The Best Switches…

Backed by the industry’s most knowledgeable and responsive engineering and customer service professionals…

Any way you want them…
Delivered when you need them.

ELECTRO SWITCH CORP.

In addition to Switches for Industrial Applications, Electro Switch also provides Switches and Relays for the Power Industry as well as Switches for Military and Electronic Applications. Electro Switch also provides Hydraulic and Electronic Reclosers, Terminal Block Products and Photoelectric Street Lighting Controls.

Electroswitch
180 King Avenue • Weymouth, MA 02188
Telephone (781) 335-5200 • Fax (781) 335-4253 • www.electroswitch.com

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54 Commercial St.
Raynham, MA 02767
Telephone (508) 821-1597

Electroswitch
180 King Avenue
Weymouth, MA 02188
Telephone (781) 335-5200
www.lexingtonreclosers.com

Sunset Technologies • An Affiliate of Electro Switch Corp.
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Advantage Is Yours</td>
<td>2</td>
</tr>
<tr>
<td>Detent-Action Rotary Switches</td>
<td>10</td>
</tr>
<tr>
<td>Snap-Action Rotary Switches</td>
<td>20</td>
</tr>
<tr>
<td>Cam-Action Rotary Switches</td>
<td>30</td>
</tr>
<tr>
<td>Tap Switches</td>
<td>37</td>
</tr>
<tr>
<td>Knife Switches</td>
<td>42</td>
</tr>
<tr>
<td>Construction Details</td>
<td>47</td>
</tr>
<tr>
<td>Handles</td>
<td>50</td>
</tr>
<tr>
<td>Nameplates</td>
<td>52</td>
</tr>
<tr>
<td>Accessories</td>
<td>53</td>
</tr>
<tr>
<td>Testing &amp; Life Expectancy</td>
<td>54</td>
</tr>
</tbody>
</table>
THE ADVANTAGE IS YOURS

When you choose Electroswitch products the advantage is always yours. For over 50 years Electroswitch products have been specified for use in the most demanding, most critical industrial applications by most major equipment manufacturers in the United States. They know that when you specify Electroswitch products you have chosen the most dependable, most reliable, and most proven products available in the world today.

With Electroswitch there is Never a Doubt.
Electroswitch also offers the widest variety of industrial switches available today. There are virtually millions of different potential configurations to precisely meet applications.

We offer a choice of detent-, snap- and cam-action switches, as well as tap switches and knife switches to enhance your application.

The Advantage is Always Yours when you work with Electroswitch.
THE ADVANTAGE IS YOURS

You Get The Greatest Selection.

When we say we have a full line of products, we mean exactly that. Whatever your application, you will either find a standard switch to precisely match it or we will design and test a special switch to meet your needs. Applications range from nano amps to 10,000 amps and from microvolts to 13,800 volts. Switch sizes vary from 2 inches in diameter and a few ounces to more than 2 feet in diameter and 500 pounds.

A FULL LINE OF POWER PRODUCTS

- Detent Switches
- Snap Switches
- Cam Switches
- Tap Switches
- Knife Switches
You Get The Highest Quality Product.

Electroswitch is on the Qualified Supplier List of most major equipment manufacturers in the United States. Our switches are specified for the most demanding duty in hi-shock military shipboard equipment, nuclear power plants and in all types of industrial, construction, and transportation equipment. Anywhere the ability to perform reliably under the most severe conditions of shock and vibration is essential, you will find Electroswitch products. At Electroswitch high quality is not a claim, but a fact proven through over fifty years of field performance.

We’ll Meet Your Scheduling and Delivery Requirements.

We take great pride in meeting customer delivery requirements – no matter how stringent. In addition to orders by mail, phone, and fax, we also take orders electronically utilizing EDI. Use your MRP system to place orders direct. If your requirements change after placing your order, just give us a call, we can usually adjust our schedule to meet your new requirements.
Small Switches, Big Switches, Special Switches. Meeting customers’ needs is our specialty. Tell us what you need, or explain your application to us. Our application engineers will solve your problem precisely by modifying one of our standard models or creating something entirely new. You don’t have to settle for almost right; we’ll get it exactly right for you.

THE ADVANTAGE IS YOURS

You Can Get Modifications Tailored To Your Needs.

S
mall Switches, Big Switches, Special Switches. Meeting customers’ needs is our specialty. Tell us what you need, or explain your application to us. Our application engineers will solve your problem precisely by modifying one of our standard models or creating something entirely new. You don’t have to settle for almost right; we’ll get it exactly right for you.
You Get Total Support.

We recognize our responsibility to you, our customers, and know that it goes far beyond simply delivering switches.

**Application Assistance**
More than simple assistance. We have a fully trained staff of applications professionals who are anxious to help you solve virtually any switching problems you may have.

**Engineering**
We have the industry’s most knowledgeable, dedicated, and willing engineering staff waiting to go to work for you. Give us a call, we’ll solve your switching problems.

**Special Training**
We won’t leave you on your own. If you need any special training or other assistance, we’re more than happy to provide this service.
THE ADVANTAGE IS YOURS

Electroswitch...
Serving Industry With a Full Line of Rotary Switches for Virtually Every Application from A to Z

A  Ammeter Switches
B  Breaker Control Switches
C  Cut-in/Cut-out Switches
D  DC Current Switching
E  Emergency Shut Off
F  Forward/Reverse Switches
G  Generator Control Switches
H  Heater Control Switches
I  Industrial Lighting
J  Jet Engine Test Controls
K  Key-operated Security Switches
L  Light Rail Door Controls
M  Marine Lighting
N  NASA Space Station Power Switches
O  Oven Controls
P  Prison Door Controls
Q  Quality Monitoring Controls
R  Runway Lighting Controls
S  Safety Interlocks
T  Transit Car Master Controls
U  UPS System Manual Bypass
V  Voltmeter Switches
W  Wheelchair Lift Controls
X  X-ray Equipment On/Off
Y  Yacht Power Transfer Switches
Z  Zone Climate Control
**SWITCHES FOR INDUSTRY**

### DETENT-ACTION ROTARY SWITCHES

**Typical Applications**
- Generator Controls
- Compressor Control
- Gas Controls
- Navel Ship Board Controls
- Interlock Vandal Cans
- Terrestial Truck Switching
- Ammeters
- Side Controls
- Transformer Controls
- Large Gear Sets
- Industrial Lighting Controls
- Industrial Panel Controls
- Top Switches
- Operating Room Lights
- RailRoad Crossing Equipment
- Telephone Equipment
- Diary Equipment

### SNAP-ACTION ROTARY SWITCHES

**Typical Applications**
- Wiring Equipment
- Train Warning Lights
- Telephone Equipment
- Soil Testing Equipment
- Battery Maintenance Switches
- Rescue Cutting Machines
- Power Source Selector
- Transformer Tap Selection
- Stage Lighting

### CAM-ACTION ROTARY SWITCHES

**Typical Applications**
- Control Devices
- Meter Switches
- Oxygen Equipment
- Controls
- Generator Controls
- Industrial Panels
- Communications Equipment
- Ventilation Equipment
- Refrigeration Trains
- Packaging Equipment
- Gas Set Controls
- Bypass Switches

### TAP SWITCHES

**Typical Applications**
- Panel Mounts
- Test Equipment
- Welding Equipment
- Wire Tap Switches
- Transformer Tap Switches for Transformers

### KNIFE SWITCHES

**Typical Applications**
- Disconnect Switches
- Disconnect Switches for Ship Board
# DETENT-ACTION ROTARY SWITCHES

## OVERVIEW

### SERIES 21
- 1-30
- 1-60
- 2-8
- 45˚
- 15A-600V
- 15A
- 7.5A
- 4A
- 10A
- 2A
- 30A
- 30A
- 140A
- 45A
- 35A
- 30A
- 2200V rms
- 100 megohms
- 10 milliohms

### SERIES 24
- 1-10
- 1-20
- 2-8
- 45˚
- 30A-600V
- 20A
- 15A
- 6A
- 3A
- 75A
- 75A
- 60A
- 95A
- 65A
- 35A
- 2200V rms
- 100 megohms
- 10 milliohms

### SERIES 25
- 1-25
- 1-75
- 2-12
- 30˚
- 10A-600V
- 10A
- 5A
- 3A
- 7.5A
- 75A
- 75A
- 75A
- 30A
- 25A
- 75A
- 2200V rms
- 100 megohms
- 10 milliohms

### SERIES 28
- 1-15
- 1-30
- 2-16
- 22.5˚
- 5A-600V
- 5A
- 3A
- 2A
- 5A
- 15A
- 15A
- 15A
- 2200V rms
- 100 megohms
- 10 milliohms

### SERIES 31A
- 1-10
- 1-20
- 2-8
- 45˚
- 15A-600V
- 10A
- 5A
- 3A
- 5A
- 1A
- 60A
- 60A
- 90A
- 35A
- 25A
- 60A
- 20A
- 30A
- 15A
- 2200V rms
- 100 megohms
- 10 milliohms

### FEATURES
- Up to 16 Positions
- Up to 75 Poles (More if Gear Operated Drive is Utilized)
- Up to 30 Amperes Continuous Rating
- UL Recognized & CSA Certified
- Positive Detent Action
- Silver to Silver Contacting
- All Contactor Wiping and Brushing Takes Place in Fully Enclosed Decks

### SERIES 31B
- 1-10
- 1-20
- 2-8
- 45˚
- 15A-600V
- 10A
- 5A
- 3A
- 5A
- 1A
- 60A
- 60A
- 90A
- 35A
- 25A
- 60A
- 45A
- 20A
- 30A
- 15A
- 2200V rms
- 100 megohms
- 10 milliohms

### APPROVALS
- UL Recognized
- CSA Certified

---

**Detent-Action Switches - Selector Guide**

<table>
<thead>
<tr>
<th>CHARACTERISTICS</th>
<th>120VAC</th>
<th>240VAC</th>
<th>600VAC</th>
<th>24VDC</th>
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---

### SPORTING FEATURES
- Armored Mount
- 60 Series
- All Series

## Features

- Up to 16 Positions
- Up to 75 Poles (More if Gear Operated Drive is Utilized)
- Up to 30 Amperes Continuous Rating
- UL Recognized & CSA Certified
- Positive Detent Action
- Silver to Silver Contacting
- Most are Available With the Following Features:
  - Waterproof Mount
  - Push-to-Turn
  - Key Operated
  - Spring Return
  - Solenoid Lock
  - Gear Operated
  - Solenoid Operated
- Double-Sided Wiping Contacts for Low Contact Resistance and Shock Proof Contacting
- All Contactor Wiping and Brushing Takes Place in Fully Enclosed Decks

Choose the switch that best suits your application

Electroswitch offers a wide variety of Detent-Action Rotary Switches designed specifically to satisfy the most stringent requirements in Industrial applications. In fact, we offer the world’s most complete, tested, and proven line of Detent-Action Rotary Switches.

The following is a quick description of each series. It is designed to help you select the one that is right for your application.

---

**Series 21**

---

**Series 24**

---

**Series 25**

---

**Series 31 (Single Hole Mount)**

---

**Series 31B (Four Hole Mount)**

---

### Electroswitch • 180 King Avenue • Weymouth, MA 02188 • TEL: (781) 335-5200 • FAX: (781) 335-4253 • www.electroswitch.com

---

**Detent-Action Rotary Switches**

---
SERIES 21 DETENT-ACTION ROTARY SWITCHES

Features
• Double-Sided, Double-Wiping, Knife-Type Rotary Contacts
• Silver Contact Surfaces for Long, Reliable Life
• Terraced Screws — Easy Installation
• Four Hole Mount

Control Switch Special Features
• Spring Return to Normal (Vertical) Position

Instrument Switch Special Features
• Make-Before-Break (Shorting Contacts)
• Current Input Tap Switch Arrangement — Sequentially Connected to Several Lines Using the Same Switching Deck
• Positive Positioning, Maintained Action Detent Mechanism

Electrical Specifications
Interrupt Ratings
• 15A/120VAC • 4A/600VAC • 7.5A/240VAC
• Overload Current (50 operations): 30A/125VAC Resistive
• Voltage Breakdown: 1200V rms minimum
• Insulation Resistance: 100 Megohms minimum
• Contacts Resistance: 10 milliohms maximum

Mechanical Specifications
Sections
1 to 30
Poles
1 to 60
Positions
8; Adjustable Stops for 2–8 Position Rotation
Contacts
Black-Black-Make (Non-Shorting); Black-Black-Brake (Shorting)
Actions
45° Positive Detent Indexing
Mounting
4-Hole
Panel Thickness
3/16” Max. Standard

Rotor Contacts
Silver Plated Phosphor-bronze, Double Grip
Stationary Contacts
Silver Plated Copper, w/Integral Screw Type Terminals

Construction
Contacts Enclosed in Molded-phenolic Disks

Approvals
• UL File No. E18174 • CSA File #LR20743

Variations
For Key Lock Handle, Key Operated Handle, Solenoid Lock Handle, Push-to-Turn, Spring Return or Waterproof Mount Switches please see page 18.

