### Switches

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#### Switch Selection

**Ratings**

All voltage, current and power ratings quoted are for switching resistive loads unless otherwise stated. For resistive load, these components may be used with confidence to 250V ac. For inductive load, the contact resistance, dielectric strength and insulation resistance are affected (see Section 8.3.1). For capacitive load, the leakage current and dielectric strength are affected (see Section 8.3.2).

**Configurations**

- SPST
  - Single Pole Single Throw
  - Also known as single pole on-off
- SPDT
  - Single Pole Double Throw
  - Also known as single pole changeover (SPCO) or single pole on-off
- DPST
  - Double Pole Single Throw
  - Also known as double pole on-off
- DPDT
  - Double Pole Double Throw
  - Also known as double pole changeover (SPCO) or double pole on-on

**Characteristics**

- **Momentary Action**
  - The state of the switch will change only whilst the operating force is applied. When released the switch will return to its original state.
- **Latching Action**
  - The state of the switch changes when an operating force is applied. When released the switch will return to the state when an additional force is applied. Also known as maintained action.

**Examples of Alternative Descriptions**

- SPDT
  - Single pole on-off
  - Centre off
- SPDT - biased
  - Single pole on-off
  - Single pole on-mom
- SPDT - centre off, two ways bias
  - Single pole on-off
  - Single pole on-mom

**Illuminated Toggle Switches**

- **Switch Specifications**
  - Electrical capacity: 3A@250V ac
  - Electrical life: 50000 Cycles
  - Contact resistance: 10mohm
  - Insulation resistance: 20mohm
  - Operating temperature: -10°C to 55°C

- **LED Specifications**
  - LED type: Super Bright LED
  - Colour: Red
  - Super Bright LED
    - Green
    - Red
  - Peak forward current (mA)
    - 20
    - 20
    - 20
    - 20
  - Forward voltage (V)
    - 2.3
    - 2.3
    - 2.3
    - 2.3
  - Reverse peak voltage (V)
    - 5
    - 5
    - 5
    - 5

**Precautions**

- Visible status indicator - toggle illuminated by LED
- Two toggle lengths - 11mm and 17.5mm
- Available in bright red and green and super bright blue and green
- Sealing to IP65 with panel seal
- DPDT on-off configuration
LED-tipped Toggle Switches

6A@125V ac, 3A@250V ac, 3A@30V dc

- Industry's first LED-tipped toggle switch
- Single or bicolour LEDs to meet varied design requirements
- Stainless steel frame
- Solder lug terminals moulded in and epoxy sealed

LED Specifications
- LED type
- LED colour
- Peak forward current (mA)
- Forward current (mA)
- Forward voltage (V)
- Reverse peak voltage (V)

Contact Specifications
- Insulation resistance @ 500VDC
- Dielectric strength
- Angle of Throw

Switch Specifications
- Electrical capacity
- Contact resistance
- Operating temperature

Switch Function
- Order Code
- Colour

Price Each
- 1+ 25+ 50+ 100+ 500+

Antistatic Toggle Switches

Process Sealed - 0.4mA @ 28V(ac/dc)

- Subminiature size saves space on PCB's
- PCB Mounting terminals
- 2.54 x 2.54mm terminal spacing
- Specifically developed for logic-level applications
- Totally sealed body construction
- Award winning Sliding Twin Contact mechanism
- 10mm long nickel plated brass toggle

Switch Specifications
- Electrical capacity (Resistive load)
- Electrical life
- Contact resistance
- Insulation resistance
- Dielectric strength
- Operating temperature

Switch Function
- Order Code
- Colour

Price Each
- 1+ 25+ 50+ 100+ 500+

Vertical Mounting - Straight Terminals

- Vertical Mounting - Threaded Bush
- Horizontal Mounting - Right angle Terminals - Horizontal Actuation
- Horizontal Mounting - Right angled Terminals - Vertical Actuation

Switch Specifications
- Switch Type
- List No.

Price Each
- 1+ 25+ 50+ 100+ 500+
Subminiature, PCB Mounting - Washable

0.4VA @ 20V ac/dc

- Gold plated contacts allow low level switching
- Epoxy sealed terminations
- Process sealed - withstands machine soldering and pressure wash processes
- UL Recognised

Operating temperature: -30°C to +85°C
Contact resistance: ≤20mohm
Electrical life: 30000 2 position, 30,000 3 position

Washable PCB Mounting

0.4VA @ 20V ac/dc

- Process sealed - withstands machine soldering and pressure wash processes
- Epoxy sealed terminations
- UL Recognised

Operating temperature: -30°C to +85°C
Contact resistance: ≤20mohm
Electrical life: 50000 ops

Switch Function List No. Order Code 1+ 25+ 100+ 250+

Vertical Mounting:
- On-On: 2AS1T2A1M2RE 947-3084
- On-Off-On: 2AT2AT1M2RE 947-3092
- On-Off: 2AT2AT1M2RE 947-3110
- Off-On: 2AT2AT1M2RE 947-3114
- On-On: 2AT2AT1M2RE 947-3112
- On-Off: 2AT2AT1M2RE 155-0110

Horizontal Mounting - Type 1:
- On-Off: 2AS1T2A1M1RE 947-3130
- Off-On: 2AT2AT1M1RE 947-3137

Horizontal Mounting - Type 2:
- On-Off: 2AS1T2A1M1RE 947-3165
- Off-On: 2AT2AT1M1RE 947-3172

Washable PCB Mounting

0.4VA @ 20V ac/dc

- Process sealed - withstands machine soldering and pressure wash processes
- Epoxy sealed terminations
- UL Recognised

Operating temperature: -30°C to +85°C
Contact resistance: ≤20mohm
Electrical life: 60000 2 position, 40000 3 position

Contact resistance:
- Initial contact resistance: <10mohm
- Electrical life: 60000 2 position, 40000 3 position, 2.16kV

Insulation resistance:
- 10mΩ, 50V/10μA, 5V
- 1000V rms @ 50Hz

- On-On: 108-2496
- On-Off-On: 108-2500
- Off-On: 108-2506
- On-Off: 108-2502
- Off-On: 108-2502

Right Angle - Horizontal Toggle:
- On-Off: 108-2503
- Off-On: 108-2503

Right Angle - Vertical Toggle:
- On-Off: 108-2499
- Off-On: 108-2504
- On-Off: 108-2504
- Off-On: 108-2504
Toggle Switches - continued

PCB Mounting - Standard and Sealed
0.4VA @ 20V ac/dc

- Gold plated contacts for low level switching
- Mounting bracket solders directly to PCB
- Plain bush for easy front panel removal
- Standard series have epoxy terminal seal, compatible with bottom-wash cleaning
- Sealed series are process sealed to withstand machine soldering and pressure wash cleaning

Mechanical life: 40000 ops
Contact resistance: <10mohm @ 4V dc
Lever length: 7.0mm
Operating temperature: -20°C to +65°C

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Price Each</th>
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<tbody>
<tr>
<td>1+</td>
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<table>
<thead>
<tr>
<th>Type 1 - Horizontal Mounting - Standard</th>
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</thead>
<tbody>
<tr>
<td>On-On</td>
</tr>
<tr>
<td>7101MD9V38E</td>
</tr>
<tr>
<td>597-4743</td>
</tr>
<tr>
<td>On-Off-On</td>
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<tr>
<td>7101MD9V39E</td>
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<td>597-4751</td>
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<td>On-Off</td>
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<td>7201MD9V39E</td>
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<td>597-4773</td>
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<td>597-5450</td>
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<td>597-5519</td>
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<td>On-Off</td>
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<td>7201MD9V29E</td>
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<tr>
<th>Vertical Mounting - Sealed - Short Bushing (6.35mm)</th>
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<tr>
<td>On-On</td>
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<tr>
<td>E101MD9V18E</td>
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<td>597-5375</td>
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<table>
<thead>
<tr>
<th>Type 1 - Horizontal Mounting - Sealed - Short Bushing (6.35mm)</th>
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<td>E101ND18AE</td>
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<td>597-5381</td>
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<table>
<thead>
<tr>
<th>Type 2 - Horizontal Mounting - Sealed - Short Bushing (6.35mm)</th>
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<tr>
<td>On-On</td>
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<td>E101ND12AE</td>
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Miniature, PCB Mounting - Standard and Sealed
0.4VA @ 20V ac/dc

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<th>Price Each</th>
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<th>Type 1 - Horizontal Mounting - Standard</th>
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<tr>
<td>SPDT On-On</td>
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<tr>
<td>1MS1T2B4V92RE</td>
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<tr>
<td>947-3318</td>
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<tr>
<td>SPDT On-Off-On</td>
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<tr>
<td>1MS3T2B4V92RE</td>
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<tr>
<td>947-3309</td>
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<tr>
<td>SPDT On-(On)</td>
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<tr>
<td>1MS5T2B4V92RE</td>
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<tr>
<td>947-3329</td>
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<tr>
<td>SPDT On-On</td>
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<td>1MS1T2B4V93E</td>
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<tr>
<td>947-3325</td>
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<td>SPDT On-On</td>
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<td>1MS1T2B4V93E</td>
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<tr>
<td>947-3326</td>
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Gemiini A Series
0.4VA @ 20V ac/dc

- Supplied with 2 x hex nuts, 1 x internal tooth locking washer and 1 x locking ring
- Epoxy sealed terminals
- Break before make contacts
- 10.4mm long toggle
- UL recognised

Contact rating - Gold contacts: 0.4VA @ 20V ac/dc
Contact rating - Silver contacts: 2A @ 250V AC/ 30VDC
Electric life: 30000
Contact resistance: 30mohm
Operating temperature: -20°C to +60°C

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<td>250+</td>
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<th>Vertical mount - PCB Pin terminals - Threaded</th>
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<tr>
<td>SPDT On-On</td>
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<tr>
<td>1AD1T2B4MRE</td>
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<td>155-0149</td>
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<tr>
<td>SPDT On-Off-On</td>
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<td>1AD1T2B4MRE</td>
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<td>155-0152</td>
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<td>SPDT On-On</td>
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<tr>
<td>1AD1T2B4MRE</td>
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<td>155-0165</td>
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Miniature, Panel Mounting
5A@120V ac/28V dc, 2A@250V ac

- Silver plated copper contacts
- Solder tag connections
- UL Recognised

Electrical life: 40000 ops
Contact resistance: <10mohm @ 4V, 100mA
Operating temperature: -30°C to +85°C
Bush trimmed: 14/4-40 UNS-2A
Lever length: 10.25
Panel cut out: 6.35
H=+12.7, W=+6.9

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<tr>
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<td>SPDT On-On</td>
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<td>1MS1T1B5M1QE</td>
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<td>947-3377</td>
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<tr>
<td>SPDT On-Off-On</td>
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<td>1MS3T1B5M1QE</td>
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<td>947-3386</td>
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<td>SPDT On-On</td>
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<td>947-3403</td>
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<td>4PDT On-On</td>
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<td>1MS4T1B5M1QE</td>
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<td>947-3194</td>
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<td>4PDT On-Off-On</td>
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<td>947-3195</td>
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<td>4PDT On-On</td>
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<td>1MS4T1B5M1QE</td>
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<td>947-3196</td>
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</table>
**Actuators**

Mechanical life: 40,000 ops

Operating temperature: -20°C to +65°C

Contact resistance: 20mΩ @ 4 V dc

- **DPDT Momentary Switches**
  - DPDT Momentary: 957-4723
  - DPDT Momentary: 957-4736

- **SPDT Momentary Switches**
  - SPDT Momentary: 957-4727
  - SPDT Momentary: 957-4759

- **Switch Bodies for Push Button**
  - DPDT On-Off-(On): 7207J50 ZQE++ 957-5014
  - DPDT On-On: 7201J50 ZQE++ 957-4980
  - SPDT On-Off-(On): 7107J50 ZQE++ 957-4964
  - SPDT (On)-Off-(On): 7105J50 ZQE++ 957-4956
  - SPDT On-On: 7101J50 ZQE++ 957-4930

- **Switch Bodies for Rocker or Lever**
  - DPDT On-Off-(On): 775A02263
  - DPDT On-On: 775A03400
  - SPDT On-Off-(On): 7982.04.000
  - SPDT On-On: 7982.05.000
  - DPDT On-(On): 7982.03.000
  - DPDT (On)-Off-(On): 7982.06.000

Bezels

- Bezels available either plain or to accept T1 3/4mm LED (not supplied)
- Switch body may be fitted with either rocker, lever or push button actuator
- Choice of bezels and actuator colours
- Epoxy sealed rocker and lever switch bodies
- UL Recognised

Contact rating (Push Button): 0.4 V A @ 20 V ac/dc

Electrical life: 50,000 ops

Panel Mounting

- 4 A @ 30 V dc or 250 V ac
- 2 A @ 250 V ac

**Electromechanical Switches**

Panel Mounting

- 5 A @ 28 V dc or 115 V ac
- 2 A @ 250 V ac

Bezels

- Bezels available either plain or to accept T1 3/4mm LED (not supplied)
- Switch body may be fitted with either rocker, lever or push button actuator
- Choice of bezels and actuator colours
- Epoxy sealed rocker and lever switch bodies
- UL Recognised

Contact resistance: 20 mΩ @ 4 V dc

Switch Bodies for Push Button

- DPDT Momentary: 957-4723
  - DPDT Momentary: 957-4736

- **Order Multiple = 5**
  - Rocker: All Colours
  - Lever: All Colours
  - Push button: All Colours

Bezels

- Plain: All Colours
- With LED position: All Colours

**Subminiature, Snap-In Switch Components**

Panel Mounting

- Push Button, Rocker and Lever

Bezels

- Bezels available either plain or to accept T1 3/4mm LED (not supplied)
- Switch body may be fitted with either rocker, lever or push button actuator
- Choice of bezels and actuator colours
- Epoxy sealed rocker and lever switch bodies
- UL Recognised

Contact rating (Push Button): 0.4 V A @ 20 V ac/dc

Electrical life: 50,000 ops

Panel Mounting

- 5 A @ 28 V dc or 125 V dc
- 2 A @ 250 V ac

Bezels

- Bezels available either plain or to accept T1 3/4mm LED (not supplied)
- Switch body may be fitted with either rocker, lever or push button actuator
- Choice of bezels and actuator colours
- Epoxy sealed rocker and lever switch bodies
- UL Recognised

Contact resistance: 20 mΩ @ 4 V dc
### Toggle Switches - continued

#### 5A @ 28V dc or 125V dc, 2A @ 250Vac (Silver) - continued

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<thead>
<tr>
<th>Switch</th>
<th>Order Code</th>
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<tbody>
<tr>
<td>SPDT On-On</td>
<td>Silver</td>
<td>967-8086</td>
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<tr>
<td>SPDT On-Off-On</td>
<td>Silver</td>
<td>967-8076</td>
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<tr>
<td>SPDT Off-On-On</td>
<td>Silver</td>
<td>967-8066</td>
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<td>SPDT On-Off-On Silver</td>
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<td>SPDT Off-On-On Silver</td>
<td>967-8046</td>
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<td>SPDT On-On Silver</td>
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<td>DPDT On-Off-On Silver</td>
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<td>Flat Toggle</td>
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<td>4PDT On-Off-On Silver</td>
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<tr>
<td>5A @ 28V dc or 115V ac resistive load, 2A @ 250V ac</td>
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<tr>
<td>5A @ 28V dc or 115V ac</td>
<td>967-8050</td>
<td></td>
</tr>
<tr>
<td>2A @ 250V ac</td>
<td>967-8040</td>
<td></td>
</tr>
<tr>
<td>1A @ 250V ac</td>
<td>967-8030</td>
<td></td>
</tr>
<tr>
<td>5A @ 28V dc</td>
<td>967-7990</td>
<td></td>
</tr>
<tr>
<td>2A @ 250V ac</td>
<td>967-7980</td>
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</tr>
<tr>
<td>1A @ 250V ac</td>
<td>967-7970</td>
<td></td>
</tr>
</tbody>
</table>

### Gemini A Series - Long Lever

2A @ 250V ac, 5A @ 125V ac

#### Switches

<table>
<thead>
<tr>
<th>Function</th>
<th>List No.</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPDT On-On</td>
<td>A010SYZQ</td>
<td>119-70610</td>
</tr>
<tr>
<td>SPDT On-Off-On</td>
<td>A011SYZQ</td>
<td>120-70610</td>
</tr>
</tbody>
</table>

### Panel Mounting

8A @ 6V dc, 3A @ 250V ac

#### Body Dimensions

<table>
<thead>
<tr>
<th>SPOT</th>
<th>DPDT</th>
<th>4PDT</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.7</td>
<td>12.7</td>
<td>12.7</td>
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<tr>
<td>11.43</td>
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<td>11.43</td>
</tr>
<tr>
<td>10.54</td>
<td>10.54</td>
<td>10.54</td>
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</table>

<table>
<thead>
<tr>
<th>Rocker/Lever handle</th>
<th>12.7</th>
<th>11.43</th>
<th>9.56</th>
</tr>
</thead>
<tbody>
<tr>
<td>108-2310</td>
<td>SPDT flat toggle</td>
<td>108-2313</td>
<td>DPDT standard toggle</td>
</tr>
<tr>
<td>108-2311</td>
<td>SPOT flat toggle</td>
<td>108-2312</td>
<td>DPDT standard toggle</td>
</tr>
</tbody>
</table>

