CAM OPERATED ROTARY SWITCHES

SERIES CS PRODUCT PROFILE

c3controls Cam Switches are available with up to 6 positions and up to 10 poles, making our Cam Switches the right solution for almost any control and load break switch application. Our spring returned operators are rated Type 1, 3, 3R, 12 and IP65 to withstand the most punishing environments. Our maintained operators share the same ratings with the addition of the 4/4X rating. All switches are suitable for global applications having met UL, CSA, and IEC standards.

FEATURES AND BENEFITS

- Cam Switches offer the convenience of a single part number, making it easy to find what you need.
- Certified as Manual Motor Controllers per UL standards requirements.
- Rated from 10A to 32A up to 690V AC with various operator types, including key lock, lever, and lockable lever for use in all your applications.
- Available in 45°, 60°, and 90° switching angles, and up to 6 positions for multiple variations.
- Operators and switches conveniently install in a standard, round 22.5mm (7/8") mounting hole that is interchangeable with common pilot devices and other control switches.
- Front plates are available in two different sizes; 32mm x 32mm and 48mm x 48mm, and come in yellow, grey, black, or aluminum.
- Round operator without front plate is available for use with standard and custom legend plates for simple and convenient customization.

UNIQUE PRODUCT FEATURES

- High-grade engineering plastics like nylon, celcon, and glass filled polyamide provide outstanding mechanical strength and long life with electrical insulating properties.
- The simple latching mechanism allows the switch to be easily wired outside the control panel and then securely installed on the mounted operator.
- A wide variety of operators can be "mixed-and-matched" with different switch types to reduce inventory requirements and customize the switch appearance.
- Operators can be locked OFF with a padlock or key switch to prevent unauthorized operation of switch.
- Markings are integral to the front plate and protected so they won’t wear off over time.
- Switches are available with IP20 guarded terminals to protect against accidental contact with live parts.
- Combination head terminal screws include captive terminal clamps for ease of wiring.
- Clearly marked terminals make wiring fast and easy.

APPLICATIONS

Our compact, easy to install cam operated rotary switches cover a wide range of applications.

- **On-Off Switches** – Ability to isolate power and connect and disconnect various types of loads and control equipment.
- **Changeover Switches** – Three position switches are used to operate two different circuits such as a normal and standby power supply.
- **Multi-Step Switches** – Multiple position switches are used to connect a variety of loads/circuits to a common electrical supply, or vice-versa, in a defined sequence.
- **Ammeter Switches** – Multi-position switches are used to connect an ammeter directly to an electrical supply or through a current transformer. This measures the current in different phases or circuits with a single switch and a single ammeter.
- **Voltmeter Switches** – Multi-position switches are used to connect a voltmeter directly to an electrical supply to measure voltage between phases or between phase and neutral with a single switch and a single voltmeter.
- **Motor Reversing Switches** – Used to manually control the direction of rotation (forward or reverse) of single phase or three phase motors.
SPECIFICATIONS

<table>
<thead>
<tr>
<th>SERIES</th>
<th>SWlCH CURRENT RATING CODE</th>
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<tbody>
<tr>
<td>G10/U10</td>
<td>G16/U16</td>
</tr>
<tr>
<td>UNITS</td>
<td></td>
</tr>
</tbody>
</table>

**ELECTRICAL UL APPLICATIONS**
- Rated Operating Voltage, Ue: VAC 460/600/600/600
- Rated Operating Current, Ie: A 10/15/20/30
- Rated Three Phase Power, Pe:
  - @ 240V AC: HP 1/2/5/5
  - @ 480V AC: HP 2/3/10/10
  - @ 600V AC: HP 5/5/15/15
- Rated Single Phase Power, Pe:
  - @ 120V AC: HP 1/3/1/1
  - @ 240V AC: HP 3/4/1/3