ORDERING INFORMATION -

Model No. 21

<table>
<thead>
<tr>
<th>Series</th>
<th>Assemblage</th>
<th>Weight (lbs)</th>
<th>Torque (lbs/in)</th>
<th>Depth Behind Panel</th>
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<tr>
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</table>

Note 1: Nominal torques, weights, and depth behind panel are listed below.
Note 2: Assemblages are shown with handle in 0˚ position (12 o’clock).
SERIES 25
DETENT-ACTION ROTARY SWITCHES

Features
- Double-Sided, Double-Wiping, Knife-Type Rotary Contacts
- Silver Contact Surfaces for Long, Reliable Life
- Terminal Screws — Easy Installation
- Four Hole Mount

Control Switch Special Features
- Spring Return to Normal (Vertical) Position

Instrument Switch Special Features
- Make-Before-Break (Shorting Contacts)
- Common Input Tap Switch Arrangement — Sequentially Connected to Several Lines Using the Same Switching Deck
- Positive Positioning, Maintained Action Detent Mechanism

Electrical Specifications

Interrupt Ratings
- 10A/120VAC
- 5A/240VAC
- 3A/600VAC
- Overload Current (50 operations): 22A/125VAC Resistive
- Voltage Breakdown: 1200V rms minimum
- Insulation Resistance: 100 Megohms minimum
- Contacts Resistance: 10 milliohms maximum

Mechanical Specifications

Sections 1 to 25
Poles 1 to 75
Positions 12; Adjustable Stops for 2–12 Position Rotations
Contacts Blank; Blank/Blank (Non-Shorting), Blank/Before-Break (Shorting)
Action 30° Positive Detent Indexing
Mounting 4-Hole
Panel Thickness 3/16” Max. Standard
Rotor Contacts Silver Plated Phosphor-bronze, Double Grip
Stationary Contacts Silver Plated Copper, w/ Integral Screw Type Terminals

Approvals
- UL File No. E18174
- CSA File #LR20743

Variations
For Key Lock Handle, Solenoid Lock Handle, Push-to-Turn, Spring Return or Waterproof Mount Switches please see page 18.

ORDERING INFORMATION -

Model No. 25

<table>
<thead>
<tr>
<th>Assemblage</th>
<th>Standard</th>
<th>Optional (With Factory Approval)</th>
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Matrix Code
- 01 = 1
- 02 = 2
- 03 = 3
- 04 = 4
- 05 = 5
- 06 = 6
- 07 = 7
- 08 = 8
- 09 = 9
- 10 = A
- 11 = B
- 12 = C
- 13 = D
- 14 = 1
- 15 = 2
- 16 = 3
- 17 = 4
- 18 = 5
- 19 = 6
- 20 = 7
- 21 = 8
- 22 = 9
- 23 = A
- 24 = B
- 25 = C

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SERIES 28
DETENT-ACTION ROTARY SWITCHES

Features
• Double-Sided, Double-Wiping, Knife-Type Rotary Contacts
• Silver Contact Surfaces for Long, Reliable Life
• Terminal Screws – Easy Installation
• Four Hole Mount

Special Features
• Spring Return to Normal (Vertical) Position

Instrument Switch Special Features
• Make-Before-Break (Shunting Contacts)
• Common Input Tap Switch Arrangement – Sequentially Connected to Several Lines Using the Same Switching Deck
• Positive Positioning, Maintained Action Detent Mechanism

Electrical Specifications

Interrupt Ratings
• 25A/120VAC • 30A/250VAC • 20A/480VAC
• Overload Current (250 operations): 15A/125VAC Resistive
• Voltage Breakdown: 1200V rms minimum
• Insulation Resistance: 100 Megohms minimum
• Contacts Resistance: 10 milliohms maximum

Mechanical Specifications

Sections 1 to 15
Poles 1 to 30
Positions 16
Contacts Break-Before-Make (Non-Shorting);
Make-Before-Break (Shorting)
Action 22.5˚ Positive Detent Indexing
Mounting 4-Hole
Panel Thickness 3⁄16” Max. Standard
Rotor Contacts Silver Plated Phosphor-bronze, Double Grip
Stationary Contacts Silver Plated Copper, w/Integral Screw Type Terminals
Construction Contacts Enclosed in Molded-phenolic Disks

Approvals
• UL File No. E18174 • CSA File #LR20743

Variations
For Key Lock Handle, Solenoid Lock Handle, Push-to-Turn, Spring Return or Waterproof
Mount Switches please see page 18.

ORDERING INFORMATION -

Model No. 28

<table>
<thead>
<tr>
<th>Model No.</th>
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Matrix Code

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<th>Assemblage</th>
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<th>Depth Behind Panel</th>
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<td>3.6</td>
</tr>
<tr>
<td>09</td>
<td>1.9</td>
<td>3.9</td>
</tr>
<tr>
<td>10</td>
<td>2.0</td>
<td>4.2</td>
</tr>
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<td>11</td>
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<td>4.5</td>
</tr>
<tr>
<td>12</td>
<td>2.2</td>
<td>4.8</td>
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<td>5.1</td>
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<td>14</td>
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<td>15</td>
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<td>17</td>
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<td>18</td>
<td>2.8</td>
<td>6.6</td>
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<tr>
<td>19</td>
<td>2.9</td>
<td>6.9</td>
</tr>
<tr>
<td>20</td>
<td>3.0</td>
<td>7.2</td>
</tr>
</tbody>
</table>

Note 1:
Nominal torques, weights, and depth behind panel are listed above.

Note 2:
Assemblages are shown with handle in 0˚ position (12 o’clock).
Features

- Double-Sided, Double-Wiping, Blade-Type Rotary Contacts
- Silver Contact Surfaces for Long, Reliable Life
- Terminal Screws – Easy Installation
- Three Hole Mount

Control Switch Special Features

- Spring Return to Normal (Vertical) Position
- Common Input Tap Switch Arrangement – Sequentially Connected to Several Switches Using the Same Switching Deck
- Positive Postioning, Maintained Action Detent Mechanism

Instrument Switch Special Features

- Make-Before-Break (Shorting Contacts)
- Common Input Tap Switch Arrangement – Sequentially Connected to Several Lines Using the Same Switching Deck
- Positive Positioning, Maintained Action Detent Mechanism

Electrical Specifications

- Interrupt Ratings
  - 20A/120VAC
  - 15A/240VAC
  - 6A/600VAC
  - 3A/125VDC
  - 1A/250VDC
- Overload Current (50 operations):
  - 95A/125VAC
  - 65A/240VAC
  - 35A/600VAC

Mechanical Specifications

- Sections: 1 to 10
- Poles: 1 to 20
- Positions: 8 Adjustable Stages for 2–8 Position Rotators
- Contacts: Silver Plated Phosphor-bronze, Double Grip
- Action: 45° Positive Detent Indexing
- Mounting: 3-Hole
- Panel Thickness: 3/16” Max. Standard
- Stationary Contacts: Silver Plated Copper, Integral Screw Type Terminals
- Construction: Contacts Enclosed in Molded-phenolic Disks

Approvals

- UL File No. E18174
- CSA File #LR20743

Variations

For Key Look Handles, Spring Return or Waterproof Mount Switches please see page 18.

ORDERING INFORMATION -

Model No 24

<table>
<thead>
<tr>
<th>Series Assemblage</th>
<th>Section</th>
<th>Weight (lbs)</th>
<th>Torque (lbs-in)</th>
<th>Depth Behind Panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>07 x 1</td>
<td>3</td>
<td>1.2</td>
<td>10</td>
<td>2.40</td>
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<td>07 x 2</td>
<td>3</td>
<td>1.2</td>
<td>10</td>
<td>2.78</td>
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<td>07 x 3</td>
<td>3</td>
<td>1.2</td>
<td>10</td>
<td>3.53</td>
</tr>
<tr>
<td>08 x 4</td>
<td>4</td>
<td>1.5</td>
<td>13</td>
<td>3.53</td>
</tr>
<tr>
<td>09 x 5</td>
<td>5</td>
<td>1.5</td>
<td>13</td>
<td>4.29</td>
</tr>
<tr>
<td>10 x 6</td>
<td>6</td>
<td>1.6</td>
<td>13</td>
<td>5.43</td>
</tr>
<tr>
<td>10 x 7</td>
<td>7</td>
<td>1.6</td>
<td>13</td>
<td>6.14</td>
</tr>
<tr>
<td>10 x 8</td>
<td>8</td>
<td>1.6</td>
<td>13</td>
<td>6.53</td>
</tr>
<tr>
<td>10 x 9</td>
<td>9</td>
<td>1.9</td>
<td>15</td>
<td>7.41</td>
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<td>10</td>
<td>2.0</td>
<td>13</td>
<td>8.43</td>
</tr>
</tbody>
</table>

For other Assemblages Consult Factory

Note 1: Nominal torques, weights, and depth behind panel are initial values.

Note 2: Assemblages are shown with handle in 0˚ position (12 o’clock).
SERIES 31 SINGLE HOLE
DETENT-ACTION ROTARY SWITCHES

Features
• Double-Sided, Double-Wiping, Knife-Type Rotary Contacts
• Silver Contact Surfaces for Long, Reliable Life
• Terminal Screws — Easy Installation
• Single Hole Mount

Control Switch Special Features
• Spring Return to Normal (Vertical) Position

Instrument Switch Special Features
• Make-Before-Break (Shorting Contacts)
• Common Input Tap Switch Arrangement — Sequentially Connected
to Several Lines Using the Same Switching Deck
• Positive Positioning, Maintained Action Detent Mechanism

Electrical Specifications
Interrupt Ratings
• 10A/125VAC • 5A/240VAC • 3A/600VAC
• 5A/30VDC • 1A/125VDC
• Overload Current (50 operations): 60A/125VAC Resistive
• Voltage Breakdown: 2000V rms minimum
• Insulation Resistance: 100 Megohms minimum
• Contacts Resistance: .01 ohms maximum

Mechanical Specifications
Sections
1 to 10
Positions
0, Adjustable Stops for 2–6 Position Actuator
Contacts
Blank, Blank-Blank-Make, Blank-Make-Make
Action
45˚ Positive Detent Indexing
Mounting
Single Hole
Panel Thickness
3/16" Max. Standard
Rotor Contacts
Silver Plated Phosphor-bronze, Double Grip
Stationary Contacts
Silver Plated Copper, w/Integral Screw Type Terminals
Construction
Contacts Enclosed in Molded-phenolic Disks

Approvals
• UL File No. E18174 • CSA File #LR20743

Variations
For Key Operated Handle or Spring Return Switches please see page 18.

ORDERING INFORMATION -

Model No.
31

Assemblage
2

Assemblage
3

Mounting Style/Handle
A = Single Hole/Flush
Blank = No

Note 1:
Nominal torques, weights, and depth behind panel are listed below.

Note 2:
Assemblies are shown with handle in 0˚ position (12 o’clock).

Weight (lbs) Torque (lbs/in)

Model Code No. of Sections
02 2 6 7 1.00 1.10
03 3 7 1.91 1.91
04 4 8 9 2.30 2.20
05 5 9 10 2.85 2.85
10 10 10 5.62 5.62
12 12 12 4.03 4.03
14 14 14 4.53 4.53
16 16 16 5.03 5.03
18 18 18 5.53 5.53
20 20 18 5.91 5.91
22 22 18 5.91 5.91

Depth Behind Panel
Assemblage
1.16
1.53
1.91
2.28
2.66
3.03
3.41
4.53
4.91
5.28

Electroswitch • 180 King Avenue • Weymouth, MA 02188 • TEL: (781) 335-5200 • FAX: (781) 335-4253 • www.electroswitch.com
SERIES 31B FOUR HOLE DETENT-ACTION ROTARY SWITCHES

Features
• Double-Sided, Double-Wiping, Multi-Point Rotary Contacts
• Silver Contact Surfaces for Long, Reliable Life
• Terminal Screws — Easy Installation
• Four Hole Mount

Control Switch Special Features
• SPRAG Return to Normal (Vertical) Position

Instrument Switch Special Features
• Make-Before-Break (Non-Shorting)
• Common Input Tap Switch Arrangement — Sequentially Connected
• Positive Positioning, Maintained Action Detent Mechanism

Electrical Specifications
Internal Ratings
• 10A/125VAC • 5A/240VAC • 3A/600VAC
• 5A/30VDC • 1A/125VDC
• Overload Current (50 operations): 60A/125VAC Resistive
• Voltage Breakdown: 2000V rms minimum
• Insulation Resistance: 100 Megohms minimum
• Contacts Resistance: 0.01 ohms maximum

Mechanical Specifications
• Sections: 1 to 10
• Poles: 1 to 20
• Positions: 8; Adjustable Stops for 2–8 Position Rotors
• Contacts: Silver Plated Phosphor-bronze, Double Grip
• Action: 45° Positive Detent Indexing
• Mounting: 4-Hole
• Panel Thickness: 3/16" Max. Standard
• Rotor Contacts: Silver Plated Phosphor-bronze, Double Grip
• Stationary Contacts: Silver Plated Copper, w/ Integral Screw Type Terminals
• Construction: Contacts Enclosed in Molded-phenolic Disks

Approvals
• UL File No. E18174 • CSA File #LR20743

Variations
For Spring Return Switches please see page 18.

ORDERING INFORMATION -

Model No. 31

<table>
<thead>
<tr>
<th>Assemblage</th>
<th>No. of Sections</th>
<th>Weight</th>
<th>Torque</th>
<th>Depth Behind Panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assemblage 1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Assemblage 2</td>
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<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Assemblage 3</td>
<td>3</td>
<td>6</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Assemblage 4</td>
<td>4</td>
<td>8</td>
<td>9</td>
<td>8</td>
</tr>
<tr>
<td>Assemblage 5</td>
<td>5</td>
<td>10</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>Assemblage 6</td>
<td>6</td>
<td>12</td>
<td>13</td>
<td>12</td>
</tr>
</tbody>
</table>

Note 1: Nominal torques, weights, and depth behind panel are listed below.
Note 2: Assemblages shown with handle in 0˚ position (12 o’clock).
Contact Assemblages

Series 21, 24, & 31 contact diagrams are shown for 8 position switches. Series 25 has 12 and Series 28 has 14, and have similar contact diagrams with more positions. Series 21, 25, & 28 have alphabetical markings of terminals. Series 24 and 31 (both single and 4-hole mounts) have the numerical terminal markings as shown.