#### Contact resistance

<10mΩ, 10V dc, 50000 ops, Operating temperature -40°C to +85°C

---

**Electrical characteristics**

- **Operating temperature**: -55°C to 85°C
- **Contact resistance**: <10mΩ, 10V dc
- **Lever length**: 11mm
- **Operating temperature**: -30°C to +85°C
- **Gold plated contacts**: 0.4VA @ 20V max, 40000 operations
- **Slow Tag Terminals**: UL Recognised
- **Dielectric strength**: 1000 Vrms @ sea level
- **Insulation resistance**: 10mΩ @ 4Vdc
- **Contact rating**: Silver contact - 2A @ 250V ac, 5A @ 125V ac
- **Solder Tag Terminals**: Electrolytic life 30000 cycles, Contact resistance 30mΩ, Insulation resistance 1000 Vrms @ sea level, Dielectric strength 1000 Vrms @ sea level, Operating temperature -20°C to 85°C, Bush/Thread dimensions 8.9mm x 1/4 x 40NS
- **Panel Mounting**: Provided with 2 x hex nuts, 1 x internal tooth locking washer and 1 x locking ring

---

**Materials**

- **Brass contacts**: gold or silver plated
- **Gold plated contacts**: 0.4VA @ 20V max, 0.4VA @ 20V max, 2A @ 250V ac
- **Electrical life**: 2A @ 250V ac, 5A @ 125V ac
- **Contact resistance**: <10mΩ, 10V dc, 50000 ops, Operating temperature -40°C to +85°C
- **Dielectric strength**: 1000 Vrms @ sea level, Operating temperature -20°C to 85°C, Bush/Thread dimensions 8.9mm x 1/4 x 40NS
- **Copper alloy contacts**: gold or silver plated
- **Contact resistance**: <10mΩ, 4Vdc, 1A
- **Lever length**: 11mm
- **Operating temperature**: -30°C to +85°C
- **Gold plated contacts**: 0.4VA @ 20V max, 0.4VA @ 20V max, 2A @ 250V ac
- **Electrical life**: 2A @ 250V ac, 5A @ 125V ac
- **Contact resistance**: <10mΩ, 10V dc, 50000 ops, Operating temperature -40°C to +85°C
- **Dielectric strength**: 1000 Vrms @ sea level, Operating temperature -20°C to 85°C, Bush/Thread dimensions 8.9mm x 1/4 x 40NS
- **Copper alloy contacts**: gold or silver plated
- **Contact resistance**: <10mΩ, 4Vdc, 1A
- **Lever length**: 11mm
- **Operating temperature**: -30°C to +85°C
- **Gold plated contacts**: 0.4VA @ 20V max, 0.4VA @ 20V max, 2A @ 250V ac
- **Electrical life**: 2A @ 250V ac, 5A @ 125V ac
- **Contact resistance**: <10mΩ, 10V dc, 50000 ops, Operating temperature -40°C to +85°C
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- **Copper alloy contacts**: gold or silver plated
- **Contact resistance**: <10mΩ, 4Vdc, 1A
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- **Copper alloy contacts**: gold or silver plated
- **Contact resistance**: <10mΩ, 4Vdc, 1A
- **Lever length**: 11mm
- **Operating temperature**: -30°C to +85°C
- **Gold plated contacts**: 0.4VA @ 20V max, 0.4VA @ 20V max, 2A @ 250V ac
- **Electrical life**: 2A @ 250V ac, 5A @ 125V ac
- **Contact resistance**: <10mΩ, 10V dc, 50000 ops, Operating temperature -40°C to +85°C
- **Dielectric strength**: 1000 Vrms @ sea level, Operating temperature -20°C to 85°C, Bush/Thread dimensions 8.9mm x 1/4 x 40NS
Temperature range -25°C to +85°C

Mechanical life
Electrical life

Maximum load 0.5VA

FTE0904 112-4176
FTS0904 112-4181
FTN09G04 112-4184


6A @ 250V ac or 28V dc (Silver), 10mA @ 48V (Gold)

Break Action

A range of professional slow make break switches.
• Chrome plated lever.
• Solder bucket terminals.
• Gold contact versions are ideally suited for dry circuit switching.

Contact rating (max.) 10V, 10mA
Maximum load 0.5VA
Contact resistance 20mOhm
Electrical life > 50000 operations
Mechanical life > 100000 operations
Temperature range -25°C to +85°C
Bush thread M6 x 0.75


Silver Contacts Order Code 1+ 25+ 100+ 500+

SPDT On-On 112-4175G
SPDT On-Off-On 112-4176G

Locked Lever

6A @ 250V ac or 28V dc

Gold contacts

Contact rating (max.) 250vac/28V dc, 6A
- 48V, 10mA
- 0.5VA
Contact resistance 10mOhm
Electrical life > 50000 operations
Mechanical life > 100000 operations
Temperature range -25°C to +85°C
-25°C to +85°C
Bush thread M6 x 0.75

Mftrs. List No. FNT59G = 112-4169
FNT59 = 112-4170

Price Each

Order Code 1+ 10+ 50+ 100+ 250+ +

Locking Lever

6A @ 250V ac or 28V dc

Quick Make, Quick Break

3A @ 250V ac, 10A @ 6/24V ac/dc

0600 Series - Single Pole

3A @ 250V ac, 10A @ 6/24V ac/dc

Professional - Slow Make/ Break Action

6A @ 250V ac or 28V dc (Silver), 10mA @ 48V (Gold)
### Toggle Switches - continued

#### S-POT Series - continued

<table>
<thead>
<tr>
<th>Two Position</th>
<th>Order Code</th>
<th>Price Each</th>
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<tbody>
<tr>
<td>SPST Off-On</td>
<td>422-009B</td>
<td>1+</td>
</tr>
<tr>
<td>DPST Off-On</td>
<td>422-010B</td>
<td>25+</td>
</tr>
<tr>
<td>DPST On-On</td>
<td>422-022B</td>
<td>100+</td>
</tr>
<tr>
<td>DPST Off-On</td>
<td>422-034B</td>
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#### Three Position

<table>
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<tr>
<td>422-046B</td>
<td>1+</td>
</tr>
<tr>
<td>422-050B</td>
<td>10+</td>
</tr>
<tr>
<td>422-060B</td>
<td>50+</td>
</tr>
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</table>

### 1700 Series

- Black nylon levers.
- Approved to BS3955, BEAB, VDE, SEMKO, SEV, OVE, KEMA and CSA.
- UL recognised

#### Mftrs List No.

- C1700H=140-622
- C1720H=140-627
- C1700H=140-625
- C1710H=140-626
- C1760H=140-621
- C1770H=140-624
- Bush thread=15/32 x 32NS, Tab=6.3
- Lever L=17.8

#### Insulated Lever

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Price Each</th>
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<tbody>
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<td>140-625</td>
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<tr>
<td>140-626</td>
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<tr>
<td>140-627</td>
<td>50+</td>
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<tr>
<td>140-629</td>
<td>100+</td>
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<td>140-622</td>
<td>250+</td>
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<tr>
<td>140-624</td>
<td>500+</td>
</tr>
</tbody>
</table>

#### DPDT insualted lever

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Price Each</th>
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<tbody>
<tr>
<td>108-2335</td>
<td>1+</td>
</tr>
<tr>
<td>108-2336</td>
<td>25+</td>
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<tr>
<td>108-2337</td>
<td>50+</td>
</tr>
<tr>
<td>108-2338</td>
<td>100+</td>
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</table>

### 600 Series

- CSA approved
- UL recognised

#### Insulated Lever

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<tr>
<th>Order Code</th>
<th>Price Each</th>
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<tbody>
<tr>
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<td>108-2325</td>
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<td>631H=2=</td>
<td>641H=2=</td>
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<td>639H=2=</td>
<td>108-2331</td>
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<td>639H=2=</td>
<td>649H=2=</td>
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#### DPDT metal lever

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<th>Price Each</th>
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</tr>
<tr>
<td>108-2333</td>
<td>25+</td>
</tr>
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<td>108-2334</td>
<td>50+</td>
</tr>
<tr>
<td>108-2335</td>
<td>100+</td>
</tr>
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</table>

### TL Series - to MIL-S-3950

- 15A @ 250v ac, 10A @ 250v ac (momentary action versions)

#### 16(4)A @ 250V ac - ENEC(3900/3950), 10(4)A 250V ac (other circuits)

#### 20A @ 125/277V ac - UL/C.SA (3990/3950), 16A 125/277V ac (other circuits)

### Metal Lever - 3900 Series

- Approved to ENEC and CSA, UL recognised
- Robust metal lever/neck construction
- Spring-loaded hinged guard (767-4341) to prevent accidental operation
- Momentary action option

#### Insulation Resistance

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Operating Temp</th>
<th>Contact Gap</th>
<th>Mechanical Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>MR</td>
<td>0°C to +85°C</td>
<td>3.0mm (On-Off types only)</td>
<td>50000 rps</td>
</tr>
</tbody>
</table>

#### Electrical Life

- 10000 ops

#### Contact Resistance

- 100mΩ

#### Contact Gap

- 3.0mm (On-Off types only)

#### Operating Temperature

- -20°C to +71°C

#### Panel cut-out (dia.)

- 12.7

#### Depth

- 28

#### Double pole body

- Depth = 31, Panel cut-out (dia.) = 12.7, Tabs = 6.3 x 0.8

### C1700 Series

- 16(4) A @ 250V ac

#### 1 TL1-2

<table>
<thead>
<tr>
<th>Mftrs. List No.</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1700HOOAAD= 481-099</td>
<td>1+</td>
</tr>
<tr>
<td>C1700HOOAAE= 481-105</td>
<td>10+</td>
</tr>
<tr>
<td>C1700HOAAB= 481-117</td>
<td>50+</td>
</tr>
</tbody>
</table>

### Troubleshooting Tips

Chat online to one of our technical engineers at farnell.com
IP67 Sealed
20A @ 250V ac or 30V dc

- Silver plated contacts.
- Sealed to IP67.
- Connections via 250 (1/4") receptacles or soldering.

H=33, W=19.5, D=17.5 (body) Bush diameter=11.4, Bush thread=M12 x 1.8, Bush length=65

Mfrs List No.
AWTN1504= 112-4163, AWTIP1504= 112-4166, AWTH1504= 112-4167, AWTS1504= 112-4168

IP76 Sealed
20A @ 250V ac

- Switches withstand water penetration into spaces between switches and mounting cut-out holes.
- Contact mechanism designed to minimise noise.
- UL 94V-0 Flammability rating.
- Sealed to IP67.
- Connections via AMP 250 (1/4") receptacles or soldering.

H=22.9 (body), W=33, D=19.5mm Bush thread=M12 x 7.1, Bush length=5.5

Order Code
SPST On-Off 113-8729
SPST On-On 113-8730
DPDT On-Off 113-8731
DPDT On-On 113-8732

IP68 Sealed
16A @ 115V ac or 28V dc

- Rugged high performance toggle switch.
- Insulated with "O" ring and visible bushing sealed to IP68.
- Withstands extreme shock and vibration.
- Rear seal with potted contacts.

H=32.2, W=27.9, D=21.8 (body) Bush thread=1/4 x 32 NPS-2A, Bush length=11.9

Mfrs List No.
T711165= 113-8734 T721205= 113-8737 T721255= 113-8738 T721265= 113-8740

Toggle Switches - Power
T9 Series - IP68 Sealed

- Compliant to MIL-DTL-3950.
- Sealed per IP68 or per MIL-DTL-3950.
- Electrical life 20,000 cycles full load.
- Mechanical life 40,000 cycles.
- Operating temperature range -55°C to +71°C.

Body: H=34.8mm, W (SPDT)=16mm, W (DPDT)=23mm, D=34mm

The T9 Toggle Switch is an ideal switch for demanding applications, compliant to MIL-DTL 7703 and MS25224-3.

Switch ratings - Resistive
20A @ 28VDC, 15A @ 115VAC

Contact plating - Silver
Mechanical life 40,000 cycles.
Operating temperature -65°C to +71°C

Contact ratings - Inductive
15A @ 115VAC, 10A @ 115VAC

Switch Function List

SPDT On-Off-On T9-CS1-21
SPDT On-On T9-CS1-23
DPDT On-Off-On T9-CS2-22
DPDT On-On T9-CS2-23

Toggle Covers
TG-00001
TG-00006

IP67 Sealed - 3600 Series
12A @ 28V dc, 6A @ 250V ac

- Sealed to IP67, suitable for outdoor use.
- Proof Voltage 2500V ac.
- Electrical life 1000 operations.
- Insulation resistance 500V dc.
- Operating temperature -40°C to +85°C.

H=35, W=21.5, D=23
Bush thread=12 x 0.75, Tab=6.35 x 0.8, Panel thickness=3.5 max

Mfrs List No.
3631NF/2= 108-2293 3631NF/2= 108-2295
3636NF/2= 108-2298 3636NF/2= 108-2297

Toggle Covers
TG-00001 155-5045
TG-00006 155-5040
**Toggle Switches - continued**

**NEW**

- Robust and powerful toggle switch with 50,000 mechanical switching cycles
- Central fastening with nut M12
- Metal or plastic lever

**100 million times proven**

Attractive toggle switches

**Electromechanical**

**10A@250Vac**

- Contact resistance: < 100 mΩ
- Insulation resistance: > 100GΩ
- Protection type: IP 40
- Temperature: -20°C to +100°C (terminal side)
- Flammability: UL 94 V-2
- Material: PA (actuator)
- PA Glass Fiber-reinforced (Housing)

Plug force of the terminals: ≤ 80N

- 100 million times proven switching principle
- Long life endurance with 50,000 mechanical switching cycles
- Excellent actuating characteristic

- Fastening with nut M12

**10A@250Vac**

- Operating temperature: -40°C to 85°C

**Selector Switches**

- Environmentally sealed toggle switch to IP68
- Multiple single pole functions available

**Electrical life**
50,000 Cycles

**Mechanical life**
100,000 Cycles

**Contact resistance**
100mΩ

**Contact resistance**
10mΩ

**Insulation resistance**
5000VDC

**Insulation resistance**
5000VDC

**Operating temperature**
-40°C to 85°C

**Contact resistance**
≤ 100mΩ

**Contact resistance**
≤ 10mΩ

**Insulation resistance**
≤ 500VDC

**Insulation resistance**
≤ 500VDC

**Design**

- Metal or Plastic lever
- Central fastening with nut M12
- Robust and powerful toggle switch with 50,000 mechanical switching cycles
- Long life endurance with 100,000 mechanical switching cycles
- Excellent actuating characteristic

**Protection Cap**

- Moulded black flexible PVC splashproof switch cover
- Nickel-plated brass threaded insert suitable for all 15/32" x 32NS bush threads.

**Accessories**

Suitable for all Bush Threads of 15/32" x 32NS

**Toggle Switch Cover**

H=25, Dia=25

**Multiple=10**

**Toggle Switch Accessories**

Order Multiple=10

**Price Each**

<table>
<thead>
<tr>
<th>Order Code</th>
<th>1+</th>
<th>10+</th>
<th>25+</th>
<th>50+</th>
<th>100+</th>
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<tbody>
<tr>
<td>140-648</td>
<td>678-144</td>
<td>678-156</td>
<td>140-663</td>
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**Price Each**

<table>
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<tr>
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<th>500+</th>
<th>1K+</th>
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<tbody>
<tr>
<td>140-648</td>
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<td>678-156</td>
<td>140-663</td>
<td>140-658</td>
<td></td>
</tr>
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</table>

**Waterproof lever cover**

- Moulded black flexible PVC splashproof switch cover
- Nickel-plated brass threaded insert suitable for all 15/32" x 32NS bush threads.

**Multiple=10**

**Order Multiple=10**

**Price Each**

<table>
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<tr>
<th>Order Code</th>
<th>10+</th>
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<td>678-156</td>
<td>140-663</td>
<td>140-658</td>
<td></td>
</tr>
</tbody>
</table>

**Waterproof lever seal**

- Stacked molded ring chrome finished, dia=16.0, thickness=2.3
- ON/OFF status plate chrome finished, 25.4 x 16 overall

**Waterproof lever cover**

- Moulded black flexible PVC splashproof switch cover
- Nickel-plated brass threaded insert suitable for all 15/32" x 32NS bush threads.