**Short Circuit Ratings**
- With Class J and CC Fuses: kA 1/5/5/5
- Maximum Fuse Size: A 10/25/50/50
- Electrical Endurance at Maximum Ie: Ops. 10,000/10,000/10,000/10,000
- Maximum Operating Rate: Ops./Hr. 120/120/120/120

**ELECTRICAL IEC APPLICATIONS**
- Rated Insulation Voltage, Ui: VAC 440/690/690/690
- Rated Isolation Voltage, Uiso: VAC 250/415/415/415
- Rated Impulse Voltage, Uimp: kV 4/6/6/6
- Rated Operating Voltage, Ue: VAC 440/690/690/690
- Rated Uninterrupted Current, Ith: A 12/20/32/40
- Rated Operating Current, Ie:
  - AC-21A, DC-1 @ 48V DC: A 10/16/25/32
  - DC-13 @ 24V DC: A 6/16/25/32
- Rated Three Phase Power, AC-23A, Pe:
  - @ 220 – 240V AC: kW 1.8/3/5.5/7.5
  - @ 380 – 440V AC: kW 3/7.5/11/15
  - @ 500 – 690V AC: kW 7.5/11/15
- Rated Three Phase Power, AC-3, Pe:
  - @ 220 – 240V AC: kW 1.5/2.2/4/5.5
  - @ 380 – 440V AC: kW 3/5.5/7.5/11
  - @ 500 – 690V AC: kW 5.5/7.5/11

**MECHANICAL**
- Mechanical Endurance: Ops. 100,000
- Maximum Operating Rate: Ops./Hr. 300

**ENVIRONMENTAL**
- Ambient Operating Temperature: °C / °F -25 to +55 / -13 to +131
- Altitude: m/ft. 2,000/6,562
- Ingress Protection: Round Ring
- Switch Type: Code U IP10, Code G IP20
- Operators:
  - Maintained: Type 1, 3, 3R, 4/4X, 12, and IP65
  - Spring Return: Type 1, 3, 3R, 12, and IP65

**CONSTRUCTION**
- Conductor Size: UL/C CSA: AWG 18 – 16
- Solid/Multi-Strand: mm² 0.7 – 1.5
- Fine Strand with Sleeve: mm² 0.7 – 1.5

**ROHS COMPLIANCE**
For RoHS compliance documentation by product, refer to www.c3controls.com.

**DIMENSIONS**

**Cam Switch & Front Plate Installation Dimensions**

<table>
<thead>
<tr>
<th>CURRENT RATING CODE</th>
<th>INSTALLATION CODE</th>
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<tbody>
<tr>
<td>G10 &amp; U10</td>
<td>S</td>
</tr>
<tr>
<td>G16 &amp; U16</td>
<td>5.5mm (3/32”)</td>
</tr>
<tr>
<td>G25</td>
<td>12mm (1/2”)</td>
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<tr>
<td>G32</td>
<td>15mm (1/2”)</td>
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**SWITCH & FRONT PLATE INSTALLATION DIMENSIONS**

**Operator Dimensions**

<table>
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<th>INSTALLATION CODE</th>
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<th>A</th>
<th>F</th>
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<tbody>
<tr>
<td>S22</td>
<td>3.0mm (1/8”)</td>
<td>22.0mm (7/8”)</td>
<td>32mm (1-1/4”)</td>
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<tr>
<td>L22</td>
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<td>29.5mm (1-3/32”)</td>
<td>48mm (1-7/8”)</td>
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<tr>
<td>N22</td>
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<td>25.8mm (1-1/4”)</td>
<td>38.5mm (1-3/32”)</td>
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</tbody>
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**CERTIFICATIONS**

Conformity to Standards:
- UL 508
- CSA C22.2 No. 14
- IEC 60947-1, 60947-3, 60947-5-1

Certifications:
- CE Marked (per EU Low Voltage Directive 2006/95/EC and RoHS Directive 2011/65/EU)
- C3 Controls (Guide NLRV, NLRV)

Visit c3controls.com to download product certifications.