Contacting variations that can be used with all Detent Switches are shown in the assemblage diagrams below. Either make-before-break (shunting) or break-before-make (non-shorting) contacts are available except as noted.

Number 1
One pole per section; double-break switching. This assemblage is normally limited to three positions.

Number 2
Two pole per section; double-break switching. This assemblage is normally limited to three positions.

Number 3
One pole per section; provides "OFF" and 7 tap positions.

Number 4
Two poles per section; double-break switching. This assemblage is normally limited to three positions.

Optional Contact Assemblies and Diagrams (Consult Factory for More Details)

Number 11
Allows any one circuit to be closed; make-before-break (shunting) only.

This assemblage is normally limited to three positions. (Consult Factory for More Details)

Standard Contact Assemblies and Diagrams

Number 5
Three poles per section; double-break switching. The assemblage is normally limited to four positions.

Number 6
Cumulative tap switch; make-before-break (shunting) only. This assemblage is normally limited to four positions.

Number 7
Provides double-break switching. This assemblage is normally limited to four positions.

Number 8
Allows pairs of circuits to be fed from a common source. (See p. 16)

Number 10
Same as Assemblage 3 except first position is "ON".
Key Lock Handle
- Locks in Vertical Position
- Key Removable when locked

**ORDERING INFORMATION**

<table>
<thead>
<tr>
<th>Series</th>
<th>Number of Decks</th>
<th>Handles</th>
<th>Shorting</th>
</tr>
</thead>
<tbody>
<tr>
<td>41</td>
<td>Series 26, 0115</td>
<td>B = O</td>
<td>Blank = N</td>
</tr>
</tbody>
</table>

Solenoid Lock Handle
- Switch Can Be Turned Only when Solenoid is Energized (110-125VAC input)

**ORDERING INFORMATION**

<table>
<thead>
<tr>
<th>Series</th>
<th>Number of Decks</th>
<th>Handles</th>
<th>Shorting</th>
</tr>
</thead>
<tbody>
<tr>
<td>44</td>
<td>See Page 15</td>
<td>B = O</td>
<td>Blank = N</td>
</tr>
</tbody>
</table>

Key Operated Handle
- Key Removable at 0˚ or all Positions
- All Units have Same Key Code

**ORDERING INFORMATION**

<table>
<thead>
<tr>
<th>Series</th>
<th>Number of Decks</th>
<th>Handles</th>
<th>Shorting</th>
</tr>
</thead>
<tbody>
<tr>
<td>48</td>
<td>Series 26, 0115</td>
<td>B = O</td>
<td>Blank = N</td>
</tr>
</tbody>
</table>

Push-to-Turn Switches
- Must Push approx. 25˚ (15 lb) to Turn
- Push opens a NC Contact Allowing Switching at no Load or between Positions Without Activating Intermediate Positions

**ORDERING INFORMATION**

<table>
<thead>
<tr>
<th>Series</th>
<th>Number of Decks</th>
<th>Handles</th>
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<tr>
<td>45</td>
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</table>

Spring Return Switches (Momentary Action)

**ORDERING INFORMATION**

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<th>Handles</th>
<th>Shorting</th>
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</thead>
<tbody>
<tr>
<td>41</td>
<td>See Page 15</td>
<td>B = O</td>
<td>Blank = N</td>
</tr>
</tbody>
</table>

Waterproof Mount Switches

**ORDERING INFORMATION**

<table>
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<th>Shorting</th>
</tr>
</thead>
<tbody>
<tr>
<td>42</td>
<td>See Page 15</td>
<td>B = O</td>
<td>Blank = N</td>
</tr>
</tbody>
</table>

Note: For Series 31, use standard Tap and Selector Switches, plus seal-nut #02017-8
### DETENT-ACTION SWITCHES

**ELECTROSWITCH**

**DETENT SWITCH WORKSHEET**

#### FEATURES:

<table>
<thead>
<tr>
<th>SERIES</th>
<th>HANDLES</th>
<th>ROTARY ACTION:</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>Oval Flank</td>
<td>Maintained Spring Return</td>
</tr>
<tr>
<td>24</td>
<td>Oval Shank</td>
<td>None</td>
</tr>
<tr>
<td>25</td>
<td>Pistol Grip</td>
<td>None</td>
</tr>
<tr>
<td>28</td>
<td>Oval Knurl</td>
<td>None</td>
</tr>
<tr>
<td>31A</td>
<td>Oval</td>
<td>None</td>
</tr>
<tr>
<td>31B</td>
<td>Oval</td>
<td>None</td>
</tr>
</tbody>
</table>

#### CONTACTS:

- Nonshorting Contacts
- Shorting Contacts

#### SPECIAL FEATURES:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel Thickness</td>
<td>Maximum Depth Behind Panel Allowable</td>
</tr>
<tr>
<td>Key Operable</td>
<td>Key Removable in Position(s)</td>
</tr>
<tr>
<td>Key Operable</td>
<td>Key Removable in Position(s)</td>
</tr>
</tbody>
</table>

#### ROTARY ACTION:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Panel Thickness</td>
<td>Maximum Depth Behind Panel Allowable</td>
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<tr>
<td>Key Operable</td>
<td>Key Removable in Position(s)</td>
</tr>
<tr>
<td>Key Operable</td>
<td>Key Removable in Position(s)</td>
</tr>
</tbody>
</table>

#### HANDLES:

- Oval
- Oval Shank
- Oval Knurl
- Pistol Grip
- Oval Flank

#### DECK LAYOUTS:

Series 24 & 31 use numerical terminal markings.
Series 21, 25 & 28 use alphabetical terminal markings.

Indicate external terminal connectors required.

Switch is viewed from handle end.

* Terminal numbers are preliminary pending factory review and approval.

Electroswitch • 180 King Avenue • Weymouth, MA 02188 • TEL: (781) 335-5200 • FAX: (781) 335-4253 • www.electroswitch.com
Features

- Two to Four Positions and Up to 12 Poles
- Time Proven Double-Wiping Contacts for Low Contact Resistance Even Under Extreme Shock and Vibration Conditions
- Current Ratings up to 200 Amperes at 600VAC
- Switching Speed not Dependent on Operator Action
- Quick Make and Break Action. Approximately Ten Millisecond Contact Transfer Time
- Excellent for DC as well as AC Switching
- All Making and Breaking of Contacts Takes Place in the Fully Enclosed Decks
- Versatile - Many Special Designs are Available to Fit Every Application
- Available in MIL SPEC Versions. Contact Factory or Your Local Representative
- Insulating Materials - NEMA Class A (105˚C)

Choose the switch that best suits your application

Electroswitch offers a wide variety of Snap-Action Rotary Switches designed specifically to satisfy the most stringent requirements in Industrial applications. In fact, we offer the world’s most complete, tested, and proven line of Snap-Action Rotary Switches.

The following is a quick description of each series. It is designed to help you select the one that is right for your application.

Series 101
- Four Hole Mount
- Features:
  - Two to Four Positions and Up to 12 Poles
  - Time Proven Double-Wiping Contacts for Low Contact Resistance Even Under Extreme Shock and Vibration Conditions
  - Current Ratings up to 200 Amperes at 600VAC
  - Switching Speed not Dependent on Operator Action
  - Quick Make and Break Action. Approximately Ten Millisecond Contact Transfer Time
  - Excellent for DC as well as AC Switching
  - All Making and Breaking of Contacts Takes Place in the Fully Enclosed Decks
  - Versatile - Many Special Designs are Available to Fit Every Application
  - Available in MIL SPEC Versions. Contact Factory or Your Local Representative
  - Insulating Materials - NEMA Class A (105˚C)

Series 103
- Single Hole Mount
- Features:
  - Two to Four Positions and Up to 12 Poles
  - Time Proven Double-Wiping Contacts for Low Contact Resistance Even Under Extreme Shock and Vibration Conditions
  - Current Ratings up to 200 Amperes at 600VAC
  - Switching Speed not Dependent on Operator Action
  - Quick Make and Break Action. Approximately Ten Millisecond Contact Transfer Time
  - Excellent for DC as well as AC Switching
  - All Making and Breaking of Contacts Takes Place in the Fully Enclosed Decks
  - Versatile - Many Special Designs are Available to Fit Every Application
  - Available in MIL SPEC Versions. Contact Factory or Your Local Representative
  - Insulating Materials - NEMA Class A (105˚C)

Series 102 and JS
- Features:
  - Two to Four Positions and Up to 12 Poles
  - Time Proven Double-Wiping Contacts for Low Contact Resistance Even Under Extreme Shock and Vibration Conditions
  - Current Ratings up to 200 Amperes at 600VAC
  - Switching Speed not Dependent on Operator Action
  - Quick Make and Break Action. Approximately Ten Millisecond Contact Transfer Time
  - Excellent for DC as well as AC Switching
  - All Making and Breaking of Contacts Takes Place in the Fully Enclosed Decks
  - Versatile - Many Special Designs are Available to Fit Every Application
  - Available in MIL SPEC Versions. Contact Factory or Your Local Representative
  - Insulating Materials - NEMA Class A (105˚C)

The following are a quick description of each series. It is designed to help you select the one that is right for your application.

Series 105
- Features:
  - Two to Four Positions and Up to 12 Poles
  - Time Proven Double-Wiping Contacts for Low Contact Resistance Even Under Extreme Shock and Vibration Conditions
  - Current Ratings up to 200 Amperes at 600VAC
  - Switching Speed not Dependent on Operator Action
  - Quick Make and Break Action. Approximately Ten Millisecond Contact Transfer Time
  - Excellent for DC as well as AC Switching
  - All Making and Breaking of Contacts Takes Place in the Fully Enclosed Decks
  - Versatile - Many Special Designs are Available to Fit Every Application
  - Available in MIL SPEC Versions. Contact Factory or Your Local Representative
  - Insulating Materials - NEMA Class A (105˚C)

Series 107
- Features:
  - Two to Four Positions and Up to 12 Poles
  - Time Proven Double-Wiping Contacts for Low Contact Resistance Even Under Extreme Shock and Vibration Conditions
  - Current Ratings up to 200 Amperes at 600VAC
  - Switching Speed not Dependent on Operator Action
  - Quick Make and Break Action. Approximately Ten Millisecond Contact Transfer Time
  - Excellent for DC as well as AC Switching
  - All Making and Breaking of Contacts Takes Place in the Fully Enclosed Decks
  - Versatile - Many Special Designs are Available to Fit Every Application
  - Available in MIL SPEC Versions. Contact Factory or Your Local Representative
  - Insulating Materials - NEMA Class A (105˚C)

Series JS
- Features:
  - Two to Four Positions and Up to 12 Poles
  - Time Proven Double-Wiping Contacts for Low Contact Resistance Even Under Extreme Shock and Vibration Conditions
  - Current Ratings up to 200 Amperes at 600VAC
  - Switching Speed not Dependent on Operator Action
  - Quick Make and Break Action. Approximately Ten Millisecond Contact Transfer Time
  - Excellent for DC as well as AC Switching
  - All Making and Breaking of Contacts Takes Place in the Fully Enclosed Decks
  - Versatile - Many Special Designs are Available to Fit Every Application
  - Available in MIL SPEC Versions. Contact Factory or Your Local Representative
  - Insulating Materials - NEMA Class A (105˚C)
SERIES 101 FOUR HOLE MOUNT SNAP-ACTION SWITCHES

Features
- Double-Wiping Contacts for Low Resistance Even Under Extreme Shock and Vibration
- Fast Switching Speed Independent of Operator Action - Approximately 10 Milliseconds
- Four Hole Mount
- NEMA Class A (105°C) Insulating Materials
- Excellent for DC as well as AC Switching
- Making and Breaking of Contacts Performed Inside Enclosed Decks

Electrical Specifications
Continuous Ratings
- 20A/600VAC
Interrupt Ratings
- 15A/120VAC
- 10A/240VAC
- 7.5A/600VAC, (Circuit 1, 2, 3, 4)
- 10A/125VDC
- 5A/250VDC
- 1A/600VAC, (Circuit 6, 7)
- Overload Current (50 operations): 90A/600VAC Resistive
- Dielectric Breakdown: 2200V rms minimum
- Insulation Resistance: 100 Megohms minimum
- Contacts Resistance: 30 Milliohms max.
  (10 Milliohms Average Before Life)

Mechanical Specifications
- Poles Circuit 1 = 12 MAX; Circuit 2, 3 & 4 = 8 MAX; Circuit 6 & 7=11 MAX
- Positions 2, 3, or 4
  - Contacts Break-Before-Make (Non-Shorting); Make-Before-Break (Shorting)
- Action Positive Snap Action - 90˚ Indexing
- Movement Unlimited Continuous Rotation in Both Directions or Factory Limited to 2 or 3 Positions
- Mounting Panel Mount, 4 Tapped Mounting Holes
- Panel Thickness 3⁄16” Standard
- Rotor Contacts Phosphor-bronze, Double Grip
- Stationary Contacts Copper, Integral with Screw Type Terminals
- Construction Contacts Enclosed in Molded-phenolic Disks

Approvals
- UL: File No. E18174
- CSA: File No. US2043

ORDERING INFORMATION - Standard

ORDERING INFORMATION - Specials

Note: Worksheet on page 29 needs to be filled out by customer.
SERIES 101 SINGLE HOLE MOUNT
SNAP-ACTION SWITCHES

Features
• Double-Wiping Contacts for Low Resistance Even Under Extreme Shock and Vibration
• Fast Switching Speed Independent of Operator Action - Approximately 10 Milliseconds
• Single Hole Mount
• NEMA Class A (105°C) Insulating Materials
• Excellent for DC as well as AC Switching
• Making and Breaking of Contacts Performed Inside Enclosed Decks