**Multiple=10**

**Order Multiple=10**

**Price Each**

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**Waterproof lever cover**

- Moulded black flexible PVC splashproof switch cover
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**Multiple=10**

**Order Multiple=10**

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**Multiple=10**

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<td>140-658</td>
<td></td>
</tr>
</tbody>
</table>

**Improve back order delivery**

Receive email updates with the exact status, due date and despatch information of all your back order items farnell.com
Sealing Boots
- Moulded black splashproof switch cover
- Available in two heights: low = 10.7mm, high = 14.4mm
- Moulded-in brass, nickel plated hexagonal nut gives water-tight, dust-tight protection
- Black silicone rubber sealing boots for most toggle and pushbutton switches
- Provide low cost sealing for non-MIL spec applications
- Operating temperature -40°C to +85°C
- Provide positive high pressure environmental seal for most toggle and push button switches
- Moulded-in brass, nickel plated hexagonal nut gives water-tight, dust-tight protection
- Fit around switch neck to seal both panel mounting hole and the switch
- Meet MIL-S-4323 specification
- Resistant to salt spray, weather, sunlight, ozone, fuel oils, and most acids
- Vibration resistant. Pressure range exceeds 15 psi internal or external
- Resistive to salt spray, weather, sunlight, ozone, fuel oils, and most acids
- Vibration resistant. Pressure range exceeds 15 psi internal or external

Toggle and Push Button Sealing Boots
- Covered toggle seal
- Protruding toggle seal
- Push button seals

<table>
<thead>
<tr>
<th>Thread Size</th>
<th>Order Code</th>
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<td>211-3267</td>
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<tr>
<td>M6 x 0.75 UNS</td>
<td>1/4-40 UNS-2A</td>
<td>211-3268</td>
</tr>
<tr>
<td>M6 x 0.75 UNS</td>
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</table>

Slide Switches

Momentary Action Slide Switches
25mA @ 24Vdc
- Momentary action SPDT
- Operating force 200gf ± 70gf
- Long life of 10,000 cycles
- Two different lead length versions available

Miniature Slide Switch
25mA @ 24Vdc
- SPDT
- Operating force 200gf ± 50gf
- Long life of 10,000 cycles
- Operating temperature -10°C to +60°C
- Electrical life 10000 operations min

Miniature Momentary Slide Switches
300mA @ 4Vdc
- Momentary action (Double side recoil)
- Stem height only 1.5mm
- Operating force 100gf ± 50gf
- Long life of 50,000 cycles

Toggle and Push Button Sealing Boots
- 'Hexseal' (MIL spec)

<table>
<thead>
<tr>
<th>Thread Size</th>
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<th>Price Each</th>
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<tr>
<td>Covered Toggle Seal</td>
<td>11.9(15/32&quot;) 32 NS</td>
<td>108-2517</td>
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<tr>
<td>6.35(1/4&quot;) 40 NS</td>
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<td>11.9(15/32&quot;) 32 NS</td>
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</tr>
</tbody>
</table>

The first online technical portal for design engineers
Log on, research, refine and design
**Slide Switches - continued**

**Slide Switch**
50mA @ 60V AC/DC

- Gold-plated clip contact and cleaning mechanisms ensure high reliability
- Specially designed to allow no grease entry into the contact portion
- Sealed against flux entry and a built-in “O-ring” ensures immersion wash ability
- Available with boot to protect against dust

**Switch Specifications**
- Switching capacity: 50mA @ 60V AC/DC
- Electrical life: 50000 Cycles
- Mechanical life: 50000 Cycles
- Contact resistance: 50mohm
- Insulation resistance: 500MΩ for 1 min between terminals, between terminals and ground
- Dielectric strength: 500VAC for 1 min between terminals, between terminals and ground

**Contact rating**
- Switching capacity: 50mA @ 60V AC/DC, 0.5A @ 12V
- Operating temperature: -40°C to 65°C
- Contact material: 0.5µ Gold Plated

**Switch Configuration**
- SPDT, Vertical
- SPDT, R/A

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>List No.</th>
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<th>Price Each</th>
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<tbody>
<tr>
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<td>SPDT, Vertical</td>
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<td>674-337</td>
<td>09-10290-01</td>
<td>SPDT, R/A</td>
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</table>

**Miniature Slide Switches**
**WS-SHT**
- Miniature (10x2.5mm) slide switches in vertical or right angle style

**Switch Specifications**
- Switch operation: On-On
- Contact configuration: SPOT
- Contact resistance: 30mohm
- Operating temperature: -40°C to 85°C
- Contacts: Gold Plated

**Switch Configuration**
- Vertical: 450301014042 213-4452
- Right Angle: 450302014072 213-4453

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<td></td>
<td></td>
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<td>+ + + + +</td>
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</table>

**Subminiature PCB Mounting - STSS2 Series**

- **0.3A @ 6V dc**
- **3A @ 60V AC/DC**

**Switch Specifications**
- Switching capacity: 300mA, 6V dc
- Operating temperature: -40°C to 85°C
- Contact resistance: 30mohm
- Operating life: 50000 cycles
- Contact rating: 30mA @ 6V dc

**Switch Configuration**
- Vertical: STSS2121 112-3871
- Horizontal: STSS2231 112-3873

<table>
<thead>
<tr>
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<td></td>
<td></td>
<td>112-3871</td>
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</tr>
</tbody>
</table>

**Sub-Miniature Slide Switch**
400mA @ 60V AC/DC

- **0.5A @ 12V**
- **0.3A @ 6V dc**

**Switch Specifications**
- Switching capacity: 400mA @ 60V AC/DC
- Operating temperature: -40°C to 85°C
- Contact resistance: 50mohm
- Operating life: 50000 cycles
- Contact material: 0.5µ Gold Plated

**Switch Configuration**
- Vertical: STSS2121 112-3871
- Horizontal: STSS2231 112-3873

<table>
<thead>
<tr>
<th>Mfrs.</th>
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<td>112-3871</td>
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</tbody>
</table>

**Miniature Slide Switches**
**WS-SHT**
- Miniature Slide Switches in vertical or right angle style

**Switch Specifications**
- Switch operation: On-On
- Contact configuration: SPOT
- Contact resistance: 30mohm
- Operating temperature: -40°C to 85°C
- Contacts: Gold Plated

**Switch Configuration**
- Vertical: STSS2121 112-3871
- Horizontal: STSS2231 112-3873

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<thead>
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<td>674-345</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Right Angle</td>
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</tbody>
</table>

**Sub-Miniature Slide Switch**
**0.3A @ 6V dc**

- **3A @ 60V AC/DC**

**Switch Specifications**
- Switching capacity: 300mA, 6V dc
- Operating temperature: -40°C to 85°C
- Contact resistance: 30mohm
- Operating life: 50000 cycles
- Contact rating: 30mA @ 6V dc

**Switch Configuration**
- Vertical: STSS2121 112-3871
- Horizontal: STSS2231 112-3873

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</table>

**Sub-Miniature Slide Switch**
**0.5A @ 12V**

- **0.3A @ 6V dc**

**Switch Specifications**
- Switching capacity: 50mA @ 60V AC/DC
- Operating temperature: -40°C to 65°C
- Contact material: 0.5µ Gold Plated

**Switch Configuration**
- Vertical: STSS2121 112-3871
- Horizontal: STSS2231 112-3873

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<td>112-3871</td>
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**Miniature Slide Switches**
**WS-SHT**
- Miniature Slide Switches in vertical or right angle style

**Switch Specifications**
- Switch operation: On-On
- Contact configuration: SPOT
- Contact resistance: 30mohm
- Operating temperature: -40°C to 85°C
- Contacts: Gold Plated

**Switch Configuration**
- Vertical: STSS2121 112-3871
- Horizontal: STSS2231 112-3873

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<tr>
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</table>

**Sub-Miniature Slide Switch**
**0.3A @ 6V dc**

- **3A @ 60V AC/DC**

**Switch Specifications**
- Switching capacity: 300mA, 6V dc
- Operating temperature: -40°C to 85°C
- Contact resistance: 30mohm
- Operating life: 50000 cycles
- Contact rating: 30mA @ 6V dc

**Switch Configuration**
- Vertical: STSS2121 112-3871
- Horizontal: STSS2231 112-3873

<table>
<thead>
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<td></td>
<td></td>
<td>Right Angle</td>
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</tr>
</tbody>
</table>

**Sub-Miniature Slide Switch**
**0.5A @ 12V**

- **0.3A @ 6V dc**

**Switch Specifications**
- Switching capacity: 50mA @ 60V AC/DC
- Operating temperature: -40°C to 65°C
- Contact material: 0.5µ Gold Plated

**Switch Configuration**
- Vertical: STSS2121 112-3871
- Horizontal: STSS2231 112-3873

<table>
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**Sub-Miniature Slide Switch**
**0.5A @ 12V**

- **0.3A @ 6V dc**

**Switch Specifications**
- Switching capacity: 50mA @ 60V AC/DC
- Operating temperature: -40°C to 65°C
- Contact material: 0.5µ Gold Plated

**Switch Configuration**
- Vertical: STSS2121 112-3871
- Horizontal: STSS2231 112-3873

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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Right Angle</td>
<td>+ + + + +</td>
</tr>
</tbody>
</table>
Subminiature, Sealed PCB Mounting
0.4VA @ 20Vac/dc

Vertical: H=9.14, W=10.03, D=6.02
Horizontal: H=6.38, W=10.03, D=9.37
- Sealed construction, internal O-ring and epoxy base sealed, no boot seal required
- Process compatible, withstands wave and reflow soldering and cleaning processes
- Tin lead alloy coats all sides of terminals for solder joint integrity
- Process compatible, withstands wave and reflow soldering and cleaning processes
- Subminiature PCB Mounting - TSS Series
- Non-shorting changeover contacts
- High quality switch designed for audio applications
- Subminiature, Sealed PCB Mounting - STSS Series
- 0.1A @ 12V dc
- Tin lead alloy coats all sides of terminals for solder joint integrity
- Process compatible, withstands wave and reflow soldering and cleaning processes
- Subminiature PCB Mounting - STSS Series
- High quality switch designed for audio applications
- Non-shorting changeover contacts

Subminiature PCB Mounting - TSS Series
0.4VA @ 20V dc

- Gold contacts for low level switching
- Vertical or horizontal actuators
- Contact resistance 20mohm
- Insulation resistance @ 500V dc 60000-80000 ohms
- Operating temperature -20°C to +80°C
- Vertical Knob
- Horizontal Knob
- PCB mounting plan
- Vertical
- Horizontal
- Order Code

Subminiature Washable, PCB Mounting
50mA @ 48V ac/dc

- Designed for low level switching PCB applications
- Switch slide fitted with silicone rubber cover enabling board washing, protected to IP67
- Cover may be removed after washing, or kept in place, still giving good positive action
- Contact current range 1uA to 50mA
- Electrical life >50000 ops
- Insulation resistance >50MΩ @ 250V dc
- Contact resistance <50mΩ max @ 1.5V @ 200a Vac
- Dielectric strength 500V @ 1 min
- Operating temperature -20°C to +80°C
- Vertical
- Terminal contacts Gold over Nickel Plate on Phosphor Bronze
- PCB drilling plans

Miniature, PCB Mounting
0.1A @ 12V dc

- Variety of actuators and terminations
- Silver plated contacts
- Mftrs. List Nos: SE1DGPC04=112-3958
- SP2T - Vertical
- DPDT - Vertical

Subminiature PCB Mounting - TSS Series
0.3A @ 115V ac/28V dc

- Unique design withstands aqueous or solvent cleaning processes
- 2 or 4 pole types available
- Bifurcated double wipe contacts provide dependable switching
- Industry standard 0.1 x 0.3 pin spacing
- Vertical
- Horizontal
- Order Code

Subminiature Washable, PCB Mounting
50mA @ 48V ac/dc

- Designed for low level switching PCB applications
- Switch slide fitted with silicone rubber cover enabling board washing, protected to IP67
- Cover may be removed after washing, or kept in place, still giving good positive action
- Contact current range 1uA to 50mA
- Electrical life >50000 ops
- Insulation resistance >50MΩ @ 250V dc
- Contact resistance <50mΩ max @ 1.5V @ 200a Vac
- Dielectric strength 500V @ 1 min
- Operating temperature -20°C to +80°C
- Vertical
- Terminal contacts Gold over Nickel Plate on Phosphor Bronze
- PCB drilling plans

GDH Series Slide Switch
8A @ 20V dc

- Unique design allows GDH series to withstand aqueous or solvent cleaning processes
- High temperature anti-static plastic construction
- GDH series - Flush actuator
- Bifurcated double wipe contacts provide dependable, telecom grade switching
- Industry standard .100 x .300 pin spacing
- Contact Current 25mA
- Electrical Life 1000 ops
- Insulation Resistance 100mohm
- Dielectric Strength
- Operating Temperature -30 to 85°C

Vertical
- Order Code
- Mftrs. List No.
- Price Each
## Slide Switches - continued

### GDH Series Slide Switch - continued

<table>
<thead>
<tr>
<th>Function</th>
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<tbody>
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<td>1+ 25+ 100+ 250+</td>
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<tr>
<td>8A @ 20V dc</td>
<td>108-2289</td>
<td>1+ 25+ 100+ 250+</td>
<td>Price Each</td>
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<tr>
<td>8A @ 100V ac</td>
<td>108-2290</td>
<td>1+ 25+ 100+ 250+</td>
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</table>

### PCB Mounting

0.3A @ 125V ac/dc

<table>
<thead>
<tr>
<th>Switch</th>
<th>Mfrs.</th>
<th>Function</th>
<th>List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPDT (Body)</td>
<td>117-9934</td>
<td>H=7.7, W=14, D=7.8mm</td>
<td>SP112-117-9934</td>
<td>SN100-010-DPST-117-9935</td>
<td>1+ 25+ 100+ 250+</td>
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<tr>
<td>DPDT (Body)</td>
<td>117-9935</td>
<td>H=7.7, W=14, D=12.8mm</td>
<td>SP112-117-9935</td>
<td>SN100-010-DPST-117-9935</td>
<td>1+ 25+ 100+ 250+</td>
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### Miniature Slide

0.4 VA @ 20V ac or dc

<table>
<thead>
<tr>
<th>Switch</th>
<th>Mfrs.</th>
<th>Function</th>
<th>List No.</th>
<th>Order Code</th>
<th>Price Each</th>
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<tbody>
<tr>
<td>SPDT</td>
<td>117-9934</td>
<td>H=7.7, W=14, D=7.8mm</td>
<td>SP112-117-9934</td>
<td>SN100-010-DPST-117-9935</td>
<td>1+ 25+ 100+ 250+</td>
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<tr>
<td>DPDT</td>
<td>117-9935</td>
<td>H=7.7, W=14, D=12.8mm</td>
<td>SP112-117-9935</td>
<td>SN100-010-DPST-117-9935</td>
<td>1+ 25+ 100+ 250+</td>
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### Low Profile, Edge Mounting - Series 015/017

5A @ 100V ac

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</thead>
<tbody>
<tr>
<td>SPST, vertical</td>
<td>116-7660</td>
<td>H=11, W=14, D=10.1mm</td>
<td>119-7660</td>
<td>1+ 25+ 100+ 250+</td>
</tr>
<tr>
<td>SPST, right angle</td>
<td>116-7660</td>
<td>H=11, W=14, D=10.1mm</td>
<td>119-7660</td>
<td>1+ 25+ 100+ 250+</td>
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### Miniature PCB Mounting

0.25A @ 125Vac, 0.15A @ 12Vdc

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<td>H=11, W=14, D=10.1mm</td>
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<td>1+ 25+ 100+ 250+</td>
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<tr>
<td>SPST, right angle</td>
<td>116-7660</td>
<td>H=11, W=14, D=10.1mm</td>
<td>119-7660</td>
<td>1+ 25+ 100+ 250+</td>
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### Miniature 0.5A 50V dc

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<tr>
<td>SPST, vertical</td>
<td>116-7660</td>
<td>H=11, W=14, D=10.1mm</td>
<td>119-7660</td>
<td>1+ 25+ 100+ 250+</td>
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<tr>
<td>SPST, right angle</td>
<td>116-7660</td>
<td>H=11, W=14, D=10.1mm</td>
<td>119-7660</td>
<td>1+ 25+ 100+ 250+</td>
</tr>
</tbody>
</table>

---

**Electromechanical**

**Switches**

**Features**

- Double pole 3 position slide switches available in vertical or right angle PCB mounting.
- Contact resistance: -20mohm
- Minimum load: 100mA @ 10V (silver)
- Insulation resistance: @ 500V dc min.
- Operating temperature: -55°C to +85°C

**Specifications**

- Epoxy sealed terminations
- Gold plated copper alloy contacts
- White nylon case with black case and actuator
- Mechanical life 10000 ops
- Contacts (BBM) Operating life 6000 ops

**Applications**

- Provides through panel access
- Provides panel access
-ideal for prototyping, not recommended for industrial applications.
### Miniature - PCB and Panel Mount

3A @ 250V ac, 6A @ 28V dc

- Epoxy terminal seal, compatible with bottom-wash cleaning
- PCB mounting and Panel mount tab versions available
- PCB terminal and solder lug versions
- Silver-plated contacts for power switching
- CSA Approved, UL Recognised

**Rating**
- 6A @ 120VAC / 28V Insulation resistance
- Contact Resistance 50m ohm
- Flamability UL 94V-2
- Ratings - 1/2HP 10A @ 250V Dielectric Strength 1500VAC

**Contact Resistance**
- 0.187” (4.75mm) square terminals
- Snap-in mounting
- Brass terminals with silver plating
- Black nylon (UL 94V-2) frames and actuators
- Black bodied switches positive action
- Black nylon (UL 94V-2) frames and actuators
- Brass terminals with silver plating
- Snap-in mounting

### Slide Switches

#### 16A @ 125V ac, 10A @ 250V ac

- Black bodied switches positive action
- Black nylon (UL 94V-2) frames and actuators
- Brass terminals with silver plating
- Snap-in mounting
- 0.187” (4.75mm) square terminals
- UL Recognised

#### Rating
- H = 20.6, W = 37.2, D = 22.4mm

#### Contact Resistance
- 50ohm

#### Insulation Resistance
- @ 500VDC 1500VAC

#### Switch Function Marking List No.

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Price Each</th>
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<tbody>
<tr>
<td>1+ 25+ 50+ 100+</td>
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</table>

#### Switch Types

- On-Off-On I II R13-608D1-02-BB-5A
- Off-On On Off R13-608C1-02-BB-9A
- On-On 1101M1S3ZQE2
- SPST - On-On 1101M1S3ZQE2
- SPDT - On-On 1101M2S3AQE2
- SPDT - On-On 1101M2S3CQE2
- DPDT - On-Off-On 1201M1S3ZQE2
- DPDT - On-Off-On 1201M2S3AQE2
- DPDT - On-Off-On 1201M2S3CQE2
- Panel Mount - Solder Lug Terminals - Vertical Mount
- SPDT - On-On 1101M1S3ZQE2
- SPDT - On-On 1101M2S3AQE2
- SPDT - On-On 1101M2S3CQE2
- PCB Terminals - Vertical Mount
- DPDT - On-Off-On 1201M1S3ZQE2
- DPDT - On-Off-On 1201M2S3AQE2
- DPDT - On-Off-On 1201M2S3CQE2

### Voltage Selectors

#### Slide Switch, Snap-In Panel Mounting

5A @ 250V ac

- Two position mains slide switch with 120V or 240V markings
- Black nylon housing UL recognised
- Actuator lugs flush with main body of switch to prevent inadvertent operation
- Approved to VDE, SEV and CSA

Operating Temperature -40°C to +85°C

Body: L=33, W=19, Depth behind panel=16
Panel cut-out=31.5 x 17.5, Tabs=2.8 x 0.8

