-10</b>               |                   |
|   | BLANK                   | RESET       |                |                  | <b>30-2899-12</b>               |                   |
| <br>Keyway on top  | O                       | I           | 0.032 in steel | Burnished nickel | <b>30-5632-23</b>               |                   |
|   | I                       | O           |                |                  | <b>30-5632-19</b>               |                   |

### Dimensions

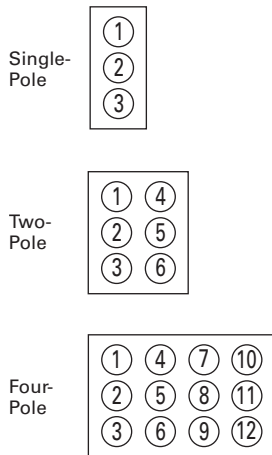
Approximate Dimensions in Inches

#### Indicating Plate



#### Note

<sup>①</sup> White lettering.



### Terminal Identification

When specified on order, switches will have the terminals identified as shown in the illustration at right. Terminal markings will be ink-stamped on the side of the switch case and unused terminal positions will not be identified.

All views are rear of switch with keyway or at down as applicable. Terminal numbers 2, 2 and 5 and 5 and 8 are considered inboard terminals for single-, two- and four-pole switches respectively. All others are considered outboard.

### “Three Independent” ON-ON-ON Circuit Diagram

For switch modified with “Three Independent” ON-ON-ON special circuit. External jumpers are required. User to connect wiring per instructions given below.

#### ON-ON-ON Special Circuit

| Connection Points                | Single-Pole |
|----------------------------------|-------------|
| Connect common to terminals      | 2           |
| Connect circuit “A” to terminals | 6           |
| Connect circuit “B” to terminals | 4           |
| Connect circuit “C” to terminals | 1           |

| 3 ON Independent | No. of Poles | Circuit with Lever in ... |                              |                        |
|------------------|--------------|---------------------------|------------------------------|------------------------|
|                  |              | UP Position               | CENTER Position (Maintained) | DOWN Position (Keyway) |
| 1 PDT            | 1            |                           |                              |                        |

### Circuit Diagrams

#### Special General Purpose Toggle Circuits

| Circuit Number | Schematic |
|----------------|-----------|
| 7530           |           |
| 7571           |           |
| 7555           |           |

### Toggle Circuit Diagrams

| Circuit Letter     | Schematic | Circuit Letter          | Schematic |
|--------------------|-----------|-------------------------|-----------|
| <b>A</b><br>1PST   |           | <b>I</b><br>2 Circuit ⑤ |           |
| <b>B</b><br>1PDT   |           | <b>J</b><br>1PST        |           |
| <b>C</b><br>2PST   |           | <b>K</b><br>1PDT        |           |
| <b>D</b><br>2PDT   |           | <b>L</b><br>2PST        |           |
| <b>E</b><br>4PST ① |           | <b>M</b><br>2PST        |           |
| <b>F</b><br>4PDT ② |           | <b>N</b> ⑥<br>2PDT      |           |
| <b>G</b> ③<br>1PST |           | <b>P</b><br>1PDT        |           |
| <b>H</b> ④<br>1PDT |           | <b>Q</b> ⑦<br>2 Circuit |           |

### Legends

#### Toggle Switch Legend

| Legend | Toggle Switch Type                                   |
|--------|--|
| ●      | Contact terminal—will make contact with switch lever |
| ○      | Isolated terminal—does not make contact with lever   |
| ⊙      | Center terminal and switch lever                     |
| ⊗      | Bulb   |
| ⚡      | Momentary contact                                    |
| •      | Denotes mechanical contact portion                   |

#### Notes

- ① Poles 11 and 12 may be eliminated for three-pole devices.
- ② Poles 10, 11 and 12 may be eliminated for three-pole devices.
- ③ Dependent lamp.
- ④ Independent lamp.
- ⑤ Two circuit—indicates a special type of double-throw switch in which the two circuits being controlled may be independent of each other.
- ⑥ For 206 Series, an additional lamp is available.
- ⑦ Available in 1PDT or 2PDT.