Electrical Specifications
Continuous Ratings

<table>
<thead>
<tr>
<th>Rating</th>
<th>Circuit 1</th>
<th>Circuit 2, 3 &amp; 4</th>
<th>Circuit 6 &amp; 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>20A/600VAC</td>
<td>10A/240VAC</td>
<td>7.5A/400VAC</td>
<td></td>
</tr>
<tr>
<td>10A/125VDC</td>
<td>5A/250VDC</td>
<td>16A/500VAC</td>
<td></td>
</tr>
</tbody>
</table>

Interrupt Ratings

<table>
<thead>
<tr>
<th>Rating</th>
<th>Circuit 1</th>
<th>Circuit 2, 3 &amp; 4</th>
<th>Circuit 6 &amp; 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>15A/120VAC</td>
<td>10A/240VAC</td>
<td>5A/250VAC</td>
<td></td>
</tr>
<tr>
<td>10A/125VDC</td>
<td>5A/250VDC</td>
<td>16A/500VAC</td>
<td></td>
</tr>
</tbody>
</table>

Overload Current (50 operations): 100% of Continuous Rating

Insulation Resistance: 100 Megohms minimum

Contacts Resistance: 30 Milliohms max. (10 Milliohms Average Before Life)

Dielectric Breakdown: 2200V rms minimum

Contacts Resistance: 30 Milliohms max. (10 Milliohms Average Before Life)

Mechanical Specifications

Poles: Circuit 1 = 6 MAX; Circuit 2, 3 & 4 = 3 MAX; Circuit 6 & 7 = 6 MAX
Positions: 2, 3, 4 or 5
Contacts: Break-Before-Make (Non-Shorting); Make-Before-Break (Shorting)
Actions: Positive Snap-Action - 90˚ Indexing
Movement: Unlimited Continuous Rotation in Both Directions or Factory Limited to 2 or 3 Positions
Wiring: Panel Mount, 4 Tapped Wiring Holes
Panel Thickness: 3/16" Standard
Rotor Contacts: Phosphor-bronze, Double Grip
Stationary Contacts: Copper, Integral with Screw Type Terminals
Construction: Contacts Enclosed in Molded-phenolic Dishes

Approvals
• UL File No. E18174
• CSA File No. US50743

ORDERING INFORMATION - Specials

Model No. 102

<table>
<thead>
<tr>
<th>Series</th>
<th>Number of Poles</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>1 Poles</td>
</tr>
<tr>
<td>02</td>
<td>2 Poles</td>
</tr>
<tr>
<td>03</td>
<td>3 Poles</td>
</tr>
<tr>
<td>04</td>
<td>4 Poles</td>
</tr>
<tr>
<td>05</td>
<td>5 Poles</td>
</tr>
<tr>
<td>06</td>
<td>6 Poles</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pole</th>
<th>Circuit 1</th>
<th>Circuit 2, 3, 4</th>
<th>Circuit 6 &amp; 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Circuit 1</td>
<td>Circuit 2, 3, 4</td>
<td>Circuit 6, 7</td>
</tr>
<tr>
<td>2</td>
<td>Circuit 2</td>
<td>Circuit 3, 4</td>
<td>Circuit 6</td>
</tr>
<tr>
<td>3</td>
<td>Circuit 3</td>
<td>Circuit 4</td>
<td>Circuit 7</td>
</tr>
</tbody>
</table>

Note 1: For limits on the # of poles available in each circuit, see depth behind panel chart.

Note 2: Exceeding the # of poles listed may result in a disallowed design.
Features
• Double-Wiping Contacts for Low Resistance Even Under Extreme Shock and Vibration
• Fast Switching Speed Independent of Operator Action - Approximately 10 Milliseconds
• Four Hole Mount
• NEMA Class A (105°C) Insulating Materials
• Excellent for DC as well as AC Switching
• Making and Breaking of Contacts Performed Inside Enclosed Decks

Electrical Specifications
Continuous Ratings
• 45A/600VAC
Interrupt Ratings
• 30A/480VAC • 15A/600VAC • 30A/250VDC
• Overload Current (50 operations): 180A/600VAC Resistive
• Dielectric Breakdown: 2200V rms minimum
• Insulation Resistance: 100 Megohms minimum
• Contacts Resistance: 10 Milliohms max. (4 Milliohms Average Before Life)

Mechanical Specifications
Poles
Circuit 1 = 12 MAX; Circuit 2, 3, & 4 = 8 MAX; Circuit 6 & 7 = 11 MAX
Positions
2, 3, or 4
Contacts
Break-Before-Hold (Non-Shorting); Make-Before-Break (Shorting)
Action
Positive Snap Action - 90˚ Indexing
Movement
Unlimited Continuous Rotation in Both Directions or Factory Limited to 2 or 3 Positions
Mounting
Panel Mount, 4 Tapped Mounting Holes
Panel Thickness
3⁄16” Standard
Rotor Contacts
Phosphor-bronze, Double Grip
Stationary Contacts
Copper, Integral with Screw Type Terminals
Construction
Contacts Enclosed in Moldersphenolic Dobs

Approvals
• UL: File No. E18174 • CSA: File No. LR20743

ORDERING INFORMATION - Standard

Model No. 103
Circuit
1 = Circuit 1
2 = Circuit 2
3 = Circuit 3
4 = Circuit 4
6 = Circuit 6
7 = Circuit 7
9 = Special
Number of Poles*
01 = 1
02 = 2
03 = 3
04 = 4
05 = 5
06 = 6
07 = 7
08 = 8
09 = 9
10 = 10
11 = 11
12 = 12

Note 1: For limits on the # of poles available in each circuit, see depth behind panel chart.

ORDERING INFORMATION - Specials

Model No. 103
Circuit
1 = Circuit 1
2 = Circuit 2
3 = Circuit 3
4 = Circuit 4
6 = Circuit 6
7 = Circuit 7
9 = Special
Number of Poles*
01 = 1
02 = 2
03 = 3
04 = 4
05 = 5
06 = 6
07 = 7
08 = 8
09 = 9
10 = 10
11 = 11
12 = 12

Note: Worksheet on page 29 needs to be filled out by customer.

* Circuit 1: 12 Poles Max., Circuits 2, 3 & 4: 8 Poles Max., Circuits 6 & 7: 11 Poles Max.
SERIES 105 MOUNT
SNAP-ACTION SWITCHES

Features
• Double-Wiping Contacts for Low Resistance Even Under Extreme Shock and Vibration
• Fast Switching Speed Independent of Operator Action - Approximately 10 Milliseconds
• Four Hole Mount
• NEMA Class A (105°C) Insulating Materials
• Excellent for DC as well as AC Switching
• Making and Breaking of Contacts Performed Inside Enclosed Decks

Electrical Specifications
Continuous Ratings
• 75A/600VAC
Interrupt Ratings
• 60A/600VAC
• 60A/250VDC
• 30A/250VAC
• Dielectric Breakdown: 2200V rms minimum
• Insulation Resistance: 100 Megohms minimum
• Contacts Resistance: 6 Milliohms max. (1.5 Milliohms Average Before Life)

Mechanical Specifications
Poles Circuit 1, 6 & 7 = 8 MAX; Circuit 2, 3, & 4 = 6 MAX
Positions 2, 3, or 4
Contacts Break-Before-Make (Non-Shorting); Make-Before-Break (Shorting)
Action Positive Snap Action - 90˚ Indexing
Movement Unlimited Continuous Rotation in Both Directions or Factory Limited to 2 or 3 Positions
Mounting Panel Mount, 4 Tapped Mounting Holes
Panel Thickness 3⁄16” Standard
Rotor Contacts Phosphor-bronze, Double Grip
Stationary Contacts Copper, Integral with Screw Type Terminals
Construction Contacts Enclosed in Molded-phenolic Disks

Approvals
• UL and ULc: File No. E80080

ORDERING INFORMATION - Standard
Model No. 105

Circuit No. Pole No. Number of Positions
1 = Circuit 1
2 = Circuit 2
3 = Circuit 3
4 = Circuit 4
6 = Circuit 6
7 = Circuit 7
9 = Special

Handle
A = Oval Flush
B = Oval
C = Round Knurled
D = Pistol Grip

ORDERING INFORMATION - Specials
Model No. 105

Circuit No. Pole No. Number of Positions
1 = Circuit 1
2 = Circuit 2
3 = Circuit 3
4 = Circuit 4
6 = Circuit 6
7 = Circuit 7
9 = Special

Outlet
A = OVAL FLUSH
B = OVAL
C = ROUND KNURLED
D = PISTOL GRIP

* Circuit 1: 12 Poles Max., Circuits 2, 3, & 4: 8 Poles Max., Circuits 6 & 7: 11 Poles Max.
Note 1: For limits on the # of poles available in each circuit, see depth behind panel chart.

Note: Worksheet on page 29 needs to be filled out by customer.
SERIES 107 MOUNT
SNAP-ACTION SWITCHES

Features
- Double-Wiping Contacts for Low Resistance Even Under Extreme Shock and Vibration
- Fast Switching Speed Independent of Operator Action - Approximately 10 Milliseconds
- Four Hole Mount
- NEMA Class A (105°C) Insulating Materials
- Excellent for DC as well as AC Switching
- Making and Breaking of Contacts Performed Inside Enclosed Decks

Electrical Specifications
Continuous Ratings
- 200A/600VAC
Interrupt Ratings
- 200A/600VAC
- Overload Current: 600A/600VAC
- Dielectric Breakdown: 2500V rms minimum
- Insulation Resistance: 100 Megohms minimum
- Contacts Resistance: 1.5 Milliohms max.
  (.5 Milliohms Average Before Life)

Mechanical Specifications
- Poles Circuit 1 = 8 MAX; Circuit 2, 3, 4, 6 & 7 = 6 MAX
- Positions 2, 3, or 4
- Contacts Break-Before-Make (Non-Shorting); Make-Before-Break (Shorting)
- Action Positive Snap Action - 90˚ Indexing
- Movement Unlimited Continuous Rotation in Both Directions or Factory Limited to 2 or 3 Positions
- Mounting Panel Mount, 4 Tapped Mounting Holes
- Panel Thickness 3/16" Standard
- Rotor Contacts Phosphor-bronze, Double Grip
- Stationary Contacts Copper, Integral with Screw Type Terminals
- Construction Contacts Enclosed in Molded-phenolic Disks

Approvals
- UL and ULc: File No. 80080

ORDERING INFORMATION - Standard
Model No. 107
- Circuit 1: 12 Poles Max., Circuits 2, 3 & 4: 8 Poles Max., Circuits 6 & 7: 11 Poles Max.

ORDERING INFORMATION - Specials
Model No. 107
- Circuit 1: 12 Poles Max., Circuits 2, 3 & 4: 8 Poles Max., Circuits 6 & 7: 11 Poles Max.

Panel boring chart on next page.
SERIES 102 AUXILIARY
MODIFIED SNAP-ACTION SWITCHES

Features
• Double-Wiping Contacts for Low Resistance Even Under Extreme Shock and Vibration
• Two Hole Mount
• NEMA Class A (105°C) Insulating Materials
• Excellent for DC as well as AC Switching
• Making and Breaking of Contacts Performed Inside Enclosed Deck

Electrical Specifications
Continuous Ratings
• 20A/600VAC

Interrupt Ratings
• 15A/120VAC • 10A/240VAC • 7.5A/440VAC (Circuit 1, 2, 4)
• 10A/125VDC • 5A/250VDC • 1A/600VAC, (Circuit 6, 7)
• Overload Current (50 operations): 90A/600VAC Resistor
• Dielectric Breakdown: 2200V rms minimum
• Insulation Resistance: 100 Megohms minimum
• Contacts Resistance: 30 Milliohms max.