**Order Code**

| 1+ 25+ 50+ 100+ 500+ |            |

#### Slide Switch, PCB and Panel Mounting

6(1)A @ 250V ac

- Two position mains slide switches with 115V and 230V markings
- Low profile actuator
- Approved to VDE, SEV, DEMKO, NEMKO, SEMKO,XEMA, SETI, OVE, UTE, SAA and CSA

**Dimensions (mm)**

- Rocker and Lever W=14, D=12.7
- Lever - Vertical Vertical 7.65 4.5 7
- Lever - Vertical VERTICAL 7.65 4.5 7
- Panel Mount - Vertical Right Angle 7.65 4.5 7

Contact Resistance 0.187” (4.75mm) square terminals

**Switch Function Marking List No.**

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+ 25+ 50+ 100+ 500+</td>
<td></td>
</tr>
</tbody>
</table>

### Rotary Switch, Panel Mounting

6.3A @ 250V ac

- Two position mains rotary switch with 120 and 240 voltage markings
- Approved to VDE, CSA and SEMKO

**Dimensions (mm)**

- Body: L=14.3, Panel cut-out=12.75 dia, Bezel: Round=15.9 dia, Square=15.9 x 15.9,
- Keyway=2.54 x 1.25, Tabs L=7.9, W=2.8

**Switch Function Marking List No.**

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+ 25+ 100+ 500+ 2500+</td>
<td></td>
</tr>
</tbody>
</table>

#### Switches

- Round: 148-2880
- Square: 150-3620

### Ultraminiature Rocker and Lever

0.4 VA @ 20V ac or dc

- Rocker and Lever actuator styles available
- Black actuators
- Gold plated copper alloy contacts
- Glass filled nylon body, UL 94V-0 Rated

**Dimensions (mm)**

- Body: L=14.3, Panel cut-out=12.75 dia, Bezel: Round=15.9 dia, Square=15.9 x 15.9,
- Keyway=2.54 x 1.25, Tabs L=7.9, W=2.8

**Switch Function Marking List No.**

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+ 25+ 100+ 500+ 2500+</td>
<td></td>
</tr>
</tbody>
</table>

### Rocker Switches

- Rocker and Lever actuator styles available
- Black actuators
- Gold plated copper alloy contacts

**Dimensions (mm)**

- Body: L=14.3, Panel cut-out=12.75 dia, Bezel: Round=15.9 dia, Square=15.9 x 15.9,
- Keyway=2.54 x 1.25, Tabs L=7.9, W=2.8

**Switch Function Marking List No.**

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+ 25+ 100+ 500+ 2500+</td>
<td></td>
</tr>
</tbody>
</table>

### Miniature, Sealed PCB

8.4VA max. @ 20V ac/dc

- Gold plated contacts for low level switching
- Mounting bracket solders directly to PCB
- Process sealed to withstand machine soldering and pressure wash cleaning
- Anti-static rocker

**Contact Resistance**

- 0.4VA max. @ 20V ac or dc

**Insulation Resistance**

- <10M ohm

**Rating**

- 501416

**Panel Mounting**

- L=14.3, Panel cut-out=12.75 dia, Bezel: Round=15.9 dia, Square=15.9 x 15.9,
- Keyway=2.54 x 1.25, Tabs L=7.9, W=2.8

**Price Each**

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+ 25+ 50+ 100+ 500+</td>
<td></td>
</tr>
</tbody>
</table>
### Rocker Switches - continued

#### Miniature

4A @ 250V ac or 10(6) @ 250V ac

- **Compact range of rocker switches**
- **Fit standard panel cut-out**

**Mechanical Life**: >100000 ops

**Rating**: 16A @ 250V ac

**Price Each**

<table>
<thead>
<tr>
<th>Rating</th>
<th>Nftr.</th>
<th>Order Code</th>
<th>1+</th>
<th>25+</th>
<th>100+</th>
<th>250+</th>
</tr>
</thead>
<tbody>
<tr>
<td>4A @ 250V ac</td>
<td>SPST</td>
<td>MC36328-001-01</td>
<td>956-2257</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DPST</td>
<td>MC36328-011-01</td>
<td>956-2250</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DPST</td>
<td>MC83181-011-01</td>
<td>956-2276</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DPST</td>
<td>MC83181-011-02</td>
<td>956-2281</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Price Each**

<table>
<thead>
<tr>
<th>Non-Illuminated</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>4A @ 250V ac</td>
<td>1+ 25+ 100+ 250+</td>
</tr>
</tbody>
</table>

#### Miniature - CWSC Series

9A @ 125V ac or 6A @ 250V ac

- **Full face LED illumination**
- **Interior shield prevents contamination of rocker**
- **Front panel snap-in mounting**
- **Snap action gives smooth action and audible feedback**
- **Solder lug/quick connect terminals**
- **LED supply accessed by two separate terminals**

**Bezel = 21.3 x 15.5mm, Panel cut-out = 19.2 x 12.9mm**

**Price Each**

<table>
<thead>
<tr>
<th>Non-Illuminated</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>4A @ 250V ac</td>
<td>1+ 25+ 100+ 250+</td>
</tr>
</tbody>
</table>

#### Miniature - 8600 Series

6(1)A @ 250V ac (SPST Momentary, SPDT, DPST Illuminated, DPST) 10(4)A @ 250V ac (SPST, DPST)

- **Single pole**
- **Double pole**

<table>
<thead>
<tr>
<th>Single pole</th>
<th>Double pole</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bezel=21 x 15, Depth=19, Panel cut-out=19.3 x 13, Tab=4.8 x 0.8</td>
<td>Bezel=24 x 21, Depth=19, Panel cut-out=19.3 x 21.9, Tab=4.8 x 0.8</td>
</tr>
</tbody>
</table>

**Approved to BEAB, VDE, SEKMO, SEMKO, NEMKO, SEMKO, KEMA, SETI, UTE, OVE and CSA, UL recognised**

**Momentary type has push-to-make spring return action**

**Illuminated type available with coloured illuminated rocker**

**Price Each**

<table>
<thead>
<tr>
<th>Single pole</th>
<th>Double pole</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+ 25+ 100+ 250+</td>
<td>1+ 25+ 100+ 250+</td>
</tr>
</tbody>
</table>

#### Miniature Rocker Switches

16A @ 125V ac or 16A @ 250V ac

- **For high current switching**
- **Available with vertical or horizontal marking**
- **Dust & waterproof construction**
- **1 to 2.8mm panel thickness (2mm with rubber cap)**
- **Easy to mount by snap fitting**
- **UL Recognised**

**Bezel = 24 x 17mm, Depth = 2mm**

**Body = 21.5 x 25.8 x 14.8mm**

**Rating**

<table>
<thead>
<tr>
<th>Rating</th>
<th>Non-Illuminated</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>16A @ 125V ac</td>
<td>1+ 25+ 100+ 250+</td>
<td></td>
</tr>
<tr>
<td>16A @ 250V ac</td>
<td>1+ 25+ 100+ 250+</td>
<td></td>
</tr>
</tbody>
</table>

**Price Each**

<table>
<thead>
<tr>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+ 25+ 100+ 250+</td>
</tr>
</tbody>
</table>

#### Accessories

- **ARW-RUBBER CAP**

**Rocker Switches - continued**
Miniature Rocker Switches - DPDT

4A @ 250V ac

- Illuminated rocker switches
- Different lamp variants
- Powerful with 50000 mechanical switching cycles
- Caulked terminals for reliable plugging of the receptacles
- Terminal type: Quick connector

Size: H 21 x W 15 x D 23.5

Contact resistance < 100mΩ
Insulation resistance > 100MΩ
Protection type IP 40
Temperature -20°C to +85°C (terminal side)
-20°C to +55°C (actuating side)
Flammability UL 94 V-2
Material PA (Actuator)
PA (Housing)
Silver plated (Terminals)
Plug force of the terminals ≤ 80N

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Actuator</th>
<th>Colour</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1855.1102-00</td>
<td>Red</td>
<td>183-34920</td>
<td></td>
</tr>
<tr>
<td>1855.1104-00</td>
<td>Yellow</td>
<td>183-34930</td>
<td></td>
</tr>
<tr>
<td>1855.1108-00</td>
<td>Green</td>
<td>183-34940</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>List No.</th>
<th>Colour Legend</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>617691</td>
<td></td>
<td>183-11120</td>
</tr>
</tbody>
</table>

Rockerswitches 6A @ 250Vac

- Reliable leaf spring contact system with contact spacing ≥ 3mm
- Contact Configuration: SPST
- Actuator color: Black

Size: H 21 x W 9.5 x D 22.5

Contact resistance < 100mΩ
Insulation resistance > 100MΩ
Protection type IP 40
Temperature -20°C to +85°C (connection side)
-20°C to +55°C (actuating side)
Flammability UL 94 V-2
Material PA / PC (Actuator)
PA (Housing)
Silver plated (Connections)
Plug force of the terminals ≤ 80N

<table>
<thead>
<tr>
<th>Mfrs. List No.</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1855.11120-00</td>
<td>183-11120</td>
</tr>
</tbody>
</table>

Miniature Rocker Switches

10A @ 250V ac

- Non-Illuminated rocker switch
- Powerful with inrush currents (capacitive) up to 100 A
- Immediately self-extinguishing due to UL 94 V-0 material
- Conformant acc. to EN 60065 par. 14.6

<table>
<thead>
<tr>
<th>Mfrs. List No.</th>
<th>Type</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1855.1102-01</td>
<td>Quick Connect</td>
<td>183-34940</td>
</tr>
<tr>
<td>1855.1103-01</td>
<td>Quick Connect</td>
<td>183-34970</td>
</tr>
<tr>
<td>1855.4205-01</td>
<td>PCB</td>
<td>183-34980</td>
</tr>
</tbody>
</table>

Price Each

<table>
<thead>
<tr>
<th>1 +</th>
<th>100+</th>
<th>250+</th>
<th>500+</th>
<th>1K+</th>
</tr>
</thead>
</table>

Contact resistance < 100mΩ
Insulation resistance > 100MΩ
Protection type IP 40
Temperature -20°C to +105°C
Flammability UL 94 V-2
Material PA (Actuator)
PA (Housing)
Silver plated (Terminals)
Plug force of the terminals < 80N

<table>
<thead>
<tr>
<th>Mfrs. List No.</th>
<th>Colour Legend</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1831.34920-02</td>
<td>Black</td>
<td>183-111100</td>
</tr>
<tr>
<td>1834.34920-02</td>
<td>Black</td>
<td>183-111100</td>
</tr>
<tr>
<td>1852.3372-01</td>
<td>Black</td>
<td>183-111100</td>
</tr>
</tbody>
</table>

Non-Illuminated - DPDT

<table>
<thead>
<tr>
<th>Mfrs. List No.</th>
<th>Colour</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>1855.3112-01</td>
<td>Red</td>
<td>183-111140</td>
</tr>
<tr>
<td>1855.3118-01</td>
<td>Green</td>
<td>183-111150</td>
</tr>
</tbody>
</table>
Rocker Switches - continued

Standard - 40 Series Single pole, 50 Series Double pole

- Standard Range of Rocker Switches available in single and double pole
- CSA approved, UL Recognised
- Single pole has VDE approved

Single pole bezel=30 x 13.9 Depth=29.6 Tabs=6.3
- Cut-out: 14 mm panel (min) 27.3 x 12.2
- 3mm panel (max) 27.5 x 13.2
- Double pole bezel=21 x 15 Depth=27.7 Tabs=6.3
- Cut-out: 19 mm panel (min) 27.7 x 22.3 3mm panel (max) 27.7 x 22.3
- Mechanical Life >100000 ops
- Insulation Resistance >50000M
- Operating Temperature 0°C to +85°C
- Contact Resistance 3mohm

Switch List
- SPST
- DPDT Centre Off

Order Code
- Mftrs. List No.
- Colour
- Price Each

Electromechanical

Dielectric Strength 3.5KV ac
Mechanical Life
- Operating Temperature 0°C to +85°C (high rush)
- Contact Resistance 20mohm

Switch List
- Mftrs. List No.
- Colour
- Price Each

Latching Action - RSS and RSM Series

10A @ 250V ac

- Compact range of rocker switches
- Sealed to IP40, IP65 with transparent cover
- Fit standard panel cut-out
- VDE Approved, UL Recognised
- Snap in mounting
- Switching Capacity (UL 1054)
- Switching Capacity (EN 60745-1)
- Mechanical Life
- Operating Temperature (max.)
- Contact opening
- Dimensions H x W x D (body) L x W x D (panel cut-out) Terminal Type
- Creeping current resistance PTI 250
- Sealed to IP40, IP65 with transparent cover

Switch List
- Mftrs. List No.
- Colour
- Price Each

Electrical Life
- Insulation Resistance >MR
- Mechanical Life
- Operating Temperature 0°C to +85°C

Switch List
- Mftrs. List No.
- Colour
- Price Each

Standard - 1500 Series

16/4A @ 250V ac

- ISO 242-822
- 242-824
- 624074

- BS3955, VDE, SEV, DEMKO, NEMKO, OVE and CSA, UL recognised

Approved to BS3955, VDE, SEV, DEMKO, NEMKO, OVE and CSA, UL recognised

Electrical Life
- Insulation Resistance >MR
- Mechanical Life
- Operating Temperature 0°C to +85°C

Switch List
- Mftrs. List No.
- Colour
- Price Each

Non-Illuminated (Curved Rocker)

SPST Black 150-519
- 25+ 100+ 250+

SPST White 150-520
- 25+ 100+ 250+

SPDT Black 150-530
- 10Mohm

SPDT White 150-531
- 10Mohm

Illuminated (Curved Rocker)

SPDT, red Black 150-529
- 10Mohm

SPDT, red White 150-530
- 10Mohm

SPDT, green Black 150-531
- 10Mohm

SPDT, green White 150-532
- 10Mohm

Illuminated, High Brightness (Flat Rocker)

SPST, red White 150-535
- 537-942

SPLashproof

SPST, red illumination 723-891
- 537-900

Non-Illuminated

SPST Off-On 150-549
- 10Mohm

SPST On-Off 480-381
- 10Mohm

SPDT On-On 150-536
- 10Mohm

SPDT On-Off 150-537
- 10Mohm

SPDT Off-On 150-538
- 10Mohm

SPDT Off-Off 767-4210
- 10Mohm

Illuminated

SPST On-On 151-574
- 150-571

SPST Off-On 311-6888
- 160-572

SPST Off-Off 767-4210
- 150-576

SPDT On-On 150-556
- 160-557

High Inrush, with I/0 marking

SPST Off-On 242-822
- 242-824

SPDT Off-On 524-942
- 524-942

Standard - ‘Softline’ Series

10(3)A 250V ac, 16A to 24V dc (Standard Versions)

16(4)A 250V ac, 150A Inrush (High Inrush Versions)

- Ergonomic design and appearance
- Illuminated types available with either coloured illuminated rocker or coloured neon light on rocker (illumination requires 230Vac)
- Double pole on/off types feature contact gap greater than 3mm suitable for mains applications
## Standard - 1350 Series, High Inrush Positive Break
16(4)A @ 250V ac, 150A Inrush

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bezel</td>
<td>32 x 25 x 9.2, Panel cut-out = 30.7 x 22.2. Tab = 6.3 x 0.8</td>
</tr>
<tr>
<td>Provides additional security against accidental operation</td>
<td>Yes</td>
</tr>
<tr>
<td>Standard double pole rocker switch</td>
<td>Yes</td>
</tr>
<tr>
<td>Illuminated and non-illuminated versions</td>
<td>Yes</td>
</tr>
<tr>
<td>Approvals: UL &amp; CSA (20A, 250Vac), ENEC (16(4)A, 250Vac)</td>
<td>Yes</td>
</tr>
<tr>
<td>Initial inrush current</td>
<td>150A to EN61058-1</td>
</tr>
<tr>
<td>Electrical Life</td>
<td>10000 ops</td>
</tr>
<tr>
<td>Mechanical Life</td>
<td>50000 ops</td>
</tr>
</tbody>
</table>

### Non-Illuminated

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Price Each</th>
</tr>
</thead>
</table>
| DPST       | Black                | 1932.3111-
|            | 01                   | 149-901    |
| DPST, I/O marking | Red        | 1932.3111-
|            | 01                   | 521-954    |

### Illuminated

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Price Each</th>
</tr>
</thead>
</table>
| DPST, red  | Black                | 1932.3111-
|            | 01                   | 149-902    |
| DPST, amber | Green               | 1932.3111-
|            | 01                   | 149-903    |
| DPST, green | Black                | 1932.3111-
|            | 01                   | 149-904    |
| DPST, I/O marking, red | Black | 1932.3111-
|            | 01                   | 521-966    |
| DPST, I/O marking, green | Black | 1932.3111-
|            | 01                   | 521-976    |

### Splashproof

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Price Each</th>
</tr>
</thead>
</table>
| DPST, non-illuminated | Black         | 1932.3111-
|            | 01                   | 733-800    |
| DPST, non-illuminated | Green         | 1932.3111-
|            | 01                   | 480-356    |
| DPST, red illumination | Black       | 1932.3111-
|            | 01                   | 480-364    |
| DPST, green illumination | Black      | 1932.3111-
|            | 01                   | 480-370    |