Mechanical Specifications
Poles Circuit 1 = 24 MAX
Contacts Break-Before-Make (Non-Shorting); Make-Before-Break (Shorting)
Movement 90° Indexing
Mounting Panel Mount, 2 Holes
Rotor Contacts Phosphor-bronze, Double Grip
Stationary Contacts Copper, Integral with Screw Type Terminals
Construction Contacts Enclosed in Molded-phenolic Disks

Approvals
• UL: File No. E181374 • CSA: File No. UL30743

ORDERING INFORMATION
Consult Factory for Complete Details and Ordering Information

TYPICAL CIRCUITS

Circuit 1

Circuit 6

Panel Drilling Dimensions

0.046

2.092
SERIES JS
MODIFIED SNAP-ACTION SWITCHES

Features
- Double-Wiping Contacts for Low Resistance Even Under Extreme Shock and Vibration
- Fast Switching Speed Independent of Operator Action - Approximately 10 Milliseconds
- Four-Hole Mount
- NEMA Class A (105°C) Insulating Materials
- Excellent for DC as well as AC Switching
- Making and Breaking of Contacts Performed Inside Enclosed Decks

Electrical Specifications

Interrupt Ratings
- 30A/120VAC
- 15A/240VAC
- 30A/240VDC
- Dielectric Breakdown: 2200V rms minimum
- Insulation Resistance: 100 Megohms minimum
- Contacts Resistance: 10 Milliohms max.
(4 Milliohms Average Before Life)

Mechanical Specifications

Sections
1 to 5

Poles
1 to 5

Positions
Unlimited for 8 Positions or Limited from 2 to 5 Positions

Contacts
Break-Before-Make (Non-Shorting); Make-Before-Break (Shorting) Available up to 3 Sections

Action
Positive Snap Action - 45° Indexing

Mounting
Panel or Base

Rotor Contacts
Silver Plated Phosphor-bronze, Double Grip

Stationary Contacts
Silver Plated Copper, w/Integral Screw Type Terminals

Construction
Contacts Enclosed in Molded-phenolic Disks

ORDERING INFORMATION

<table>
<thead>
<tr>
<th>Series</th>
<th>Section</th>
<th>Positions</th>
<th>Parts Approx.</th>
<th>Weight Approx.</th>
<th>Dimension &quot;x&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>JS 2100</td>
<td>1-5</td>
<td>NO-OFF</td>
<td>8 lb. — inclusive</td>
<td>20 oz.</td>
<td>2 1/2&quot;</td>
</tr>
<tr>
<td>JS 2200</td>
<td>2-5</td>
<td>NO-OFF</td>
<td>8 lb. — inclusive</td>
<td>30 oz.</td>
<td>3&quot;</td>
</tr>
<tr>
<td>JS 2300</td>
<td>3-5</td>
<td>NO-OFF</td>
<td>8 lb. — inclusive</td>
<td>35 oz.</td>
<td>3 1/2&quot;</td>
</tr>
<tr>
<td>JS 2400</td>
<td>4-5</td>
<td>NO-OFF</td>
<td>8 lb. — inclusive</td>
<td>38 oz.</td>
<td>4 1/2&quot;</td>
</tr>
<tr>
<td>JS 2500</td>
<td>5-5</td>
<td>NO-OFF</td>
<td>8 lb. — inclusive</td>
<td>41 oz.</td>
<td>5 1/2&quot;</td>
</tr>
</tbody>
</table>

DECK LAYOUT
### Snap-Action Switch Worksheet

#### Features:
- Handles:
  - Double-Throw
  - Panel-Throw
- Contacts:
  - Nonshorting
  - Break-before-Make

#### Rotary Action:
- Maintained
- Spring-Return

#### Additional Requirements:
- Number of Positions
- Panel Thickness
- Maximum Depth Behind Panel
- Waterproof Mount

#### To Specify a Switch Not Shown Elsewhere:
- Fill out the Feature Section
- Indicate Handle Position
- Complete switch position tabulation with contact closures or list deck number and circuit required (example shown).

#### Switch Position Tabulation

<table>
<thead>
<tr>
<th>Handle Positions</th>
<th>Contact Positions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Circuits

<table>
<thead>
<tr>
<th>Circuit</th>
<th>Handle Position</th>
<th>Contact Position</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Electrical Ratings May Be Affected by Spring-Return Operation**

**Switch is viewed from handle end.**

---

**Electroswitch • 180 King Avenue • Weymouth, MA 02188 • TEL: (781) 335-5200 • FAX: (781) 335-4253 • www.electroswitch.com**
Features

- Up to 12 Positions
- Up to 24 Poles
- Up to 800 Amperes Continuous Rating
- Excellent Horsepower Ratings for Motor Load
- Double Break Silver Alloy Contacts
- UL Listed & CSA Certified
- Most are available with the following features:
  - Door Mount
  - Waterproof mount
  - Key Operated
  - Spring Return
  - Base Mounting
  - Padlockable
  - Key Interlock
  - Gear Operated
  - Single Hole Mount

Choose the switch that best suits your application

Electroswitch offers a wide variety of Cam-Action Rotary Switches designed to satisfy the most stringent industrial requirements. In fact, we offer the world’s most complete, tested, and proven line of Cam-Action Rotary Switches. The following is a quick description of each series.

<table>
<thead>
<tr>
<th>Model</th>
<th>120 VAC</th>
<th>240 VAC</th>
<th>600 VAC</th>
<th>480 VAC</th>
</tr>
</thead>
<tbody>
<tr>
<td>KW12</td>
<td>12A</td>
<td>12A</td>
<td>16A</td>
<td>16A</td>
</tr>
<tr>
<td>KW16</td>
<td>16A</td>
<td>16A</td>
<td>20A</td>
<td>20A</td>
</tr>
<tr>
<td>KW20</td>
<td>20A</td>
<td>20A</td>
<td>25A</td>
<td>25A</td>
</tr>
<tr>
<td>KW25</td>
<td>25A</td>
<td>25A</td>
<td>32A</td>
<td>32A</td>
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<tr>
<td>KW32</td>
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<td>50A</td>
</tr>
<tr>
<td>KW63</td>
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<td>63A</td>
<td>60A</td>
<td>60A</td>
</tr>
<tr>
<td>KW100</td>
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<td>100A</td>
<td>100A</td>
<td>100A</td>
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<td>KW200</td>
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<tr>
<td>KW600</td>
<td>200A</td>
<td>600A</td>
<td>600A</td>
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</tr>
</tbody>
</table>

CAM-ACTION ROTARY SWITCHES

OVERVIEW
### CAM-ACTION ROTARY SWITCHES

#### SPECIFICATIONS

<table>
<thead>
<tr>
<th>Cam-Angle (deg.)</th>
<th>30</th>
<th>45</th>
<th>60</th>
<th>90</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous Rating</td>
<td>12A</td>
<td>12A</td>
<td>12A</td>
<td>12A</td>
</tr>
<tr>
<td>Dielectric Strength</td>
<td>1000VRMS</td>
<td>1000VRMS</td>
<td>1000VRMS</td>
<td>1000VRMS</td>
</tr>
<tr>
<td>Contact Resistance</td>
<td>100 Milliohms</td>
<td>100 Milliohms</td>
<td>100 Milliohms</td>
<td>100 Milliohms</td>
</tr>
<tr>
<td>Thermal Shock</td>
<td>500C/550C</td>
<td>500C/550C</td>
<td>500C/550C</td>
<td>500C/550C</td>
</tr>
</tbody>
</table>

#### ELECTRICAL RATINGS

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>24VDC</td>
<td>20A</td>
</tr>
<tr>
<td>600VAC</td>
<td>30A</td>
</tr>
<tr>
<td>240VAC</td>
<td>30A</td>
</tr>
<tr>
<td>2200VAC</td>
<td>30A</td>
</tr>
<tr>
<td>2200VRMS</td>
<td>30A</td>
</tr>
</tbody>
</table>

#### MECHANICAL FEATURES

<table>
<thead>
<tr>
<th>Key Security</th>
<th>3 Keys</th>
<th>3 Keys</th>
<th>3 Keys</th>
<th>3 Keys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key Lockout</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Key Operated</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>

#### ELECTRICAL CONTACTS

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Contact Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>120VAC</td>
<td>100 Milliohms</td>
</tr>
<tr>
<td>240VAC</td>
<td>50 Milliohms</td>
</tr>
<tr>
<td>24VDC</td>
<td>100 Milliohms</td>
</tr>
</tbody>
</table>

#### LOCKING FEATURES

<table>
<thead>
<tr>
<th>Key Security</th>
<th>3 Keys</th>
<th>3 Keys</th>
<th>3 Keys</th>
<th>3 Keys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key Operated</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Key Lockout</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>

#### SUMMARY

<table>
<thead>
<tr>
<th>Model</th>
<th>Voltage</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>30A</td>
<td>220VAC</td>
<td>2200VRMS</td>
</tr>
<tr>
<td>30A</td>
<td>220VAC</td>
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</tr>
<tr>
<td>30A</td>
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<td>2200VRMS</td>
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<td>30A</td>
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<td>2200VRMS</td>
</tr>
<tr>
<td>30A</td>
<td>220VAC</td>
<td>2200VRMS</td>
</tr>
</tbody>
</table>

#### CONTACT RESISTANCE

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>100VAC</td>
<td>100 Milliohms</td>
</tr>
<tr>
<td>240VAC</td>
<td>50 Milliohms</td>
</tr>
<tr>
<td>24VDC</td>
<td>100 Milliohms</td>
</tr>
</tbody>
</table>

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### Cam-Action Rotary Switches Dimensions

**A Max Panel**

**Depth Behind Panel Dimensions**

<table>
<thead>
<tr>
<th>Handle</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
</tr>
</thead>
<tbody>
<tr>
<td>KW800</td>
<td>5.04</td>
<td>4.25</td>
<td>4.72</td>
<td>2.44</td>
<td>2.68</td>
<td>1.18</td>
<td>1.10</td>
<td>D4.25</td>
</tr>
<tr>
<td>KW600</td>
<td>5.04</td>
<td>4.25</td>
<td>4.72</td>
<td>2.44</td>
<td>2.68</td>
<td>1.18</td>
<td>1.10</td>
<td>D4.25</td>
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<tr>
<td>KW400</td>
<td>5.04</td>
<td>4.25</td>
<td>4.72</td>
<td>2.44</td>
<td>2.68</td>
<td>1.18</td>
<td>1.10</td>
<td>D4.25</td>
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<tr>
<td>KW200</td>
<td>5.04</td>
<td>4.25</td>
<td>4.72</td>
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<td>1.18</td>
<td>1.10</td>
<td>D4.25</td>
</tr>
<tr>
<td>KW63</td>
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<td>2.78</td>
<td>3.74</td>
<td>2.05</td>
<td>1.42</td>
<td>1.10</td>
<td>0.79</td>
<td>D2.05</td>
</tr>
<tr>
<td>KW40</td>
<td>4.15</td>
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<td>3.74</td>
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<td>1.42</td>
<td>1.10</td>
<td>0.79</td>
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<tr>
<td>KW32</td>
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<td>2.78</td>
<td>3.74</td>
<td>2.05</td>
<td>1.42</td>
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<td>D2.05</td>
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</table>

**Handle Dimensions**

<table>
<thead>
<tr>
<th>Handle</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
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<td>3.74</td>
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<td>0.79</td>
<td>D2.05</td>
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</table>

**Notes**

- For Single Hole Mount, handle dimensions on 200A decks, and on 63 - 100 A decks.
- Handle dimensions increase on KW12 and KW20 by 0.12", and on KW16, 25, 32, and 40 by 0.52".
- Depth behind panel is determined by the current rating required and the paralleling of 200A decks. The switch cannot exceed 12 decks.
- For Key Operation, increase dimensions on KW12 and KW20 by 0.75", and on KW16, 25, 32, and 40 by 1.20".

Please contact factory in regard to your application.

**Flush Pointer Handle**

**Ball Tip Handle**

**T-Handle, KW200 - 800 Only**

---

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CAM-ACTION ROTARY SWITCHES

ORDERING INFORMATION

You can order a Cam-Action Rotary Switch from Electroswitch using three different methods.

1. Using the Basic Numbering System
2. Using the Standard Switch Diagrams
3. Using Special Circuits
4. Using the X-Charts for Special Switches

ORDERING INFORMATION - Standard Numbering System

Model No. KW

For Deviations from Standard Diagrams. Dash Numbers will be Assigned by Factory.

Model No. KW

For Minor Deviations from Standard Diagrams. Dash Numbers will be Assigned by Electroswitch.

ORDERING INFORMATION - Using Typical Switch Diagrams

ORDERING INFORMATION - For Special Circuits & Contacting

ORDERING INFORMATION - Handle Position and Indexing

1st position 0˚ next position clockwise

For 3, 5, 7, and 9 positions, Switch’s only rotation is across the top. Center position is 0˚.

1st position 270˚ next position clockwise

2 positions only Return 30˚ only

Combination spring return and maintained positions

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33
STANDARD SWITCH DIAGRAMS - Assembled jumpers supplied as shown on circuits below

<table>
<thead>
<tr>
<th>Pole Positions</th>
<th>CONTACTS POSITIONS</th>
<th>OFF</th>
<th>ON</th>
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<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
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<tr>
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<tr>
<td>18</td>
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CAM-ACTION ROTARY SWITCHES

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CAM-ACTION ROTARY SWITCHES

TYPICAL SWITCH DIAGRAMS - Assembled jumpers supplied as shown on circuits below

CIRCUIT 701 Voltmeter Transfer Switch

CIRCUIT 705 Voltmeter Transfer Switch

CIRCUIT 724 Ammeter Transfer Switch

CIRCUIT 731 Ammeter Transfer Switch

CIRCUIT 743 Voltmeter/Ammeter Transfer Switch

CIRCUIT 405 Motor Control Switch

CIRCUIT 614 Heater Control Switch

CIRCUIT 101 Motor Reversing Switch

CIRCUIT 300 Motor-Starting Switch

CIRCUIT 302 Motor-Starting Switch

CIRCUIT 372 Motor-Starting Switch

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# CAM-ACTION ROTARY SWITCHES

**FEATURES:**

<table>
<thead>
<tr>
<th>HANDLES</th>
<th>ROTARY ACTION</th>
<th>ADDITIONAL REQUIREMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Flush Pointer</td>
<td>Maintained</td>
<td>Panel Thickness</td>
</tr>
<tr>
<td>2. Ball Tip</td>
<td>Spring-return</td>
<td>Panel Backing</td>
</tr>
<tr>
<td>3. 1 Handle</td>
<td></td>
<td>Screws</td>
</tr>
<tr>
<td>4. 2 Handle</td>
<td></td>
<td>Key Operated</td>
</tr>
<tr>
<td>5. 3 Handle</td>
<td></td>
<td>Key Operated Key Removable</td>
</tr>
</tbody>
</table>

**CONTACTS:**

- Shorting Contacts
- Make-before-Break
- Nonshorting Break-Before-Make

**HANDLES ROTARY ACTION:**

- Flush Pointer
- T-Handle
- 200A-800A
- Ball Tip
- 3 Handle
- 3 Handle

**CONTACTS:**

- Shorting Contacts
- Make-Before-Break

**FEATURES:**

- Single-Hole Mount
- Hand Operated
- Key Operated Key Removable
- Key Operated
- Push-to-Turn
- Nameplate

**ADDITIONAL REQUIREMENTS:**

- Panel Thickness
- Panel Backing
- Screws
- Key Operated Key Removable

When jumping from terminal to terminal, please try and prevent from jumping diagonally or over terminals where possible. Show only jumpers to be supplied.