## Splashproof - 6000 Series
16(4)A @ 250V ac - ENEC, 20A @ 277V ac - UL/CSA

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approved to ENEC and CSA, UL recognised</td>
<td>Yes</td>
</tr>
<tr>
<td>Double pole switches printed with I/O marking</td>
<td>Yes</td>
</tr>
<tr>
<td>Splashproof to IP44</td>
<td>Yes</td>
</tr>
<tr>
<td>High in-rush capability: 150A to EN61058-1</td>
<td>Yes</td>
</tr>
<tr>
<td>Insulation Resistance: MR</td>
<td>Yes</td>
</tr>
<tr>
<td>Operating Temp: 0°C to +125°C</td>
<td>Yes</td>
</tr>
<tr>
<td>Contact Resistance: 10mohm</td>
<td>Yes</td>
</tr>
<tr>
<td>Electrical Life: 10000 ops</td>
<td>Yes</td>
</tr>
<tr>
<td>Mechanical Life: 50000 ops</td>
<td>Yes</td>
</tr>
<tr>
<td>Double Pole: Bezel = 31.25 x 25, Depth = 30, Panel Cutout = 30 x 22.1, Tab = 6.3 x 0.8</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Mftrs. List No.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C0053ALNAE=767-4155</td>
<td>SPST Black</td>
</tr>
<tr>
<td>C0053ALNAE=767-4171</td>
<td>SPST Green</td>
</tr>
</tbody>
</table>

## Sealed - IP68
16A @ 28Vdc, 10A @ 120Vac

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sealed to IP68 withstands direct waterspray without the need for a cover</td>
<td>Yes</td>
</tr>
<tr>
<td>UV and solvent resistant</td>
<td>Yes</td>
</tr>
<tr>
<td>Withstands extreme shock and vibration</td>
<td>Yes</td>
</tr>
<tr>
<td>Switches up to 16A</td>
<td>Yes</td>
</tr>
<tr>
<td>Rear seal with potted contacts</td>
<td>Yes</td>
</tr>
<tr>
<td>Black rocker, black bezel with 1-0 legend option</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Mftrs.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>113-8733</td>
<td>DPST Black K1ABAAAAAR</td>
</tr>
<tr>
<td>113-8773</td>
<td>DPST Black K2ABHAAAAR</td>
</tr>
</tbody>
</table>

## Rocker Switches - IP65
20A@250Vac

### Mftrs.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>347638/405389</td>
<td>TOOT Controls</td>
</tr>
</tbody>
</table>

## Standard - 1350 Series Rocker Switch with Guard
16(4)A, 250Vac, 150A Inrush

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bezel</td>
<td>32 x 25 x 9.2, Panel cut-out = 30.7 x 22.2, Tab = 6.3 x 0.8</td>
</tr>
<tr>
<td>Provides additional security against accidental operation</td>
<td>Yes</td>
</tr>
<tr>
<td>Standard double pole rocker switch</td>
<td>Yes</td>
</tr>
<tr>
<td>Illuminated and non-illuminated versions</td>
<td>Yes</td>
</tr>
<tr>
<td>Approvals: UL, CSA, ENEC (16(4)A, 250Vac)</td>
<td>Yes</td>
</tr>
<tr>
<td>Initial inrush current</td>
<td>150A to EN61058-1</td>
</tr>
<tr>
<td>Electrical Life</td>
<td>10000 ops</td>
</tr>
<tr>
<td>Mechanical Life</td>
<td>50000 ops</td>
</tr>
</tbody>
</table>

### Non-Illuminated

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Price Each</th>
</tr>
</thead>
</table>
| Guard      | Black                | 1932.3111-
|            | 01                   | 175-8735   |
| Cover      | Black                | 1932.3111-
|            | 01                   | 175-8736   |

### Illuminated

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Price Each</th>
</tr>
</thead>
</table>
| Red Guard  | Black                | 1932.3111-
|            | 01                   | 175-8736   |
| Red Cover  | Black                | 1932.3111-
|            | 01                   | 175-8739   |
| Green Guard | Black                | 1932.3111-
|            | 01                   | 175-8740   |
| Green Cover | Black                | 1932.3111-
|            | 01                   | 175-8741   |

## Sealed - IP68

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>OTTO Controls</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Mftrs.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1934.3114-02</td>
<td>Black K1ABAAAAAR</td>
</tr>
<tr>
<td>1934.3114-02</td>
<td>Black K2ABHAAAAR</td>
</tr>
</tbody>
</table>

## Double Pole Options

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Snap in panel mount rocker switches to IP68</td>
<td>Yes</td>
</tr>
<tr>
<td>6.35mm Faston terminals</td>
<td>Yes</td>
</tr>
<tr>
<td>Cut out 44 x 22mm</td>
<td>Yes</td>
</tr>
<tr>
<td>Double pole options in ST, DT, momentary and illuminated</td>
<td>Yes</td>
</tr>
<tr>
<td>UL recognised</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Bezel = 32.5 x 48.0, Depth = 48.48 (inc. tabs), Panel Cutout = 22 x 43, Tab = 6.3 x 0.8
Sealed - IP68 - continued

20(15)A @ 28 Vdc, 16A @ 110Vdc - continued

<table>
<thead>
<tr>
<th>Mfrs. List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPST</td>
<td>113-8769</td>
<td>1+ 25+ 50+</td>
</tr>
<tr>
<td>DPDT</td>
<td>113-8767</td>
<td>1+ 25+ 50+</td>
</tr>
<tr>
<td>DPST</td>
<td>113-8768</td>
<td>1+ 25+ 50+</td>
</tr>
<tr>
<td>Seal Gasket</td>
<td>113-8788</td>
<td>1+ 25+ 50+</td>
</tr>
</tbody>
</table>

Standard - H11/21 Series
16(4)A @ 250V ac

<table>
<thead>
<tr>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+ 25+ 50+</td>
</tr>
</tbody>
</table>

Illuminated, Non-Illuminated

<table>
<thead>
<tr>
<th>Colour</th>
<th>Mfrs. List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>273-211</td>
<td>1+ 25+ 50+</td>
<td></td>
</tr>
<tr>
<td>Red</td>
<td>273-247</td>
<td>1+ 25+ 50+</td>
<td></td>
</tr>
<tr>
<td>Green</td>
<td>521-930</td>
<td>1+ 25+ 50+</td>
<td></td>
</tr>
</tbody>
</table>

Dielectric Strength 3.5kV
Insulation Resistance @ 500VDC
Flammability UL 94V-2

Antimicrobial High Inrush Rocker

1300 Series
16(4)A @ 250VAC

- Uses BioCote® silver ion technology, providing antimicrobial properties
- Designed for 30x11 and 30x22 cut outs
- High inrush current capability - 150A
- Silver contacts with positive breaking switching action
- Recommended for use in Class II equipment
- 15mm marking
- Connection by 6.3mm x 0.8mm blade terminals
- 50,000 operation electrical life

Contact ratings
- 20A @ 250V
- 125V, 150A

Contact resistance
- 20mOhm
- Operating temperature max 85°C

Contact material
- 150A
- Black

Price Each
- 1+ 25+ 50+
Antimicrobial Rocker
1500 Series

16(4)A @ 250VAC

- Uses BioCote® silver ion technology, providing antimicrobial properties
- Designed for 30x11 and 30x22 cut outs
- Silver alloy contacts
- 85°C maximum operating temperature
- Connection by 6.3mm x 0.8mm blade terminals
- 10,000 operation electrical life
- 230VAC supply voltage for illuminated switches
- Approvals: ENEC, UL, CSA

Contact rating 16A @ 250VAC
Contact resistance
Contact insulation resistance

Switch Mfrs. Order Code Price Each
On-Off C1500DAAAB 206-8581
On-(Off) C1500DAABB 206-8582
(On)-Off-(On) C1522DAAAB 206-8584

DPST
On-Off C1560DAAAB 206-8585
On-(Off) C1561DAAAB 206-8586
(On)-Off-(On) C1522DAAAB 206-8588

Illuminated (On-Off)
Red C1553PLNAAB 206-8589
Green C1553PLNACB 206-8590

Antimicrobial Rocker Switches
6000 Series

16(10)A @ 250VAC

- Uses BioCote® silver ion technology, providing antimicrobial properties
- Double pole high inrush rocker switches with splashproof construction to IP44 which protects current carrying switch parts
- 3mm contact gap
- Oil marking
- Silver alloy contacts
- Connection by 6.3mm x 0.8mm blade terminals
- O/I marking

Contact rating 16A @ 250VAC / 10A @ 400V
Contact resistance

Switch Mfrs. Order Code Price Each
SPST
On-Off C6005AAAB 206-8577
On-(Off) C6005ABAB 206-8577B

DPST
On-Off C6015AAAB 206-8579
On-(Off) C6015ABAB 206-8579B

Illuminated (DPST)
Red C6035AAAB 206-8579C
Green C6035ACAB 206-8579D

Antimicrobial Miniature Rocker Switches
8500 Series

10A @ 250VAC

- Uses BioCote® silver ion technology, providing antimicrobial properties
- Oil marking
- Silver contacts
- Inrush rating: 85A to EN61085-01
- Temperature range: 0°C to 125°C
- Connection by 4.8mm x 0.8mm blade terminals

Contact configuration DPST
Contact rating 10A @ 250VAC
Contact resistance >100mohm

Dielectric strength (between poles) >1500V

Antimicrobial Splashproof Covers

- Uses BioCote® silver ion technology, providing antimicrobial properties
- Offers protection against moisture, grease and dust to panel mounted rocker switches
- Suitable for use with miniature illuminated rocker switches, curved rocker switches and mini Visi rocker switches

Also suitable for 8300 and 8500 antimicrobial switches

Front/Rear Panel Mount - C1250 AN/AP
10(6)A @ 240V ac

- Double pole on-off switch with 1/O markings
- Designed for front/rear snap fit panel mounting
- Particularly suited to equipment with removable front panels
- 230VAC supply voltage for illuminated switches

Initial inrush current 75A to 85A
Electrical Life 10000 ops
Contact Resistance 100mohm

Price Each

Non-illuminated - DPST
On-Off 480-344
Contact Mfrs. Price Each
Actuator

Red H8508VBNACB
Green H8508VBNAB

On (On)-Off-On 481-087
Panel cut-out=27.2 x 12.4 (snap-in fitting)
Panel thickness=0.75/1.25, Tab=6.3 x 0.8

- Double pole on-off switch with 1/O markings
- Suitable for Class II appliances
- Approvals include VDE, SEV, SEMKO, NEMKO, SETI, OVE, KEMARKUS and CSA, UL recognised

Initial inrush current 75A to IEC60950
Electrical Life 10000 ops
Contact Resistance ≤10mohm

Price Each

Transmission of the terminals
Plug force of the terminals ≤80N

- Contact resistance ≤100mohm
- Insulation resistance >100MΩ
- Temperature -20°C to +100°C (terminal side)
- -20°C to +55°C (actuating side)
- Flammability UL 94 V-2
- UL 94 V-0
- Material PA / PC (Actuator)
- PA / PC (Housing)

- Two housing variants
- Excellent actuating characteristic
- Illuminated and non-illuminated variants
- Quick connect terminal

Size: H 31.5 x W 14 x D 29.1

- 100 million times proven switching principle
- Mechanical life endurance up to 1 million switching cycles
- Suitable for use with Single Pole
- For use with Double Pole

Protection Cap
203.731.011-00
203.201.011-00

Press Force (N)
2683
Rocker Switches - continued

**NEW**

**Rocker Switches 16A@250Vac**

<table>
<thead>
<tr>
<th>Contact resistance</th>
<th>&lt; 100 ms2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulation resistance</td>
<td>&gt; 100 ms2</td>
</tr>
<tr>
<td>Protection type</td>
<td>IP 40</td>
</tr>
<tr>
<td>Temperature</td>
<td>-20°C to +100°C (connection side)</td>
</tr>
<tr>
<td>-20°C to +55°C (actuating side)</td>
<td></td>
</tr>
<tr>
<td>Flammability</td>
<td>UL 94 V-2</td>
</tr>
<tr>
<td>Material</td>
<td>PA (Actuator)</td>
</tr>
<tr>
<td>- PA (Housing)</td>
<td></td>
</tr>
<tr>
<td>Plug force of the terminals</td>
<td>≤ 80N</td>
</tr>
</tbody>
</table>

- Snap-in mounting
- Oval shaped bezel
- Sculptured rocker surface
- Black nylon frame and base
- Solder lug terminal, brass with silver plating
- 15mm panel cutout
- 0.75 to 3mm panel thickness

**Rocker - Voltage Loss Protection 16 A @ 230 V ac**

A new type of manually operated switch. An electromagnetic sets the switch when turned on. If for any reason voltage loss occurs then the power is tripped out. The switch must then be manually re-set before power can be restored, preventing inadvertent re-start.

**VDE and UL recognised**

- Mftrs. Actuator
- Standard rocker
- Standard rocker (Aux contact)
- Seal Protection kit

**Reset Rocker Switch A8G Series**

- 20A @ 250V ac (Non-inductive resistive load)
- 10A @ 250V ac (Non-inductive lamp load)
- 8A @ 250V ac (Inductive load)
- 8A @ 250V ac (Inductive motor load)

**Rocker Switches 10A@250Vac**

<table>
<thead>
<tr>
<th>Contact resistance</th>
<th>&lt; 100 ms2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulation resistance</td>
<td>&gt; 100 ms2</td>
</tr>
<tr>
<td>Protection type</td>
<td>IP 40</td>
</tr>
<tr>
<td>Temperature</td>
<td>-20°C to +100°C (terminal side)</td>
</tr>
<tr>
<td>-20°C to +55°C (actuating side)</td>
<td></td>
</tr>
<tr>
<td>Flammability</td>
<td>UL 94 V-2</td>
</tr>
<tr>
<td>Material</td>
<td>PA (Actuator)</td>
</tr>
<tr>
<td>- PA (Housing)</td>
<td></td>
</tr>
<tr>
<td>Plug force of the terminals</td>
<td>≤ 80N</td>
</tr>
</tbody>
</table>

- Energy-saving reset function triggered with external signals
- Incorporates unique switching mechanism switching 20 A with excellent inrush-current durability
- Double-pole, double-throw (DPDT) contact
- Contact gap of 3 mm minimum

**Rocker Switches 6A @ 125V ac, 3A @ 250V ac**

- Snap-in mounting
- Oval shaped bezel
- Sculptured rocker surface
- Black nylon frame and base
- Solder lug terminal, brass with silver plating
- 15mm panel cutout
- 0.75 to 3mm panel thickness

**Switches**

- 50mmho/m
- Temperature operating -20 to 65°C

**INTELLIGENT ONLINE BUYING SYSTEM PROVIDING**

Complete cost control, reduced administration time, visibility of your spend, flexibility and personalised to your company's needs.

farnell.com/buy
Round Rocker Switches
12A@250Vac

- Attractive round rocker switch
- High mechanical rating with at least 100000 switching cycles
- Low depth with 18.7mm
- Appliance cut-out with 20mm

Contact resistance < 100mQ
Insulation resistance > 100M
Protection type IP 40
Temperature -20°C to +100°C (terminal side)
-20°C to +55°C (actuating side)
Plug force of the terminals ≤ 80N

Material PA (Actuator)
Flammability UL 94 V-2
Forced Life ops > 1 million cycles
Dust and moisture ingress protection (gas tight)

Price Each
Mfrs. List No. Colour Legend Order Code 1+ 25+ 50+ 100+

Non-Illuminated - SPST
Black R13-112A-02-BB-0A 163-4642
White R13-112F-02-BB-0A 163-4643
Red R13-112B-02-BB-0A 163-4641

Non-Illuminated - DPST
Black R13-244A-02-BB-0A 163-4659
White R13-244A-02-BG-0A 163-4660
Red R13-244A-02-BR-0A 163-4650

Illuminated
Black Red R13-112B-02-RR-0A 163-4657
Black Green R13-112B-02-BG-0A 163-4658
Black Red LED R13-112B-02-BR-0A 163-4659
Black Green LED R13-112B-02-BG-0A 163-4660

IP65 Sealed
Black Red R13-244A5-02-RR-0A 163-4661
Black Green R13-244A5-02-BG-0A 163-4662

Switches
MR-R Series - Illuminated Round Rockers
8A @ 250V ac

- Attractive circular rocker design
- Choice of red and green illuminated, black and white non-illuminated and red spot illuminated
- Non-illuminated versions printed with I/O marking (except momentary version)
- Single and double pole configurations
- Snap fixing into panel thickness ≤3mm
- Approvals include VDE, SEV, DEMKO, NEMKO, SETI and CSA.
- UL recognised
- Maximum Working Temperature +85°C
- Operating Temperature -20°C to +85°C Contact Resistance 100mohm
- Dielectric Strength 1500VAC
- Insulation Resistance @ 500VDC

Price Each
Mfrs. List No. Colour Legend Order Code 1+ 25+ 50+ 100+

Non-Illuminated Switch - 250V ac @ 6A
SPST Black, I/O 186-764
SPST Black, I/O 767-4082
DPST Black, I/O 767-4090

Illuminated - 250V ac @ 6A
SPST Red 186-776
SPST Green 767-4074
DPST Red 767-4104

LED Illuminated - 12/24V dc @ 10A
SPST Black 396-6781

Rocker Switches
16A @ 125V ac, 10A @ 250V ac

- Accessory for wiring harnesses
- Choice of three colours: black, illuminated green, red and illuminated green
- Coloured actuators are printed with 0/I legend, black actuator is plain
- Approved to CSA, UL, VDE, SEMKO, DEMKO, NEMKO, FIMKO, SEV

- Double Pole
- Snap-in mounting
- Constructed from Nylon 66 to UL94V-2
- Choice of three colours: black, illuminated green, red and illuminated green
- Electrical Life
- Operating Temperature
- Insulation Resistance
- Contact Resistance

Price Each
Mfrs. List No. Colour Legend Order Code 1+ 25+ 50+ 100+

Green MR210R1LG 108-2460
Red MR210R1LR 108-2461
Black MR210R1LB 108-2459

Switch Modules

The switch modules designed to be installed into front panels, multi-function grips or other switching units.