---

**Table:**

<table>
<thead>
<tr>
<th>POSITION</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
</table>

* Denotes Make-Before-Break Contacts

---

When jumping from terminal to terminal, please try and prevent from jumping diagonally or over terminals where possible.

Show only jumpers to be supplied.
HEAVY-DUTY 1, 2 & 3 PHASE
ROTARY TAP SWITCHES
POWER SWITCHES FOR INDUSTRY

100 thru 5000 Ampere, Single Phase
100 thru 2500 Ampere, Two or Three Phase
NON-LOAD BREAK 600 Volt, 60 Hertz AC 600 Volt DC

Types S1, T2 & T3 Heavy-Duty Rotary Tap Switches are complete units with escutcheon plates and appropriate safety handles. They are long operating life, low maintenance switching devices, specifically designed for the severe conditions of industrial use. They feature low operating torque, high pressure line contact, flame retardant, non-tracking insulation, and precision made non-ferrous parts. All current carrying parts of 200 ampere switches and larger are heavy silver plated. Switches up to the 1000 ampere size feature glass fiber reinforced molded bases for high strength, precision contact alignment, and light weight.

DUAL CURRENT RATING

Types S1, T2 & T3 Heavy-Duty Rotary Tap Switches are dual rated for both continuous and intermittent duty. Continuous/Intermittent. Continuous Current Rating is based upon a 40˚C temperature rise and a 40˚C ambient. Continuous Current Rating is based upon a 40˚C temperature rise, a 40˚C ambient, a 50 percent duty cycle, and a 50 percent duty cycle, and a 40˚C temperature rise, a 40˚C ambient, a 50 percent duty cycle, and an integrating time.

Molded Base Switches

Type S1 Molded Base

Single Phase Rotary Tap Switch or Series/Parallel Switch with an Auxiliary Switch, 45°, 90° Terminals or any combination of Auxiliary Switch, 45° & 90° Terminals. Precision for Key Interlock with 45° or 90° Terminals.

Type T2 Molded Base

Two Phase Rotary Tap Switch or Series/Parallel Switch with an Auxiliary Switch, 45°, 90° Terminals or any combination of Auxiliary Switch, 45° & 90° Terminals. Mechanical Release, any combination of Auxiliary Switch, 45° & 90° Terminals. Precision for Key Interlock with 45° or 90° Terminals.

Type T3 Molded Base

Three Phase Rotary Tap Switch or Series/Parallel Switch with an Auxiliary Switch, 45°, 90° Terminals or any combination of Auxiliary Switch, 45° & 90° Terminals. Mechanical Release, any combination of Auxiliary Switch, 45° & 90° Terminals. Precision for Key Interlock with 45° or 90° Terminals.

Fabricated Base Switches

Type SF1 Fabricated Base

Single Phase Rotary Tap Switch or Series/Parallel Switch with an Auxiliary Switch, 45° or 90° Terminals. Mechanical Release, any combination of Auxiliary Switch, 45° or 90° Terminals. Provision for Key Interlock with 45° or 90° Terminals.

Type TF2 Fabricated Base

Two Phase Rotary Tap Switch or Series/Parallel Switch with an Auxiliary Switch, 45° Terminals or any combination of Auxiliary Switch, 45° Terminals. Mechanical Release, any combination of Auxiliary Switch, 45° Terminals. Provision for Key Interlock with 45° Terminals.

Type TF3 Fabricated Base

Three Phase Rotary Tap Switch or Series/Parallel Switch with an Auxiliary Switch, 45° Terminals or any combination of Auxiliary Switch, 45° Terminals. Mechanical Release, any combination of Auxiliary Switch, 45° Terminals. Provision for Key Interlock with 45° Terminals.

SINGLE, TWO OR THREE PHASE

<table>
<thead>
<tr>
<th>molded Base Switch</th>
<th>Fabricated Base Switch</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Ampere Rating</td>
<td>Test Ampere Rating</td>
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<tr>
<td>100/150</td>
<td>600/900</td>
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<tr>
<td>200/300</td>
<td>800/1200</td>
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<tr>
<td>400/600</td>
<td>1200/1800</td>
</tr>
<tr>
<td>600/900</td>
<td>1600/2400</td>
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<tr>
<td>800/1200</td>
<td>2000/3000</td>
</tr>
<tr>
<td>1000/1500</td>
<td>5000</td>
</tr>
<tr>
<td>1200/1800</td>
<td></td>
</tr>
<tr>
<td>1600/2400</td>
<td></td>
</tr>
</tbody>
</table>

2000, 3000 and 5000 ampere Heavy-Duty Rotary Tap Switches are custom designed and manufactured for each specific application. They provide the same low maintenance, high quality as the lower ampere switch and feature custom design, low operating torque, high pressure line contact, low noise insulated bases, precision made non-ferrous silver plated parts. Along with the 600, 1200 and 1600 ampere switches, they house built-in rotor lubrication systems.

All switches are supplied with escutcheon and handles. The handles have a provision for two padslocks as a standard feature.
**STANDARD OPTIONS**

**Designated Code**

<table>
<thead>
<tr>
<th>Designated Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>“OFF” Position. An “OFF” position is available in place of one contact position. Add the suffix “X” to catalog number. Eight total switch positions, “OFF” included, is the maximum on molded base.</td>
</tr>
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</table>

**Options**

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>8HV</td>
<td>Increased Operating Voltage to 800 volts</td>
</tr>
<tr>
<td>12HV</td>
<td>Increased to 1200 volts</td>
</tr>
<tr>
<td>45 or 90</td>
<td>Angled Terminals. All switches are supplied with straight clips and rotor strap as standard. To obtain 45 degree or 90 degree clips and rotor strap, add the suffix “45” or “90” to the catalog number.</td>
</tr>
</tbody>
</table>

**Auxiliary Switch**

A single pole, double throw 15 amp at 400VAC auxiliary switch actuated by the rotary top switch mechanism is available for remote indication purposes. Add the suffix “S” to the catalog number.

**Mechanical Release**

Provides a separate spring loaded handle which must be withdrawn to permit operation on main handle of switch to the next tap position. Activation of the mechanical release operates on auxiliary switches (550V - 15 amp at 400VAC) which can be wired into the control circuit to assure the tap switch is operated in a NO-LOAD condition. To obtain mechanical release option, add the suffix “MR” to the catalog number.

**Key Interlock Provision**

Provisions can be provided for customer addition of a Type L 1-inch bolt projection when withdrawn, 3/4-inch travel, Key Interlock to prevent unauthorized switch operation on all types of switches. Add the suffix “L” to the catalog number.

**SPECIAL OPTIONS**

**Dial Plate**

Standard switches are supplied with numbers. We can supply letters, different numbers, etc.

**Handles**

Type S1, single phase, are supplied with pistol grip handle. Type T2 & T3, tandem 2 or 3 phase switches, are supplied with “T” Handles. Type S1 could be supplied with “T” handle, low profile. Type T2 & T3 could be supplied with pistol grip handle.

**Terminals**

All switches are supplied with straight clips and rotor strap. We can supply straight clips and angled rotor strap.

**Increased Operating Voltage**

Standard switches are rated 600 volt. We can supply 1200, 2400, 4160, 4800, etc.

**Combinations**

Switches can be supplied with:
- More than one Auxiliary Switch
- More than one Key Interlock Provision
- Combination of Mechanical Release with Key Interlock, Mechanical Release with extra Auxiliary Switches, etc. To obtain these options, add suffix “MR”, “S”, “L”, etc.

**Special Applications**

The basic design of Heavy Duty Rotary Tap Switches lends itself to numerous special modifications and arrangements; increased operating voltages, series/parallel switching, generator winding controls, high frequency switching, motor reversing, polarity inverting, etc.

Consult the factory for your particular application. Our staff of engineering and marketing specialists are at your service.
**MOLDED BASE TAP SWITCHES**

**DIMENSIONAL DRAWINGS**

### S1, T2, & T3 Non-Load Break Tap Switches

Shown as basic switch with options of 45° or 90° terminals, auxiliary switch, mechanical release.

![Diagram of S1, T2, & T3 Non-Load Break Tap Switches]

**Panel Drilling Dimensions**

- **A**: 1.0
- **B**: 1.5
- **C**: 2.5
- **D**: 3.0
- **F1**: 0.13
- **F1**: 0.19
- **G**: 0.25

<table>
<thead>
<tr>
<th>AMPS</th>
<th>A1</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>F1</th>
<th>G</th>
<th>S1</th>
<th>T2</th>
<th>T3</th>
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<tbody>
<tr>
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<td>1.56</td>
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<td>2.69</td>
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<td>1.50</td>
<td>5.00</td>
<td>5.00</td>
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<td>200</td>
<td>1.56</td>
<td>1.75</td>
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<tr>
<td>300</td>
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<td>5.00</td>
<td>5.00</td>
<td>6.56</td>
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</table>

**Notes:**
- *Add 2.00" for Mechanical Release
- *0.13" for 400 Amp.

### S1, T2, & T3 Series/Parallel - 1, 2 & 3 Phase Switches

Shown as basic switch with options of 45° or 90° terminals, auxiliary switch, mechanical release.

![Diagram of S1, T2, & T3 Series/Parallel Switches]

**Panel Drilling Dimensions**

- **A**: 1.0
- **B**: 1.5
- **C**: 2.5
- **D**: 3.0
- **F1**: 0.13
- **F1**: 0.25
- **G**: 0.25

<table>
<thead>
<tr>
<th>AMPS</th>
<th>A1</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>F1</th>
<th>G</th>
<th>S1</th>
<th>T2</th>
<th>T3</th>
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<tbody>
<tr>
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<td>1.50</td>
<td>2.00</td>
<td>2.00</td>
<td>0.25</td>
<td>1.50</td>
<td>5.00</td>
<td>5.00</td>
<td>6.25</td>
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<tr>
<td>200</td>
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<td>0.25</td>
<td>1.50</td>
<td>5.00</td>
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<tr>
<td>300</td>
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<td>1.50</td>
<td>5.00</td>
<td>5.00</td>
<td>6.25</td>
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</tbody>
</table>

**Notes:**
- *Add 2.00" for Mechanical Release
- *0.13" for 400 Amp.
**Fake Fabricated Base Tap Switches**

**Dimensional Drawings**

**SF1, TF2, & TF3 1, 2 & 3 Phase Switches**

Shown as basic switch with options of: 45° terminals, auxiliary switch, mechanical release.

**SF1, TF2, & TF3 Series/Parallel - 1, 2 & 3 Phase Switches**

Shown as basic switch with options of: 45° terminals, auxiliary switch, mechanical release.
NOTES
1. Mechanical Release - Pull pin before operating main handle (*) 1-SPDT auxiliary switch included with mechanism - 15A at 480VAC
2. 3-SPDT Auxiliary Switch, contacts change in first 10˚ of handle motion - 15A at 480VAC
3. Customer Note:
   To install switch, remove (8) 3/8-16 hex head cap screws from side angle frame.
Remove subplate assembly from angle frame, insulated driver should be removed from first deck rotor with subplate assembly (keep adjustable stops in proper position).

Caution:
Do not remove adjustable stops from subplate assembly when removing subplate assembly from switch. Install subplate assembly on front of customer mounting panel and bolt in place with 8 bolts. Place switch behind customer mounting panel and bolt (8) 3/8-16 hex head cap screws in angle frame. Care should be exerted to completely line switch up to prevent unnecessary binding of assembly. Install rear support to back of switch support angles.

NAMEPLATE DRAWINGS

<table>
<thead>
<tr>
<th>FIG. 1</th>
<th>FIG. 2</th>
<th>FIG. 3</th>
<th>FIG. 4</th>
<th>FIG. 5</th>
<th>FIG. 6</th>
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<tbody>
<tr>
<td><img src="image1.png" alt="Diagram" /></td>
<td><img src="image2.png" alt="Diagram" /></td>
<td><img src="image3.png" alt="Diagram" /></td>
<td><img src="image4.png" alt="Diagram" /></td>
<td><img src="image5.png" alt="Diagram" /></td>
<td><img src="image6.png" alt="Diagram" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FIG. 7</th>
<th>FIG. 8</th>
<th>FIG. 9</th>
<th>FIG. 10</th>
<th>FIG. 11</th>
<th>FIG. 12</th>
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<tbody>
<tr>
<td><img src="image7.png" alt="Diagram" /></td>
<td><img src="image8.png" alt="Diagram" /></td>
<td><img src="image9.png" alt="Diagram" /></td>
<td><img src="image10.png" alt="Diagram" /></td>
<td><img src="image11.png" alt="Diagram" /></td>
<td><img src="image12.png" alt="Diagram" /></td>
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</tbody>
</table>

SERIES/PARALLEL CONNECTION DIAGRAM

PARALLEL

SERIES

Electroswitch • 180 King Avenue • Weymouth, MA 02188 • TEL: (781) 335-5200 • FAX: (781) 335-4253 • www.electroswitch.com
KNIFE SWITCHES
OVERVIEW

Type A & DL Heavy Duty Knife Switches
Power Switches for Industry

30 Thru 3000 Ampere Front Connected
30 Thru 10,000 Ampere Back Connected Non-Fused
NON-LOAD BREAK
480 to 600 Volt, 60 Hertz AC
250 to 600 Volt DC

2000 amperes thru 3000 amperes front end back connected (limited to 4 pole switch)
4000 amperes back connected (limited to 3 pole switch)
6000 amperes and 10,000 amperes (limited to single pole switch)
All switches can be single or double throw.