Types
- QS1 = Four K12 switches, one switching function per direction
- QS2 = Eight K12 switches, two switching functions per direction

Dimensions (LV/W/H)
- QS = 58.9 x 43 x 27.5mm
- Operating Life
- Operating Temperature
- Protection Level

Price Each
Mfrs. List No. Colour Legend Order Code 1+ 25+ 50+ 100+

Black MR210R1LB 108-2459
Switch Modules - continued

<table>
<thead>
<tr>
<th>Type</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>178-05710</td>
<td>33</td>
</tr>
<tr>
<td>G52</td>
<td>178-05760</td>
<td>33</td>
</tr>
</tbody>
</table>

Standard Details

- **Switch Type**: SPDT - Off-(On)
- **Order Code**: 200-8744
- **Price Each**: 1+ 25+ 50+ 100+ 250+

Sealed Sub-Miniature Pushbutton Switches

- **Switch Specifications**:
  - Switching capacity: 400mA @ 20V AC/DC
  - Mechanical life: 50000 Cycles
  - Contact resistance: 20mohm
  - Insulation resistance: 50000 Cycles
  - Dielectric strength: 1000V

- **Mfrs. List No.**:
  - MC8BS8MTRES
  - MC8BS9MTRES
  - MC8BS97RES

- **Order Code**:
  - 200-8744
  - 200-8745
  - 200-8746

Push Button Switches

**Sealed Ultraminiature Pushbutton Switches**

- **400 mA @ 20V AC/DC**

- **Switch Specifications**:
  - Switching capacity: 400mA @ 20V AC/DC
  - Mechanical life: 40000 Cycles
  - Contact resistance: 100mohm
  - Insulation resistance: 50000 Cycles
  - Dielectric strength: 1000V

- **Mfrs. List No.**:
  - MCB6S8MTRES
  - MCB6S9MTRES
  - MCB6S97RES

- **Order Code**:
  - 200-8744
  - 200-8745
  - 200-8746

**SMD Sealed Sub-Miniature Pushbutton Switches**

- **400mA @ 20V AC/DC**

- **Switch Specifications**:
  - Switching capacity: 400mA @ 20V AC/DC
  - Mechanical life: 50000 Cycles
  - Contact resistance: 20mohm
  - Insulation resistance: 1000V
  - Dielectric strength: 1000V

- **Mfrs. List No.**:
  - MCB6S8MTRES
  - MCB6S9MTRES

- **Order Code**:
  - 200-8747
  - 200-8748

Analog Rocker Switches

- **Integrated temperature compensation**
- **Contactless sensing - Hall effect**
- **One sensor - optional second sensor for redundancy**
- **Operating Temperature**
  - -35°C to 70°C
- **Rocker Deflection Angle**
  - ±30°
- **Contact life**
  - 3 million cycles
- **Short circuit protection**

**Analog Rockers** are developed to provide the reliability required in demanding environmental conditions such as multi-temperature grips, dashboards or armrest controls for heavy duty industrial applications. The unique sensing design makes the rocker module an ideal proportional function solution for ‘off-road’ machinery.
## Subminiature Washable, Momentary

**0.4VA @ 20V ac/dc**

- Vertical, single pole
  - H=17.75 (excl. pins), W=8.1, D=5.0 (108-2514=8.1)
- Right angle, single pole, horizontal mount
  - H=6.85, W=5.0, D=17.83

- Manufacturing from low voltage switching
- Gold plated copper contacts for low level switching
- Process sealed to withstand machine soldering and pressure wash cleaning
- Snap-acting

**Miniature, Microswitch Action**

**SPDT and DPDT - Momentary - 100mA @ 30V dc**

- Momentary snap-action for high precision and reliability
- Gold plated copper contacts for low level switching
- Panel mounting switches with solder lug terminals
- PCB mounting switch with right-angled terminals

### Subminiature Washable, Momentary

**0.4VA @ 20V ac/dc**

- Vertical, single pole
- Right angle, single pole, horizontal mount
- Right angle, single pole, vertical mount

- Manufacturing from polyester, UL recognised
- Totally sealed by O ring gasket inside the bushing
- Ideal for PCB designs, board washable, wave solderable
- Totally sealed by O ring gasket inside the bushing

### Miniature, Microswitch Action

**SPDT Momentary - Sealed**

**1A @ 120V ac/28V dc**

- Gold plated contacts for low level switching
- Mounting bracket soldiers directly to PCB
- Process sealed to withstand machine soldering and pressure wash cleaning
- Snap-acting

### SPNO and SPNC Momentary

**100mA @ 30V dc**

- SPNO and SPNC switches with either solder lug or PCB terminations
- Gold plated contacts allow low current switching
- Caps may be used without cap being fitted
- M4 sealing hood protects against moisture and dust ingress

---

### Technical Specifications

- **Initial Contact Resistance**
  - 10mΩ max
- **Dielectric Strength**
  - 1000V rms @ 50Hz
- **Operating Temperature**
  - -30°C to +75°C
- **Electrical Life**
  - 60000 ops
- **Insulation Resistance**
  - MR min

### Order Codes

- **Vertical**
  - SPST-NO, PCB 18235WCD3
  - DPDT, Solder lug 18545CD

- **Horizontal**
  - SPST-NC, Solder Lug 18235WCD3
  - DPDT, PCB 18545CD

---

**SPDT Momentary - Sealed**

**1A @ 120V ac/28V dc**

- Gold plated contacts for low level switching
- Mounting bracket soldiers directly to PCB
- Process sealed to withstand machine soldering and pressure wash cleaning
- Snap-acting
**Push Button Switches - continued**

**SPNO and SPNC Momentary - continued**

100mA @ 30V dc - continued

<table>
<thead>
<tr>
<th>Order Multiple</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order Multiple=1</td>
<td></td>
</tr>
<tr>
<td>Caps</td>
<td>10+ 30+ 100+ 250+</td>
</tr>
<tr>
<td>Black</td>
<td>108-2525</td>
</tr>
<tr>
<td>Green</td>
<td>108-2527</td>
</tr>
<tr>
<td>Red</td>
<td>108-2527</td>
</tr>
</tbody>
</table>

300mA @ 250V ac, 1A @ 30V dc (silver), 100mA @ 30V dc (gold)

- SPNO and SPNO/SPNC (changeover) contacts
- Contacts either silver or gold plated
- Gold plated contacts allow low current switching
- Caps in 3 colours, 10mm dia.
- Switch may be used without cap being fitted

**SPNO and SPNO/SPNC Momentary**

<table>
<thead>
<tr>
<th>Order Multiple</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order Multiple=1</td>
<td></td>
</tr>
<tr>
<td>Switches</td>
<td>1+ 25+ 100+ 250+ 500+</td>
</tr>
<tr>
<td>SPST-NO, Silver</td>
<td>108-2344</td>
</tr>
<tr>
<td>SPST-NO, Gold</td>
<td>108-2345</td>
</tr>
<tr>
<td>SPST-NC, Gold</td>
<td>108-2347</td>
</tr>
<tr>
<td>Order Multiple=10</td>
<td></td>
</tr>
<tr>
<td>Caps</td>
<td>10+ 50+ 100+ 250+</td>
</tr>
<tr>
<td>Black</td>
<td>108-2522</td>
</tr>
<tr>
<td>Green</td>
<td>108-2523</td>
</tr>
<tr>
<td>Red</td>
<td>108-2524</td>
</tr>
</tbody>
</table>

**SPNO B3WN Series - Sealed**

- Unique double sealing construction ensures water tight and dust tight performance
- Ideal for humid environments
- Supplied on radial tape for automatic insertion process
- Above board height allows use where conformal coating is required
- Sealed to IP67

**SPNO Momentary**

1A @ 0.1 to 28V dc

Sub-miniature single pole push-to-make switch with red or black operating button.

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>422-2040</td>
</tr>
<tr>
<td>Black</td>
<td>422-2160</td>
</tr>
</tbody>
</table>

---

**FREE GLOBAL LEGISLATION SUPPORT**

RoHS, REACH, WEEE, ErP, Batteries Directive - latest updates, free white papers and live online Q&A at element14.com/legislation

---

**Push Button Switches - Momentary**

3A @ 125V ac, 1.5A @ 250V ac

- Buttons available in either black or red
- NO or NC versions available
- Plastic brass solder terminals

<table>
<thead>
<tr>
<th>Function</th>
<th>List No.</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPST-NO</td>
<td>R13-509A-05-BB</td>
<td>163-4682</td>
</tr>
<tr>
<td>SPST-NC</td>
<td>R13-509B-05-BB</td>
<td>163-4683</td>
</tr>
</tbody>
</table>

**Red Actuator**

- NO or NC versions available
- Nickel plated brass body

<table>
<thead>
<tr>
<th>Function</th>
<th>List No.</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPST-NO</td>
<td>R13-509A-05-BR</td>
<td>163-4684</td>
</tr>
<tr>
<td>SPST-NC</td>
<td>R13-509B-05-BR</td>
<td>163-4685</td>
</tr>
</tbody>
</table>

---

**Push Button Switches - Momentary**

6 x 5.6mm Button

- Black base
- Buttons available in either black or red
- Two button sizes available, 8 x 5.6 and 10 x 8.5mm

<table>
<thead>
<tr>
<th>Function</th>
<th>List No.</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPST-NO</td>
<td>R13-24A-05-BB</td>
<td>163-4670</td>
</tr>
<tr>
<td>SPST-NC</td>
<td>R13-24A-05-BB</td>
<td>163-4671</td>
</tr>
</tbody>
</table>

**Red Actuator**

- NO or NC versions available
- Nickel plated brass body

<table>
<thead>
<tr>
<th>Function</th>
<th>List No.</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPST-NO</td>
<td>R13-24B-05-BB</td>
<td>163-4672</td>
</tr>
<tr>
<td>SPST-NC</td>
<td>R13-24B-05-BB</td>
<td>163-4673</td>
</tr>
</tbody>
</table>

---

**Push Button Switches**

3A @ 125V ac, 1.5A @ 250V ac

- SPST with black body
- Black or coloured illuminated buttons
- Illuminated buttons are molded in PC
- Solder terminals are silver plated brass
- Snap-in mounting

<table>
<thead>
<tr>
<th>Function</th>
<th>List No.</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPST-NO</td>
<td>R13-24A-05-BB</td>
<td>163-4674</td>
</tr>
<tr>
<td>SPST-NC</td>
<td>R13-24B-05-BB</td>
<td>163-4675</td>
</tr>
</tbody>
</table>

---

**Push Button Switches**

3A @ 125V ac, 1.5A @ 250V ac

- Latching action

<table>
<thead>
<tr>
<th>Function</th>
<th>List No.</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>R13-548B-01-EB</td>
<td>163-4575</td>
</tr>
<tr>
<td>Green</td>
<td>R13-548B-05-EB</td>
<td>163-4576</td>
</tr>
</tbody>
</table>

---

**Latching Actuator**

- Black
- Red
- Green

---

**Contact Resistance 50mohm**

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Contact Resistance</th>
<th>Insulation Resistance</th>
<th>Dielectric Strength</th>
<th>Temperature operating</th>
</tr>
</thead>
<tbody>
<tr>
<td>12Vdc</td>
<td>50mohm</td>
<td>1500VDC</td>
<td>1000VAC</td>
<td>20 to 65°C</td>
</tr>
</tbody>
</table>

---

**FREE GLOBAL LEGISLATION SUPPORT**

RoHS, REACH, WEEE, ErP, Batteries Directive - latest updates, free white papers and live online Q&A at element14.com/legislation
The single switch module ESM and the double switch module DSM are ready-to-install single & double switch modules.

The rubber cap offers the possibility to use both switch modules under severe ambient conditions where dust, water, oil, solvents etc. can effect or destroy the function of standard switches. With the rubber cap the two modules are sealed to IP 65 when mounted.

The single switch module ESM and the double switch module DSM are ready-to-install units, consisting of:

- Switches: K12 (for both ESM or DSM) K12G (DSM only with two switching-points) PVA1HH (ESM only)

- PC board

- Rubber cap

- Optional cable or connector

- Applications

- Tractors

- Harvesting equipment

- Industrial controls

<table>
<thead>
<tr>
<th>Switch</th>
<th>Switch</th>
<th>Operating</th>
<th>Force</th>
<th>Cap</th>
<th>Terminal</th>
<th>Type</th>
<th>Legend</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>K12</td>
<td>1mm</td>
<td>SN</td>
<td></td>
<td>With</td>
<td>Cable</td>
<td></td>
<td></td>
<td>178-0564</td>
</tr>
<tr>
<td>K12G</td>
<td>1.5mm</td>
<td>3.5N</td>
<td></td>
<td>With</td>
<td>Cable</td>
<td></td>
<td></td>
<td>178-0565</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Single Switch Modules</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ESM K12 5 NC L130 -</strong></td>
</tr>
<tr>
<td><strong>K12G 1.5 3.5 N C L130</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Double Switch Modules</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DSM K12G 1.5 3.5 N C L130 PL FR</strong></td>
</tr>
</tbody>
</table>

**SPNO - 1100 Series**

0.125A @ 125V ac/45V dc

- Snap-in panel mounting
- Gold contacts
- Solder lug connection
- Insulation Resistance >100mΩ
- Insulation Type Class II
- Operating Life >50000 cycles
- Operating Temperature -20°C to +55°C

<table>
<thead>
<tr>
<th>Type</th>
<th>List No.</th>
<th>Order Code</th>
<th>1+</th>
<th>10+</th>
<th>25+</th>
<th>50+</th>
<th>100+</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Momentary</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>T110188</strong></td>
</tr>
</tbody>
</table>

**Pushbutton Switches**

16A @ 250Vac

- Illuminated and non-illuminated pushbutton switch
- Internal gasket for IP 54
- Proven jump contact switching system (double interrupting)
- Opening and closing speed independent of the actuating speed
- Product-dependent with external lamp connection

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Colour</th>
<th>Actuator</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1+</td>
<td>10+</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>25+</td>
<td>50+</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100+</td>
<td>100+</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Illuminated - DPST</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1660.0011-00</strong></td>
</tr>
<tr>
<td><strong>1660.0012-00</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Non-Illuminated - DPNO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1660.0011-00</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pushbutton Switches</th>
</tr>
</thead>
<tbody>
<tr>
<td>2A @ 250Vac</td>
</tr>
</tbody>
</table>

- Small, compact pushbutton switch
- Long life endurance with 500000 mechanical switching cycles
- Special design for dust and water protection

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Actuator</th>
<th>Colour</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1+</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>25+</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100+</td>
</tr>
</tbody>
</table>

**SPNO, SPNC and SPDT Momentary**

0.5A @ 250V ac, (SPDT 50V dc only)

- Switches have different coloured bases to identify them
- Vandal resistant actuator available, fits all switches
- Actuator screws on to front of switch (without normal fixing nut) and is internally and panel sealed to IP 66

<table>
<thead>
<tr>
<th>Mfrs. List No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>T0916GAAA - 140-690</strong></td>
</tr>
<tr>
<td><strong>T0917SAAA - 140-695</strong></td>
</tr>
<tr>
<td><strong>T0917SOAAB - 140-697</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Panel Cut-out</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>19.2 x 12.8</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Body</th>
</tr>
</thead>
<tbody>
<tr>
<td>19.2 x 13mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bezel</th>
</tr>
</thead>
<tbody>
<tr>
<td>21 x 15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contact Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>16A @ 250mA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Insulation Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>500VDC 3.5kV</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DPST - MC3310 Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>16(4)A @ 250 Vac</td>
</tr>
</tbody>
</table>

- Snap-in panel mounting
- 3mm contact gap
- 8mm Insulation spacing
- 4.8 x 0.8 push-on quick connect terminals
- VDE and ENEC Approvals, UL Recognised

<table>
<thead>
<tr>
<th>Bezel</th>
</tr>
</thead>
<tbody>
<tr>
<td>21 x 15</td>
</tr>
<tr>
<td>Body</td>
</tr>
<tr>
<td>19.2 x 12.8</td>
</tr>
<tr>
<td>Panel Cut-out</td>
</tr>
<tr>
<td>19.2 x 13mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>25.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tab</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.8 x 0.8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Insulation Class II</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Operating Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;500000 cycles</td>
</tr>
<tr>
<td>Operating Temperature</td>
</tr>
<tr>
<td>-20°C to +55°C</td>
</tr>
<tr>
<td>Flammability</td>
</tr>
<tr>
<td>UL 94 V-2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA (Actuator)</td>
</tr>
<tr>
<td>PA (Housing)</td>
</tr>
<tr>
<td>Copper (Terminals)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Plug force of the terminals</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤80N</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tractors</td>
</tr>
<tr>
<td>Harvesting equipment</td>
</tr>
<tr>
<td>Industrial controls</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Switch Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mfrs. Actuator</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>140-690</strong></td>
</tr>
<tr>
<td><strong>140-692</strong></td>
</tr>
<tr>
<td><strong>140-695</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>PA (Housing)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Colour &amp; Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+ 10+ 25+ 50+</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contact resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 100mΩ</td>
</tr>
<tr>
<td>Insulation resistance</td>
</tr>
<tr>
<td>&gt; 1000mΩ</td>
</tr>
<tr>
<td>Protection type</td>
</tr>
<tr>
<td>IP 54</td>
</tr>
<tr>
<td>Temperature</td>
</tr>
<tr>
<td>-20°C to +85°C (terminal side)</td>
</tr>
<tr>
<td>-20°C to +55°C (actuating side)</td>
</tr>
<tr>
<td>Flammability</td>
</tr>
<tr>
<td>UL 94 V-2</td>
</tr>
<tr>
<td>Material</td>
</tr>
<tr>
<td>PA (Actuator)</td>
</tr>
<tr>
<td>PA (Housing)</td>
</tr>
<tr>
<td>Copper (Terminals)</td>
</tr>
<tr>
<td>Plug force of the terminals</td>
</tr>
<tr>
<td>≤80N</td>
</tr>
</tbody>
</table>
**Push Button Switches - continued**

**Pushbutton Switches - continued**

*2A @ 250V ac - continued*

- Contact resistance: < 100mΩ
- Insulation resistance: > 100MΩ
- Protection type: IP 40
- Temperature: -20°C to +85°C (terminal side)
- Flammability: UL 94 V-2
- Plug force of the terminals: ≤ 80N

**Material**: PA (Actuator)

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Type</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1846.0201-01</td>
<td>183-0490</td>
<td>1+ 25</td>
<td>50 + 100 + 250</td>
</tr>
<tr>
<td>1846.2201-01</td>
<td>183-0491</td>
<td>1+ 10</td>
<td>25 + 50 + 100</td>
</tr>
</tbody>
</table>

**Pushbutton Switches 18A@250Vac**

- Million times proven, double lifting contact system
- High electrical rating up to 16 A
- High rating with 100000 mechanical switching cycles
- Illuminated and non-illuminated variants
- Quick connect terminal

**Contact resistance**: < 100mΩ

**Insulation resistance**: > 100MΩ

**Temperature**: -20°C to +100°C (connection side)

**Flammability**: UL 94 (actuator: V-0, socket: V-1, housing: V-2)

**Material**: PA (Actuator)

**Protection type**: IP 40

**Insulation resistance min. @ 500VDC**: > 1MΩ

**Contact resistance**: 50mΩ

**Mechanical life**: 1000000 Cycles

**Rating**: 2A @ 250VAC, 4A @ 48V DC (Screw terminals)

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Actuator</th>
<th>Colour</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1667.1101</td>
<td>Black</td>
<td>183-1122</td>
<td>1+ 25</td>
<td>50 + 100 + 250</td>
</tr>
<tr>
<td>1668.1101</td>
<td>Red</td>
<td>183-1125</td>
<td>1+ 25</td>
<td>50 + 100 + 250</td>
</tr>
</tbody>
</table>

**Non-Illuminated - SPST**

**Illuminated - SPST**

**Non-Illuminated - DPST**

**Illuminated - DPST**

**DPST-8300 Series 12(2)A @ 250 Vac**

- Non illuminated and illuminated versions available
- Snap-in panel mounting
- 3mm contact gap (suitable for class II appliances)
- 4.8 x 0.8 push on terminal connection
- Dielectric strength (between poles): 1500V
- Contact material: Ag Alloy
- Operating temperature max: 105°C
- Contact rating: 12A @ 250V
- Insulation resistance: > 20Mohm
- Contact resistance: 10Ω
- Contact material: Ag Alloy
- Operating temperature max: 105°C
- Dielectric strength: 1000V/kV

**Contact rating**: 12A @ 250V

**Insulation resistance**: > 20Mohm

**Contact resistance**: 10Ω

**Contact material**: Ag Alloy

**Operating temperature max**: 105°C

**Dielectric strength (between poles)**: > 1500V

**Case material**: Nylon 6.6

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>List No.</th>
<th>Colour</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>5000.0101-01</td>
<td>Grey</td>
<td>183-9500</td>
<td>1+ 10</td>
<td>25 + 50 + 100</td>
</tr>
<tr>
<td>5000.0103-01</td>
<td>Orange</td>
<td>183-9509</td>
<td>1+ 10</td>
<td>25 + 50 + 100</td>
</tr>
<tr>
<td>5000.0104-01</td>
<td>Black</td>
<td>183-9510</td>
<td>1+ 10</td>
<td>25 + 50 + 100</td>
</tr>
</tbody>
</table>

**With IP54 Sealing Cap**

- Round push button switch
- Efficient contact system at least 200000 mechanical switching cycles
- Variant with sealing cap for IP 54 dust and water protection
- Appliance cut-out with diameter 16 mm, alternatively with fixing pin
- Wall thickness: 1.4 to 1.7mm

**Protection type**: IP 40

**Temperature**: -20°C to +55°C (terminal side)

**Flammability**: UL 94 V-2

**Material**: PA (Housing)

**Operating temperature**: -20°C to +100°C (connection side)

**Material PA (Actuator)**

**Silver plated / tinned**

**Dielectric strength (between poles)**: 1500V

**Contact resistance**: 50mΩ

**Insulation resistance**: min. @ 500VDC

**Dielectric strength**: 1000V/kV

**Operating temperature**: -40°C to 85°C

**Contact rating**: 2A @ 250V

**Insulation resistance**: > 20Mohm

**Contact resistance**: 10Ω

**Contact material**: Ag Alloy

**Operating temperature max**: 105°C

**Dielectric strength (between poles)**: > 1500V

**Case material**: Nylon 6.6

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>List No.</th>
<th>Colour</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>617693</td>
<td>256-8569</td>
<td>Green</td>
<td>183-9509</td>
<td>1+ 10</td>
</tr>
<tr>
<td>613728</td>
<td>206-8568</td>
<td>Red</td>
<td>183-9510</td>
<td>1+ 10</td>
</tr>
</tbody>
</table>
Push Button Switches
10A @ 125V ac, 6A @ 250V ac

- SPST & DPST, momentary or latching action versions
- IP 56 alternatives available
- Black nylon frames, UL94V-2
- Screw terminal connections
- Positive tactile feedback
- Ideal for low level switching as well as up to 20 amp duty

Contact Configuration
Case Material: Black
Rating: 10A @ 28V dc or 115V ac
Operating Temperature: -55°C to 85°C
SP3T: MP13
SPNO Momentary: MP13

SPST Momentary: SP105/213070

Commercial Grade Push Button
10A @ 28V dc or 115V ac

- Button sealed with patented "rolling sleeve" principle
- Contact area sealed at button & terminals
- Less than 25mΩ contact resistance
- Ideal for low level switching as well as up to 20 amp duty
- Excellent actuating characteristic

Contact Configuration
Case Material: Black
Rating: 10A @ 28V dc or 115V ac
Operating Temperature: -55°C to 85°C
SP3T: MP13
SPNO Momentary: MP13

SPST Momentary: SP105/213070

Pushbutton Switches
6A @ 250V ac

- 100 million times proven switching principle with longer life endurance with 100,000 mechanical switching cycles
- Excellent actuating characteristic

Contact Resistance: < 100mΩ
Insulation resistance: > 100MΩ
Protection type: IP 40
Temperature: -20°C to +100°C (terminal side)
Flammability: UL 94-V2
Material: PA (Actuator)
Plug force of the terminals: ≤ 80N

<table>
<thead>
<tr>
<th>Mfrs. No.</th>
<th>Actuator</th>
<th>Illumination</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>188-2248</td>
<td>Black</td>
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<tr>
<td>183-9486</td>
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Electromechanical Switches

6291
Push Button Switches - continued

SPST Latching
10(6)A @ 250V ac

- Single pole 10A rated push button with latching action
- Approved to VDE, SEMKO, Dmko, NEMKO, SETI, BARE, KEMA, OVE, SEV, NF-USE, IMQ and CSA, UL recognised

H=20.5, W=23.2, D (behind panel, min.)=23.3
Panel cut-out=12.7 dia., Panel thickness=9.5 max.
Button dia.=6.0 T=4 dia. x 4.8

SPST Momentary - VAQ Series

- Caps in 3 colours, 10mm dia
- Solder terminals
- Momentary and latching types, single and double pole
- Initial Contact Resistance <10mΩ


SPDT and DPDT, Momentary and Latching
3A @ 250V ac, 4A @ 30V dc

- SPST Momentary - VAQ Series
- Solder terminals
- SPDT and DPDT, Momentary and Latching
- 10(4)A @ 250V ac

SPNO/SPNC Momentary 'Flexibutton'
5A @ 250V ac, 'Flameproof'

- IP67 protection to IEC 144/BSS420
- Iceproof to -40°C
- Positive tactile feel
- Flame retardant, UL recognised
- Choice of 6 button colours
- Mount into standard DIN 22.5mm hole or by re-versing locked into 25mm dia. hole
- Supplied with locknut and sealing washer

Push Button Switches
200mA @ 48V dc, 200mA @ 250V ac

- Electrical function: NO
- Illuminated and non-Illuminated
- Tactile feedback
- Flat round actuator for optional marking
- Sealed to IP67

Switch Specifications

<table>
<thead>
<tr>
<th>Contact resistance</th>
<th>Insulation resistance</th>
<th>Dielectric strength</th>
<th>Operating temperature</th>
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<tbody>
<tr>
<td>100mohm</td>
<td>min. @ 500VDC</td>
<td>1500Vrms</td>
<td>-40°C to 85°C</td>
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SPST Latching
10(6)A @ 250V ac

- Single pole 10A rated push button with latching action
- Approved to VDE, SEMKO, Dmko, NEMKO, SETI, BARE, KEMA, OVE, SEV, NF-USE, IMQ and CSA, UL recognised

H=20.5, W=23.2, D (behind panel, min.)=23.3
Panel cut-out=12.7 dia., Panel thickness=9.5 max.
Button dia.=6.0 T=4 dia. x 4.8

SPST Momentary - VAQ Series

- Caps in 3 colours, 10mm dia
- Solder terminals
- Momentary and latching types, single and double pole


SPDT and DPDT, Momentary and Latching
3A @ 250V ac, 4A @ 30V dc

- SPST Momentary - VAQ Series
- Solder terminals
- SPDT and DPDT, Momentary and Latching
- 10(4)A @ 250V ac

SPNO/SPNC Momentary 'Flexibutton'
5A @ 250V ac, 'Flameproof'

- IP67 protection to IEC 144/BSS420
- Iceproof to -40°C
- Positive tactile feel
- Flame retardant, UL recognised
- Choice of 6 button colours
- Mount into standard DIN 22.5mm hole or by re-versing locked into 25mm dia. hole
- Supplied with locknut and sealing washer

Push Button Switches
200mA @ 48V dc, 200mA @ 250V ac

- Electrical function: NO
- Illuminated and non-Illuminated
- Tactile feedback
- Flat round actuator for optional marking
- Sealed to IP67
Miniature, Sealed, Snap-In

125mA @ 125V ac

- Compact switches, snap in mounting
- Sealed to meet IP67
- Constructed from lightweight thermoplastic UL94-V0
- Available in a wide choice of colours

Electrical Life

- 500000 ops

Operating Temperature

- -40°C to +125°C

Total Travel

- 1.5mm

Contact Resistance

- <50mR

Mechanical Life

- 1000000 ops

Operating Force

- 3N

Operating Temperature

- -40°C to +125°C (standard)

Bezel=17.5 (dia), Depth=13mm, Panel cut-out=13.6mm (dia), Tab=5.0mm

ON OFF Latching - For Harsh Environments

2A @ 125V ac, 100mA @ 24V dc

- Compact - 13.6mm dia. panel cutout
- Sealed to IP 67
- Zinc alloy construction
- Gold plated, silver contacts

Supplied with 1 x hex. nut (0.551", 14mm across flats) and 1 x ‘O’ ring

Operating temperature -40°C to 85°C

Panel thickness 1.5mm to 5.5mm

Torque, applied to nut 1.5 Nm

Overall diameter 17.3mm

LED forward current 5.8mm long terminals

Switch Mfrs.

Black Black IPR15AD01 108-2441$

Blue Black IPR15AD01 108-2442$

Green Black IPR15AD01 108-2443$

SPNO Momentary

0.125A @ 125V ac, 0.4A @ 32V ac, 0.1A @ 50V dc

IP67 Sealed

- Nylon or nickel plated brass bodied switches, momentary action
- Solder lug terminals
- Brass terminals with silver plating
- Snap-in mounting
- 5.8mm long terminals
- UL Recognised

SPNO Momentary - For Harsh Environments

200mA @ 250V ac/50V dc

- SPST, momentary or latching action versions
- Black phenolic bodied switches with ABS (UL 94HB) buttons
- Solder lug terminals
- M12 x 1.0 threaded mounting
- 5.8mm long terminals
- 12.7mm dimeter panel cutout
- CSA Approved
Push Button Switches - continued

3A @ 125V ac, 1.5A @ 250V ac - continued

<table>
<thead>
<tr>
<th>Colour</th>
<th>Mftrs. List No.</th>
<th>Order Code</th>
<th>1+</th>
<th>25+</th>
<th>50+</th>
<th>100+</th>
<th>250+</th>
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</thead>
<tbody>
<tr>
<td>Red</td>
<td>51-232</td>
<td>734-138</td>
<td>734-143</td>
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<td>734-163</td>
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<td>Green</td>
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<td>Yellow</td>
<td>51-234</td>
<td>734-140</td>
<td>734-149</td>
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<td>734-170</td>
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<tr>
<td>Black</td>
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<td>734-141</td>
<td>734-152</td>
<td>734-162</td>
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</table>

SPNO and SPNC Momentary and Latching

10A @ 250V ac, ‘Microswitch’

<table>
<thead>
<tr>
<th>Colour</th>
<th>Mftrs. List No.</th>
<th>Order Code</th>
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<th>25+</th>
<th>50+</th>
<th>100+</th>
<th>250+</th>
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<tbody>
<tr>
<td>Red</td>
<td>51-232</td>
<td>734-138</td>
<td>734-143</td>
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<td>734-163</td>
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<tr>
<td>Green</td>
<td>51-233</td>
<td>734-142</td>
<td>734-147</td>
<td>734-157</td>
<td>734-167</td>
<td>734-177</td>
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<tr>
<td>Yellow</td>
<td>51-234</td>
<td>734-140</td>
<td>734-149</td>
<td>734-160</td>
<td>734-170</td>
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<tr>
<td>Black</td>
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<td>734-152</td>
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</table>

Series 76-97 - Coloured, Panel-Sealed

10A @ 250V ac

<table>
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<tr>
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<tr>
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<td>Red / Black</td>
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<td>770-182</td>
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</table>

SPNO Momentary - 49-59 Series

0.4A @ 32V ac, ‘Sealed’

<table>
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<th>25+</th>
<th>50+</th>
<th>100+</th>
<th>250+</th>
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<tbody>
<tr>
<td>Red</td>
<td>51-232</td>
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<td>734-143</td>
<td>734-153</td>
<td>734-163</td>
<td>734-173</td>
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<tr>
<td>Green</td>
<td>51-233</td>
<td>734-142</td>
<td>734-147</td>
<td>734-157</td>
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<td>734-160</td>
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<tr>
<td>Black</td>
<td>51-231</td>
<td>734-135</td>
<td>734-141</td>
<td>734-152</td>
<td>734-162</td>
<td>734-172</td>
<td></td>
</tr>
</tbody>
</table>
**SPNO and SPNC Momentary**
5A @ 115Vac or 28Vdc, 2.5A @ 250Vac

- Attractive flush and raised dome actuator button options
- SPNO and SPNC set of gold contacts
- Positive tactile feedback with momentary snap action
- Gold Plated Silver Alloy
- Operating temperature: -55°C to +85°C

**Pendant Switch**
Remote hand held pushbutton switch with flying leads.

- Contact Configuration: SPST-NO
- Mechanical Life: 50000
- Voltage Rating: 28V
- Current Rating: 5A
- Body Material: Aluminium
- Button Colour: Red

**Detect Switches**

**Detect Switch - Card**
Left and Right Hand Operating Direction - SMD

- Voltage Rating: (VOC) 5
- Current Rating (mA): 1
- Dielectric strength (VAC/minute): 100
- Contact resistance (Ω): 1
- Insulation resistance (MΩ): @ 100V dc 100
- Operating temperature: min/max (°C): -10 to 60

**Detect Switch - Card**
Top Actuated - SMD

- Voltage Rating: (VOC) 5
- Current Rating (mA): 1
- Dielectric strength (VAC/minute): 100
- Contact resistance (Ω): 2
- Insulation resistance (MΩ): @ 100V dc 100
- Operating temperature: min/max (°C): -20 to 70

**Detect Switch - Horizontal**
Micro-Miniature - SMD

- Voltage Rating: 1mA
- Current Rating: 5V dc
- Dielectric strength: 100V/minute
- Contact resistance: (Ω): 1
- Insulation resistance (MΩ): @ 100V dc 100
- Operating temperature: min/max (°C): -10 to 60

**Side Actuated Detection Switch**
1mA - 5V dc

- Ultra-small size and ultra-low profile
- High contact reliability
- High precision operation
- Surface mount
- Available with left or right hand direction of operation
Detect Switch - Top Actuated
Ultra-miniature KSU

- Hard metal actuator
- Totally protected against overload
- Gold contacts
- Compatible with infrared soldering processes and also pick & place machines

A top-actuated detect switch without tactile feedback (linear F/d curve). The momentary action, normally open contacts are designed to be compatible with Surface Mount Technology processes.