Current Ratings: All Type A and Type DL Heavy Duty Knife Switches are rated for continuous operation based upon a 40˚C temperature rise and a 40˚C ambient.

SPECIAL APPLICATIONS
The basic design of the Types A and DL Knife Switch lends itself to numerous special modifications and arrangements, polarity reversals, high frequency, high voltages, high currents, ungrounded, remote manual operation, high current, field discharge, etc.

Options
Designated Code

P PADLOCK ATTACHMENT
A padlock attachment and associated 90 degree stop are available on single throw switches only. Add the suffix "P" to the catalog number.

F HANDLE LOCATION
Single throw switches can be provided by the operating handle mounted on the front of the blade. Add the suffix "F" to the catalog number.

K AUXILIARY KNIFE SWITCH
An auxiliary, low-current knife switch actuated simultaneously with the main knife switch is available for remote indication purposes. Add the suffix "K" to the catalog number.

S AUXILIARY LIMIT SWITCH
A single-pole, double throw limit switch actuated by the knife switch is available for remote indication purposes. Add the suffix "S" to the catalog number.

G HANDLE GUARD OMISSION
The hand Saf-T-Gard is provided as a standard feature on 600 volt switches. It can be omitted for applications where it will interfere with normal switch operation. Add the suffix "G" to the catalog number.

GG HANDLE GUARD
A hand Saf-T-Gard can be provided on 250/480V switches as an option. Add the suffix "GG" to the catalog number.

FD FIELD DISCHARGE
Field Discharge attachment, used when opening a generator field. Add the suffix "FD" to the catalog number.

*All switches rated ABOVE 600 volts are provided with hand Saf-T-Gard as a standard feature. No switches above 600 volt will be provided without this accessory.

KNIFE SWITCHES

Model No. [Diagram]

Options
Designated Code

P PADLOCK ATTACHMENT A padlock attachment and associated 90 degree stop are available on single throw switches only. Add the suffix "P" to the catalog number.

F HANDLE LOCATION Single throw switches can be provided by the operating handle mounted on the front of the blade. Add the suffix "F" to the catalog number.

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KNIFE SWITCHES

Model No. [Diagram]

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42 Electroswitch • 180 King Avenue • Weymouth, MA 02188 • TEL: (781) 335-5200 • FAX: (781) 335-4253 • www.electroswitch.com
KNIFE SWITCHES
TYPE A SINGLE THROW

Type A, Single Throw, Front Connected Knife Switches (30 Amp - 400 Amp)

Type A, Single Throw, Front Connected Knife Switches (600 and 800 Amp)

1200 Amp or Greater Contact Factory

Electroswitch • 180 King Avenue • Weymouth, MA 02188 • TEL: (781) 335-5200 • FAX: (781) 335-4253 • www.electroswitch.com
Type A, Double Throw, Front Connected Knife Switches (30 Amp - 400 Amp)

Type A, Double Throw, Front Connected Knife Switches (600 and 800 Amp)

1200 Amp or Greater Contact Factory
**Type DL, Single Throw, Back Connected Knife Switches (30 and 60 Amp)**

**Type DL, Single Throw, Back Connected Knife Switches (100 - 400 Amp)**

**Type DL, Single Throw, Back Connected Knife Switches (600 and 800 Amp)**

**1200 Amp or Greater Contact Factory**
Type DL, Double Throw, Back Connected Knife Switches (30 and 60 Amp)

Type DL, Double Throw, Back Connected Knife Switches (100 Amp - 400 Amp)

Type DL, Double Throw, Back Connected Knife Switches (600 Amp and 800 Amp)

1200 Amp or Greater Contact Factory
Electroswitch Detent Switches

Electroswitch Detent Switches are a heavy-duty design that is very versatile and enables standardized units to satisfy a great variety of complex switching applications. They are modular in that several sub-assemblies are stacked together to form a rigid, rugged device. Figure 1 shows a cutaway view exposing the basic components.

Overview

The mounting plate (1) connects a detent assembly (2) to one or more contact decks (3) and finally a position limiting stop plate (4). These assemblies are bolted together along with a steel shaft (5) and a handle (6).

The Electrical Design

The Detent Switch contacts operate on the time-proven reliable principle of knife switches – double-sided, double-wiping, spring-wiper blades closing on both sides of a terminal. This design is shock-proof and virtually bounce-proof. Figure 2 shows a typical contacting arrangement.

The Detent Assembly

The detent assembly contains a specially-designed star wheel and up to four spring-loaded ball bearings providing energy positive indexing. Spring return switches use a coil spring in place of the star wheel/spring/ball bearing arrangement.

The Pull-to-Lock Mechanism

Control switches generally have positions both 45˚ left and right of the normal vertical position. The handle spring returns to the normal position. The pull-to-lock mechanism enables an operator to turn the handle beyond the left (normally TRIP) position, pull out the handle and thereby lock the switch into this position. This precludes the possibility of someone inadvertently closing a circuit when it is desired that it stay in the tripped position.

The Contact Deck Assembly

The electrical parts are contained within sturdy phenolic moldings that provide individual insulated compartments where all switching takes place. An insulating barrier completes the contact deck assembly. The barrier not only separates one contact assembly from another but also provides a tight insulating compartment. With this construction there is no need to add a dust cover.

Positive, reliable, maintenance-free operation results from the double-sided, double-wiping, self-cleaning knife-blade moveable contacts.

The Stop Plate

The steel stop plate assembly includes a steel stop arm that is connected to the shaft and a steel stop plate that contains tapped holes. Stop screws are inserted in the field to limit the positions to the number and location desired. The externally adjustable position limiting feature allows the use of standard switches for many customized applications. The limit screws are supplied assembled for typical instrument switches.
Snap-Action Switches

Snap-Action Switches use a design that enables them to combine a small number of basic parts in a way to meet a wide variety of requirements for selector and control switching of power circuits. Standard switches built with this design for 5-, 40-, 60-, and 200-ampere capacities are listed in this catalog. However, the cataloged units merely indicate switching possibilities; we will gladly recommend other combinations, based on our experience, for specific requirements.

The Electrical System

The electrical system comprises two or more stationary contacts (1) and one or more sets of movable contacts. These are pairs of spring-metal blades (8) that make high-pressure, low-resistance contact on both faces of the stationary contacts while bridging two or more of these contacts. The stationary contacts fit in radial grooves (12) in the rim of molded insulating disks (7), within which the movable contacts are carried on an insulated shaft (11). All “making” and “breaking” of electric circuits takes place within the closed spaces between adjacent disks. The quick-break action makes these switches particularly suitable for direct-current service. The ends of the stationary contacts extend outside the insulating disks and serve as connecting terminals (10). This one-piece contact/terminal construction minimizes series resistance and heating. Depending on current rating and on-wiring requirements, the terminals may have tapped holes for connecting screws or clearance holes for bolt connection of cable lugs.

The Mechanical System

The mechanical system is designed to provide uniform high-speed “make” and “break,” regardless of whether the operating handle (1) is turned rapidly or slowly. Turning the handle through approximately 120° in either direction winds a powerful coil spring (3). When this is fully wound, the indexing plate (4) is momentarily withdrawn from the locking plate (5) by an eccentric cam. The drive-shaft and movable contacts then snap rapidly to the next position. The indexing plate holds them until the spring-drive mechanism is again operated. Transit time is about ten milliseconds.

Assembly

The coil-spring mechanism, mechanism-cover (2), locking plate, operating handle (1), insulating disks, and back plate (14) are stacked on side securing rods (13) and bolted firmly together to form a rigid assembly. The handle is keyed to the operating shaft and secured by a screw.
Cam-Action Switches

The design principle allows the combination of a relatively small number of basic parts to satisfy a wide variety of requirements for selector and control switching in power circuits.

The Mechanical Design

The switch features a modular design with switching decks (3) stacked with a detent mechanism deck (6), a mounting plate (12), and a handle (13). A steel shaft (10) couples the handle to the operating parts. Two steel securing rods (11) are used to bolt the whole mechanism rigidly together. The basic parts and assemblies can be seen below.

The Detent Assembly

The detent assembly (6) consists of a spring-loaded detent block (7) with a roller coming into contact with a notched detent wheel (8). This detent wheel provides the standard 45˚ detenting as well as optional 30˚, 60˚ or 90˚ detenting. The stop arms (9) are located under the mounting plate. These limit the angular rotation to the desired number and location of positions.

The Contact Assembly

The contact assembly (3) consists of a rigid thermosetting plastic housing, two sets of stationary contacts (5), and two spring-loaded (16) movable contacts (1) held in cam followers (2). Floating on the shaft and held within the contacting chamber are two independent cams (4). The cams are notched to provide the contact "close" angles desired. The contacts are spring-loaded closed and mechanically opened by the cam action to avoid sticking. The terminal screw (15) and pressure clamp (14) will easily accommodate stranded wire with lugs or solid wire, either with or without lugs, compatible with switch sizes.

Contact Operation

The contacting consists simply of shunting two isolated contacts to make a circuit. Two independent sets of contacts are placed in each deck. The moving portion is spring-loaded to close the contact. A notch on the cam is aligned to the operating shaft allowing the moving contact to spring close, binding the stationary contacts.

Identically, the same thing is happening with the contact set on the right. The circuit is held open by the cam and will close when the notch on the second independent cam is rotated around and comes in proximity to its cam follower (the second cam switch is illustrated by the dotted line—the cam is underneath the other one).

We show the contacts pictorially to agree with typical detailed schematics and wiring plans. This simple system makes the switch contact arrangement, performance and location independent of the switching action required. The switching action is varied and controlled by the shape of the cams—allowing a virtually infinite number of combinations using a few standard parts. This simplicity and flexibility makes it easy for you to design your own switch—using familiar contact language. You eliminate the worry, long deliveries, high costs, etc. normally associated with special switches.

Note: The terminal numbering consists of individual numbers for each terminal for positive identification.
# ELECTROSWITCH ACCESSORIES

## HANDLES

### SNAP-ACTION SERIES 101

<table>
<thead>
<tr>
<th>Type</th>
<th>Part No.</th>
<th>Screw No.</th>
<th>Lockwasher No.</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLUSH (A)</td>
<td>01040-6-1</td>
<td>02016-18</td>
<td>02015-1</td>
<td>Bia-krole screw 0016-35</td>
</tr>
<tr>
<td>OVAL (B)</td>
<td>0016-14</td>
<td>02016-18</td>
<td>02015-1</td>
<td>Interchangeable</td>
</tr>
<tr>
<td>ARCHED (C)</td>
<td>02016-18</td>
<td>02015-1</td>
<td>02016-18</td>
<td>Interchangeable</td>
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<tr>
<td>PISTOL-GRIP (D)</td>
<td>01040-6-1</td>
<td>02016-18</td>
<td>02015-1</td>
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### SNAP-ACTION SERIES 103

<table>
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<tr>
<th>Type</th>
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<th>Screw No.</th>
<th>Lockwasher No.</th>
<th>Notes</th>
</tr>
</thead>
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<tr>
<td>FLUSH (A)</td>
<td>01040-6-1</td>
<td>02016-18</td>
<td>02015-1</td>
<td>Bia-krole screw 0016-35</td>
</tr>
<tr>
<td>ARCHED (C)</td>
<td>02016-18</td>
<td>02015-1</td>
<td>02016-18</td>
<td>Interchangeable</td>
</tr>
<tr>
<td>PISTOL-GRIP (D)</td>
<td>01040-6-1</td>
<td>02016-18</td>
<td>02015-1</td>
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### SNAP-ACTION SERIES 105

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>FLUSH (A)</td>
<td>01040-6-1</td>
<td>02016-18</td>
<td>02015-1</td>
<td>Bia-krole screw 0016-35</td>
</tr>
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<td>PISTOL-GRIP (D)</td>
<td>01040-6-1</td>
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<td>02015-1</td>
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### SNAP-ACTION SERIES 107

<table>
<thead>
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<th>Part No.</th>
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<tbody>
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<td>FLUSH (A)</td>
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<td>Bia-krole screw 0016-35</td>
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<td>DOUBLE BALL</td>
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### SNAPP-ACTION SERIES 109

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<td>FLUSH (A)</td>
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<td>Bia-krole screw 0016-35</td>
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<td>PISTOL-GRIP (D)</td>
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### TAP SWITCHES

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<th>Part No.</th>
<th>Screw No.</th>
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<tbody>
<tr>
<td>PISTOL-GRIP</td>
<td>01040-6-1</td>
<td>02016-18</td>
<td>Not interchangeable</td>
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</table>

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### ELECTROSWITCH ACCESSORIES

#### HANDLES

<table>
<thead>
<tr>
<th>TYPE</th>
<th>Series</th>
<th>Part No.</th>
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<th>Notes</th>
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</thead>
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<tr>
<td>FLUSH POINTER</td>
<td>KW 12, 20</td>
<td>H1021</td>
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<td>Standard</td>
<td>Optional Interchangeable Handles</td>
</tr>
<tr>
<td>BALL TIP</td>
<td>KW 16, 25, 32, 40</td>
<td>H11203</td>
<td>Included</td>
<td>Standard</td>
<td>Optional Interchangeable Handles</td>
</tr>
<tr>
<td>T-HANDLE</td>
<td>KW 400-800</td>
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<td>Standard</td>
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<tr>
<th>TYPE</th>
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<th>Screw</th>
<th>Included</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>CAM-ACTION</td>
<td>KW 14, 20, 28, 40</td>
<td>H11202</td>
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</tr>
<tr>
<td>KW 200-800</td>
<td>H31303</td>
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<td>Standard</td>
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<tr>
<td>KW 65-100</td>
<td>H11201</td>
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<th>TYPE</th>
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<tr>
<td>DETENT-ACTION</td>
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<td>Included</td>
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<td>SERIES 24</td>
<td>KW 200-800</td>
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<td>Optional Interchangeable Handles</td>
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<td>SERIES 31</td>
<td>KW 16, 25, 32, 40</td>
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<tr>
<th>TYPE</th>
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<td>H10101</td>
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<td>Standard</td>
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<td>OVAL WITH ARROW (B)</td>
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<tr>
<td>OVAL WITHOUT ARROW (B)</td>
<td>02000-3-1</td>
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<td>Included</td>
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<tr>
<td>PISTOL-GRIP (D)</td>
<td>02000-12-3</td>
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<td>PILOT-ACTION</td>
<td>SERIES 21, 25, 28</td>
<td>H10201</td>
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<td>H10101</td>
<td>Included</td>
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<tr>
<td>SERIES 31</td>
<td>KW 16, 25, 32, 40</td>
<td>H10101</td>
<td>Included</td>
<td>Standard</td>
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<th>TYPE</th>
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<tr>
<td>FLUSH (A)</td>
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<td>02000-11</td>
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**ELECTROSWITCH ACCESSORIES**

**NAMEPLATES**

### DETENT-ACTION

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<tr>
<th>Series</th>
<th>Code No.</th>
<th>Size</th>
<th>Title Engraving*</th>
<th>Position Engraving*</th>
<th>Notes</th>
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<tr>
<td>21, 25, 28</td>
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<td>15</td>
<td>5</td>
<td>For waterproof mount use Code No. 09</td>
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### SNAP-ACTION

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<th>Title Engraving*</th>
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<tr>
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<td>04</td>
<td>2.38&quot; x 2.88&quot;</td>
<td>12</td>
<td>6</td>
<td>For waterproof mount use Code No. 05</td>
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### CAM-ACTION

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<th>Series</th>
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<th>Position Engraving*</th>
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<tr>
<td>KW 12, 16, 20, 25, 32, 40</td>
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<td>1.9&quot; sq.</td>
<td>—</td>
<td>—</td>
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<tr>
<td>KW 12, 16, 20, 25, 32, 40</td>
<td>68</td>
<td>1.9&quot; x 2.56&quot;</td>
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### CAM-ACTION

<table>
<thead>
<tr>
<th>Series</th>
<th>Code No.</th>
<th>Size</th>
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<th>Position Engraving*</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>KW 16, 25, 32, 40</td>
<td>69</td>
<td>2.56&quot; x 3.35&quot;</td>
<td>13</td>
<td>5</td>
<td>With title</td>
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### CAM-ACTION

<table>
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<th>Series</th>
<th>Code No.</th>
<th>Size</th>
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<th>Position Engraving*</th>
<th>Notes</th>
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</thead>
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<tr>
<td>KW 200-800</td>
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<td>5.20&quot; x 6.18&quot;</td>
<td>17</td>
<td>6</td>
<td>With title</td>
</tr>
</tbody>
</table>

### TAP SWITCHES

<table>
<thead>
<tr>
<th>Series</th>
<th>Code No.</th>
<th>Size</th>
<th>Title Engraving*</th>
<th>Position Engraving*</th>
</tr>
</thead>
<tbody>
<tr>
<td>51, 72, 73</td>
<td>26</td>
<td>3.59&quot;</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

*For Detent, Snap & Cam switches, numbers of characters shown for engraving is recommended maximum.*

---

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Terminal and Mounting Hardware - Detent- and Snap-Action

<table>
<thead>
<tr>
<th>Series</th>
<th>28</th>
<th>29</th>
<th>33</th>
<th>34</th>
<th>35</th>
<th>36</th>
<th>37</th>
<th>38</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terminal Screw</td>
<td>001031-C3</td>
<td>001031-C3</td>
<td>001031-C3</td>
<td>001031-C3</td>
<td>001031-C3</td>
<td>001031-C3</td>
<td>001031-C3</td>
<td>001031-C3</td>
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<tr>
<td>Lock Washer</td>
<td>02015-6</td>
<td>02015-6</td>
<td>02015-6</td>
<td>02015-6</td>
<td>02015-6</td>
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<tr>
<td>Stop Screw</td>
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<td>00314-1</td>
<td>00314-1</td>
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<td>00314-1</td>
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</tr>
<tr>
<td>Lockwasher</td>
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<td>001022-1</td>
<td>001022-1</td>
<td>001022-1</td>
<td>001022-1</td>
<td>001022-1</td>
<td>001022-1</td>
<td>001022-1</td>
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<tr>
<td>Mounting Screw</td>
<td>02011-10-C3</td>
<td>02011-10-C3</td>
<td>02011-10-C3</td>
<td>02011-10-C3</td>
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<td>02011-10-C3</td>
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<td>02011-10-C3</td>
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<tr>
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For Series 101 and 103 Waterproof Mount Requires Special Shaft - Consult Factory

Jumpers - Detent and Snap-Action Switches

<table>
<thead>
<tr>
<th>Series 30</th>
<th>Series 31</th>
<th>Series 32</th>
<th>Series 33</th>
<th>Series 34</th>
<th>Series 35</th>
<th>Series 36</th>
<th>Series 37</th>
<th>Series 38</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjacent Contact</td>
<td>002012-6</td>
<td>002012-5</td>
<td>002012-4</td>
<td>002012-3</td>
<td>002012-2</td>
<td>002012-1</td>
<td>002012-0</td>
<td>002012-0</td>
</tr>
<tr>
<td>Same Contact</td>
<td>002012-3</td>
<td>002012-2</td>
<td>002012-1</td>
<td>002012-0</td>
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<td>Adjacent Contact</td>
<td>002012-4</td>
<td>002012-3</td>
<td>002012-2</td>
<td>002012-1</td>
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<td>002012-0</td>
<td>002012-0</td>
</tr>
<tr>
<td>Same Contact</td>
<td>002012-5</td>
<td>002012-4</td>
<td>002012-3</td>
<td>002012-2</td>
<td>002012-1</td>
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<td>002012-0</td>
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<tr>
<td>** Wire and Ring</td>
<td>002012-6</td>
<td>002012-5</td>
<td>002012-4</td>
<td>002012-3</td>
<td>002012-2</td>
<td>002012-1</td>
<td>002012-0</td>
<td>002012-0</td>
</tr>
<tr>
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Jumpers - Cam-Action Switches

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</thead>
<tbody>
<tr>
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<td>002012-6</td>
<td>002012-5</td>
<td>002012-4</td>
<td>002012-3</td>
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<td>002012-0</td>
<td>002012-0</td>
</tr>
<tr>
<td>Same Contact</td>
<td>002012-5</td>
<td>002012-4</td>
<td>002012-3</td>
<td>002012-2</td>
<td>002012-1</td>
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<tr>
<td>** Wire and Ring</td>
<td>002012-6</td>
<td>002012-5</td>
<td>002012-4</td>
<td>002012-3</td>
<td>002012-2</td>
<td>002012-1</td>
<td>002012-0</td>
<td>002012-0</td>
</tr>
<tr>
<td>** Wire and Ring</td>
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<td>002012-1</td>
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Waterproof Mount

<table>
<thead>
<tr>
<th>Series 101</th>
<th>Series 102</th>
<th>Series 31A Single Hole Mount</th>
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</thead>
<tbody>
<tr>
<td>Panel Thickness</td>
<td>Kit Number</td>
<td>Panel Thickness</td>
</tr>
<tr>
<td>0.0625”</td>
<td>001022-1</td>
<td>0.125”</td>
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<tr>
<td>0.125”</td>
<td>001022-2</td>
<td>0.188”</td>
</tr>
<tr>
<td>0.188”</td>
<td>001022-3</td>
<td>0.188” Max</td>
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</table>

Jumpers - Detent and Snap-Action Switches

<table>
<thead>
<tr>
<th>Series 31</th>
<th>Series 34</th>
<th>Series 37</th>
<th>Series 38</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjacent Contact</td>
<td>002012-6</td>
<td>002012-5</td>
<td>002012-4</td>
</tr>
<tr>
<td>Same Contact</td>
<td>002012-3</td>
<td>002012-2</td>
<td>002012-1</td>
</tr>
<tr>
<td>Adjacent Contact</td>
<td>002012-4</td>
<td>002012-3</td>
<td>002012-2</td>
</tr>
<tr>
<td>Same Contact</td>
<td>002012-5</td>
<td>002012-4</td>
<td>002012-3</td>
</tr>
<tr>
<td>** Wire and Ring</td>
<td>002012-6</td>
<td>002012-5</td>
<td>002012-4</td>
</tr>
<tr>
<td>** Wire and Ring</td>
<td>002012-5</td>
<td>002012-4</td>
<td>002012-3</td>
</tr>
</tbody>
</table>

Metal Jumpers are supplied in packages of 10 & 25.

Wire Jumpers are ordered individually.

For Series 31 and 31A Waterproof Mount Requires Special Shaft - Consult Factory
Switches are tested in many ways to prove their capabilities and reliability. Electroswitch uses a combination of test methods to provide meaningful data for all applications. These include:

1. Cycle it mechanically until it breaks. This is usually an academic test since switches that do not switch electric power are not needed. An exception is a setup switch whereby the switch sets up a complicated circuit and then a circuit breaker switches the power. All testing is done under electrical load.

2. Test under an application oriented specification—something that simulates actual operating conditions such as environment, overloads, surges, etc. UL1054 on SPECIAL USE SWITCHES and CSA C22.2 on INDUSTRIAL CONTROL EQUIPMENT for use in Ordinary (non-hazardous) Locations are probably the best specifications in widespread use. The Series 21, 24, 25, 28 and 31 are UL recognized and CSA certified to these specifications.

3. Test at different ratings until destruction to determine ultimate life (destruction could be mechanical failure, shorting out, dielectric failure, excessive heat rise, etc.). The test conditions are outlined on the SELECTOR CHART for each type of switch. The results are summarized below:

Both UL and CSA testing consists of two parts:

1. Product testing to the specifications.

2. Follow-up service by UL and CSA personnel at the factory, including inspection and testing to insure that the quality and reliability is maintained.

If all conditions are met, the switches are considered “certified electrical equipment” by CSA and “recognized components” by UL and the applications are subject to review by these agencies to assure suitability.

**UL and CSA Ratings**

<table>
<thead>
<tr>
<th>UL Recognized</th>
<th>CSA Certified</th>
</tr>
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<tbody>
<tr>
<td>21</td>
<td>10A - 125VAC</td>
</tr>
<tr>
<td></td>
<td>10A - 240VAC</td>
</tr>
<tr>
<td></td>
<td>2A - 120VAC</td>
</tr>
<tr>
<td>24</td>
<td>3A - 120VAC</td>
</tr>
<tr>
<td></td>
<td>3A - 240VAC</td>
</tr>
<tr>
<td></td>
<td>1A - 250VDC</td>
</tr>
<tr>
<td>25</td>
<td>4A - 600VAC</td>
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<tr>
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<td>4A - 240VAC</td>
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<tr>
<td></td>
<td>2A - 125VDC</td>
</tr>
<tr>
<td>28</td>
<td>5A - 125VAC</td>
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<tr>
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<td>5A - 240VAC</td>
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<td></td>
<td>2A - 120VAC</td>
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<tr>
<td>31</td>
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<td></td>
<td>7.5A - 240VAC</td>
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<tr>
<td></td>
<td>3A - 125VDC</td>
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<tr>
<td>103</td>
<td>8A - 240VDC</td>
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<tr>
<td></td>
<td>8A - 250VDC</td>
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<tr>
<td></td>
<td>4A - 120VAC</td>
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<tr>
<td></td>
<td>4A - 250VDC</td>
</tr>
<tr>
<td></td>
<td>2A - 125VDC</td>
</tr>
</tbody>
</table>

These recognized or certified ratings are not necessarily the limits of switch capacity. They represent the acceptable tested ratings to comply with individual standards.

Tests include:

1. Overload — 50 cycles of operation.
2. Endurance — 6000 operations (DC resistive) or 6000 cycles at 150% rating
3. Temperature rise of contacts 30˚max. at maximum continuous current rating
4. Dielectric Voltage Withstand 220VRMS
5. Spacings (between live parts or live parts to ground): UL — 0.250” (s. in. min) 250-400V (s. in. min.)

<table>
<thead>
<tr>
<th>CSA</th>
<th>TYPICAL AM</th>
<th>OVER CHASSIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>UL</td>
<td>1/8”</td>
<td>3/16”</td>
</tr>
<tr>
<td>UL</td>
<td>1/16”</td>
<td>1/8”</td>
</tr>
</tbody>
</table>

---

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Test Results (AC Ratings are 60 Hz)

<table>
<thead>
<tr>
<th>Switch Type</th>
<th>Test Specifications</th>
<th>200/400V</th>
<th>5/50/400V</th>
<th>480/600V</th>
<th>240V</th>
<th>300V</th>
<th>24V</th>
</tr>
</thead>
<tbody>
<tr>
<td>KW310</td>
<td>30 A</td>
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<td>30</td>
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<td>10</td>
<td>10</td>
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<tr>
<td>KW320</td>
<td>25 A</td>
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<td>30</td>
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Life Expectancy - Detent-Action

<table>
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</tr>
<tr>
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</table>

Life Expectancy - Snap-Action

<table>
<thead>
<tr>
<th>Series Switch</th>
<th>Amps</th>
<th>Snap-Action</th>
<th>Detent-Action</th>
<th>Snap-Action</th>
<th>Detent-Action</th>
<th>Snap-Action</th>
<th>Detent-Action</th>
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</thead>
<tbody>
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</tbody>
</table>

Please contact factory for test data on the KW400, KW600 and KW800.
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Telephone (508) 821-1597

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