- Low profile, 2mm height above PCB
- 2mm overtravel
- Low actuator force - 100g max
- Pick and place compatible

W = 5, D = 5.7, H = 2mm

Detector Switches
ESE58 Series

- Thin body: 0.9mm
- Circuit type: Normally-open and normally-closed types
- J-bent terminals
- Lineup with variations in right-left operations
- Applications: Detection of media in portable electronic equipment (mobile phones, digital cameras, DVRs etc)

Rating: 50µA (3Vdc to 100mA @ 5Vdc. (Resistive Load)
Contact Resistance: 500 mΩ max.
Insulation Resistance: 100 MΩ min (at 100 Vdc)
Operating Force: 300 mN max
Dielectric Withstanding Voltage: 100 Vac for 1 min
Operating Temperature: -10°C to 60°C

Mfrs. List No. Contact Configuration Order Code
ESE58L61A SPST-NC 207-9584
ESE58L11B SPST-NO 207-9585

- Price Each

Detector Switches
ESE68 Series

- Thin body: 0.9mm
- Circuit type: Normally-open and normally-closed types
- J-bent terminals
- Lineup with variations in right-left operations
- Applications: Detection of media in portable electronic equipment (mobile phones, digital cameras, DVRs etc)

Rating: 50µA (3Vdc to 100mA @ 5Vdc. (Resistive Load)
Contact Resistance: 500 mΩ max.
Insulation Resistance: 100 MΩ min (at 100 Vdc)
Operating Force: 300 mN max
Dielectric Withstanding Voltage: 100 Vac for 1 min
Operating Temperature: -10°C to 60°C

Mfrs. List No. Contact Configuration Order Code
ESE68L61B SPST-NC 207-9594
ESE68L11B SPST-NO 207-9595

- Price Each

Detect Switches
ESE23 Series

- Auto return to mid point
- Long over-travel
- Used as an operation switch (input device)
- Applications: Detection of media in portable electronic equipment (CD-ROM, DVD, Digital still cameras, etc)

Rating: 50µA (3Vdc to 100mA @ 5Vdc. (Resistive Load)
Contact Resistance: 500 mΩ max.
Insulation Resistance: 100 MΩ min (at 100 Vdc)
Operating Force: 300 mN max
Dielectric Withstanding Voltage: 100 Vac for 1 min
Operating Temperature: -10°C to 60°C

Mfrs. List No. Operating Force Terminal Type Order Code
ESE23L101 0.3N J-bent 207-9591
ESE23F101 0.3N Straight 207-9592

- Price Each

Detect Switches
ESE18 Series

- Lever type detector switch with high reliability using sliding mechanical contacts
- Auto return to mid point
- Long over-travel
- Used as an operation switch (input device)
- Applications: Detection of media in portable electronic equipment (CD-ROM, DVD, Digital still cameras, etc), operating switches for electronic equipment

Rating: 50µA (3Vdc to 100mA @ 5Vdc. (Resistive Load)
Contact Resistance: 500 mΩ max.
Insulation Resistance: 100 MΩ min (at 100 Vdc)
Operating Force: 300 mN max
Dielectric Withstanding Voltage: 100 Vac for 1 min
Operating Temperature: -10°C to 60°C

Mfrs. List No. Left Hand Operation Order Code
ESE18L61D SPST-NC Yes J-bend 207-9623
ESE18L61B SPST-NC Yes J-bend 207-9625
ESE18L61C SPST-NC No J-bend 207-9626
ESE18L61A SPST-NC No J-bend 207-9627
ESE18L11D SPST-NO Yes J-bend 207-9629
ESE18L11B SPST-NO Yes J-bend 207-9633
ESE18L11C SPST-NO No J-bend 207-9631

- Price Each
### Right Hand Operation

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</table>

### Detector Switches ESE13

- **New**:
  - Thin type: Height = 1.2mm
  - Highly reliable contact
  - SMD type (Embosed tapping, refow soldering)
  - Configuration: SPST
  - Straight or J-bent terminals
  - With or without boss
  - Applications: Detection of media in portable electronic equipment (mobile phones, digital cameras, camcorders etc)

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>List No.</th>
<th>Type</th>
<th>Terminal</th>
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<td>V</td>
<td>J-bent</td>
<td>Without</td>
<td>207-9637</td>
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</tbody>
</table>

### ESE22 Series

- **New**:
  - Can be operated with different actuation angles (horizontally and vertically)
  - Refow soldering
  - Configuration: SPST, normally open
  - Light operating force (300 mN max.)
  - Applications: Detection of media in portable electronic equipment

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>List No.</th>
<th>Order Code</th>
<th>1+</th>
<th>10+</th>
<th>25+</th>
<th>50+</th>
<th>100+</th>
<th>250+</th>
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<tr>
<td>ESE22V01</td>
<td>V</td>
<td>Straight</td>
<td>With</td>
<td>207-9634</td>
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<tr>
<td>ESE22V01C</td>
<td>V</td>
<td>Straight</td>
<td>Without</td>
<td>207-9635</td>
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<tr>
<td>ESE22V01B</td>
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<td>With</td>
<td>207-9636</td>
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<tr>
<td>ESE22V01A</td>
<td>V</td>
<td>J-bent</td>
<td>Without</td>
<td>207-9637</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

### ESE16 Series

- **New**:
  - Wider range of customizable features including operational directions
  - Light operating force - 350 mN max. (full travel)
  - Horizontal or vertical mount
  - Configuration: SPST
  - Wave or refow soldering available
  - Applications: Detection of media in portable electronic equipment

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>List No.</th>
<th>Order Code</th>
<th>1+</th>
<th>10+</th>
<th>25+</th>
<th>50+</th>
<th>100+</th>
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<td>V</td>
<td>Straight</td>
<td>With</td>
<td>207-9645</td>
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<tr>
<td>ESE16V01C</td>
<td>V</td>
<td>Straight</td>
<td>Without</td>
<td>207-9646</td>
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<tr>
<td>ESE16V01B</td>
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<td>J-bent</td>
<td>With</td>
<td>207-9647</td>
<td></td>
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<tr>
<td>ESE16V01A</td>
<td>V</td>
<td>J-bent</td>
<td>Without</td>
<td>207-9648</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### ESE11 Series

- **New**:
  - External Dimensions: 2.2 x 3.3mm
  - Light operating force: 250mN or less
  - SPST
  - Auto mounting supported: Can be mounted by standard nozzles
  - Applications: Detection of media in portable electronic equipment (mobile phones, digital cameras, camcorders)

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>List No.</th>
<th>Order Code</th>
<th>1+</th>
<th>10+</th>
<th>25+</th>
<th>50+</th>
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<td>ESE11V01</td>
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<td>With</td>
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<td>ESE11V01B</td>
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<td>J-bent</td>
<td>With</td>
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<td>207-9652</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

---

**Dielectric Withstanding Voltage**

- 100 Vac for 1 min

**Insulation Resistance**

- 100 MΩ

**Contact Resistance**

- 500 mΩ

**Detector Switches**

**Rating**

- 50µA @ 3Vdc to 10mA @ 5Vdc (Resistive Load)
- 500 mΩ max.
- 100 MΩ min (at 100 Vdc)

**Dielectric Withstanding Voltage**

- 100 Vac for 1 min

**Operating Temperature**

- -30°C to 80°C
Detect Switches - continued

Tilt Switch
Sealed - Photo interrupter

Input
Forward Current (If) 50 mA
Reverse Voltage (VR) 5 V
Power Dissipation (Pd) 75 mW
Collector-Emitter Voltage (VCEO) 30 V
Collector Current (Ic) 29 mA
Collector Power Dissipation (PC) 50 mW

Output
Forward Breakdown Voltage (VFB) 25 V
Maximum Gate to Source Voltage (VGSM) 30 V
Maximum Source to Drain Voltage (VDSM) 25 V

Right Angle PCB - Body H = 9.5, W = 10, D = 8.8mm
- Photo interrupter ensures high reliability
- Sealed construction for environmental protection
- Totally sealed body for automated processing
- Internal steel ball movement allows functionality of 360°
- Switch is triggered when tilted beyond ±30° of the horizontal
- Operating temperature range -25°C to +80°C

Mfrs. Force (gf)  Order Code  Price Each
131-6991    1+  10+  50+  100+  131-6991
131-6992    2+  10+  50+  100+  131-6992
131-6993    2+  10+  50+  100+  131-6993

Electromechanical

Operating Temperature
-25°C to 85°C

Silent New Switches

- Excellent tactile feel
- SMT switch adapted for low current
- Only actuate 1 direction at a time
- Provides logic level control
- Applications: Seat adjustments, industrial controls, mirror adjustment, home entertainment and multi-function steering wheel

Battery Operated

Operating Temperature
-40°C to 85°C

Function Tact and Scroll Wheels

- Compact and slim
- Multiple function in one component (rotary, select)
- Easy installation
- Through hole termination
- Integrated decoration (B type)
- Applications: Remote controls, desk phones, keyboards, printers, entertainment systems and white goods

Input Forward Current (If) 50 mA
Reverse Voltage (VR) 5 V
Power Dissipation (Pd) 75 mW
Collector-Emitter Voltage (VCEO) 30 V
Collector Current (Ic) 29 mA
Collector Power Dissipation (PC) 50 mW

Navigation Switches

Navigation Switch - Multidirectional

These multidirectional navigation switches require an operating force of 160gf with a centre push of 320gf. They have a very long electrical life of at least 100,000 cycles.

Mfrs. Force (gf)  Order Code  Price Each
131-6991    1+  10+  50+  100+  131-6991
131-6992    2+  10+  50+  100+  131-6992
131-6993    2+  10+  50+  100+  131-6993

Navigation Switch 5 Way Multidirectional - SMD

A multi-directional TACT switch with a centre push function. The operating force required for the side switches is 180gf while the centre push force is 320gf. The device has an exceptional life expectancy of 200,000 electrical cycles.

Mfrs. Force (gf)  Order Code  Price Each
131-6991    1+  10+  50+  100+  131-6991
131-6992    2+  10+  50+  100+  131-6992
131-6993    2+  10+  50+  100+  131-6993

Navigation Switch Push and Lever Series - SMD

This series of 3 way navigation switches has an integrated centre push switch. They have an electrical life in excess of 100,000 operations. The MCPLJ switch requires an operating force of 40gf on the return actuator and 150gf on the centre push switch. The MCPLS series requires 70gf on the return actuator and 200gf on the centre push switch. MCPL3-AC-V switch has an integrated Mounting Knob.

Mfrs. Force (gf)  Order Code  Price Each
131-6991    1+  10+  50+  100+  131-6991
131-6992    2+  10+  50+  100+  131-6992
131-6993    2+  10+  50+  100+  131-6993

TCWA 3 60g/cm max. 200g
± 50g 1000000 cycles
1000000 cycles

TSWA 5 50g/cm max. 200g ± 50g 1000000 cycles
1000000 cycles

TSWA 3 60g/cm max. 200g ± 50g 1000000 cycles
1000000 cycles

TSWA 5 50g/cm max. 200g ± 50g 1000000 cycles
1000000 cycles

Designation No. of Circuits Actuation Force Actuation Force Rotation Push Cycle Life

· 638458
· 453571
· 638460
9 Way Navigation Switch
Centre Push Function
- A centre push switch built into an 8 directional switch
- Strong tactile feel
- Thin shape with main body only 6.4mm thick
- Push travel only 0.2mm
- Rated at 10mA @ 5V dc

Operating angle (°)
Voltage (V dc)
Current (mA)
Voltage proof (V ac)
Insulation resistance (MΩ)
Operating temp. (°C)
List No.
Order Code
Price Each
-43118

Navigation Switch Kit
Navimec Series
- Stand-alone SPNO momentary switches, ready prepaired in kits
- 50mA @ 24V dc
- 10,000,000 Operations life
- IP67 sealed

Each kit contains 5 switches with caps.

List No.
Order Code
Price Each
-47123

Tri-Direction Scan Switch
Subminiature TPC
A side-actuated miniature switch with normally open contacts. Rotation of the actuator closes the two (select) contacts.
- Right or left actuation prevent select function actuation
- Good tactile feedback – 1.0N actuating force, left or right
- Extended life - 100,000 operations per direction
- Compatible with infrared soldering and also pick & place machines

Power/Voltage (Vdc)
Current (mA)
Contact resistance (mΩ)
Insulation resistance (MΩ)
Operating temp. (°C)
List No.
Order Code
Price Each
-47123

Navigation Switch Module
Navimec Series
- High tactile feedback gives a sharp click feel
- The stem is provided with a shape which allows a button or knob to be fitted
- Snap in type allows automatic flow soldering
- SMD type allows reflow soldering
- Rated at 50mA @ 12V dc

Voltage (V dc)
Current (mA)
Voltage proof (V ac)
Insulation resistance (MΩ)
Operating temp. (°C)
List No.
Order Code
Price Each
-40217

4 Way Navigation Switch
With or Without Centre Push Function
- High tactile feedback gives a sharp click feel
- The stem is provided with a shape which allows a button or knob to be fitted
- Snap in type allows automatic flow soldering
- SMD type allows reflow soldering
- Rated at 50mA @ 12V dc

Voltage (V dc)
Current (mA)
Voltage proof (V ac)
Insulation resistance (MΩ)
Operating temp. (°C)
List No.
Order Code
Price Each
-40217

Navigation Switches - continued

Farnell P 2700 Date: 06-09-12 time:20:24

Switch Function Type On-Off Electrical life 500000 operations min

Switch Type: Push Button Cap 15 15 8.9 2 177-5326

Applications: Operation switches for automobiles

SMD Push Button Switch

- PCB-mounted switch, especially suitable for use with Mentor
- Illuminated button caps
- Compact size
- Long mechanical & electrical life
- Gull wing connection design

<table>
<thead>
<tr>
<th>List No.</th>
<th>Type</th>
<th>Dimensions (mm)</th>
<th>Operating Force</th>
<th>Operating Mode</th>
<th>Rating</th>
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<tbody>
<tr>
<td>2271.1003</td>
<td>Push Button Cap</td>
<td>19 19 8.9 1</td>
<td>2N</td>
<td>Non-lock</td>
<td>0.01 A @ 5Vdc</td>
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<tr>
<td>2271.1004</td>
<td>Push Button Cap</td>
<td>19 19 8.9 2</td>
<td>2N</td>
<td>Non-lock</td>
<td>0.1 A @ 14Vdc</td>
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<tr>
<td>2271.1006</td>
<td>Push Button Cap</td>
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<td>2N</td>
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<td>0.1 A @ 14Vdc</td>
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<tr>
<td>2271.1007</td>
<td>Push Button Cap</td>
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<td>2N</td>
<td>Non-lock</td>
<td>0.1 A @ 14Vdc</td>
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<td>Non-lock</td>
<td>0.1 A @ 14Vdc</td>
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<tr>
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<td>Push Button Cap</td>
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<td>2N</td>
<td>Non-lock</td>
<td>0.1 A @ 14Vdc</td>
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<tr>
<td>2271.1011</td>
<td>Push Button Cap</td>
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<td>2N</td>
<td>Non-lock</td>
<td>0.1 A @ 14Vdc</td>
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<tr>
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<td>Push Button Cap</td>
<td>15 15 11.7 2</td>
<td>2N</td>
<td>Non-lock</td>
<td>0.1 A @ 14Vdc</td>
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<tr>
<td>2271.1013</td>
<td>Signal Indicator</td>
<td>19 19 9.2</td>
<td>1</td>
<td>Non-lock</td>
<td>-</td>
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<tr>
<td>2271.1014</td>
<td>Signal Indicator</td>
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<td>2</td>
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<td>-</td>
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<td>2271.1015</td>
<td>Signal Indicator</td>
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<td>1</td>
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<td>2271.1021</td>
<td>Signal Indicator</td>
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<td>1</td>
<td>Non-lock</td>
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</tr>
</tbody>
</table>

Switch Type 1: Mentor (1254.1007) and Omron (63FS-1052), Switch Type 2: Ralf Racan 8

Contact Configuration: On-Off

Insulation resistance: > 500000 operations min

Switch Function Type: SPST

Order Code: 177-5321

Price Each: 1+ 25+ 50+ 100+

Keyboard Switches and Accessories

SPPH1 & 4 Series - Double Pole, 1.5mm Travel, 0.1A @ 30V dc

SPPH2 Series - Double Pole, 1.0mm Travel, 0.1A @ 12V dc

SPEC Series - Double Pole, 2.5mm Travel, 0.1A @ 30V dc

Momentary Push Switches

ESE20C/ESE20D Series

- User-friendly tactile feedback when operated
- Long over-travel
- Straight or Formed terminal shapes
- Applications: Operation switches for automobiles (for heater controls, overdrive, steering etc), secondary power switches for lower voltage in consumer electronic equipment and different types of mode switches

Rating: 0.01 A @ 5Vdc to 0.1 A @ 14Vdc (Resistive Load)

Full Travel: 3.5mm

Mounting Height: 8.9mm

Configuration: SPST

Operating Mode: Non-lock

Order Code: 207-9600

Price Each: 1+ 25+ 50+ 100+

Order Code: 143-5768

Price Each: 143-5768
**Data Switches**

**LDS/LDT Series**
- Absolute reliability and simple assembly
- Compact design with very small mounting depth
- Excellent price/performance ratio
- Suitable for front and print-mounting
- Good illumination
- Many different application fields

**Contact**
- Current: 200mA
- Voltage AC: 20V
- Voltage DC: 30V
- Configuration: SPST-NO, Through Hole

**For Automotive Use**
- Order Code: 207-9601
- 0.1A @ 12Vdc to 3A @ 12Vdc (Resistive Load)

**For Consumer Products**
- Order Code: 207-9608
- 0.1A @ 12Vdc to 3A @ 12Vdc (Resistive Load)

**Latching Vertical Push Switches**

**ESB33 Series**
- Low profile (H=6mm)
- 3N operating force
- Applications: Operating switches for automobiles (heater control switches etc), secondary power switches for lower voltage in consumer electronic equipment and different types of mode switches

**ESB30 Series**
- Reduced interlock operation switching noise (-10dB compared to current value)
- Simultaneous locking prevention mechanism
- Applications: Operation switches for automobiles (air conditioners, switches, hazard switches etc)

**ESB32 Series**
- Long travel
- Can be fitted to a printed circuit board
- Applications: Operation switches for automobiles (overdrive, hazard and map lamp switches etc), used for detecting function in relay and solenoid controls, secondary power switches for consumer electronic equipment

**ESB308 Series**
- Tactile feedback contact operation
- Minimum centre spacing of 12.7mm
- Specially designed for digital electronic controls
- Strapped terminals permit X, Y coding
- Round or square styles in a choice of 8 colours

**Non-Illuminated, Low Profile**
- SPNO momentary keyboard switches for PCB mounting
- Gold crosspoint contacts, keypads are ochre coloured

**PCB Mount SPNO, Momentary**
- D6 Series, 100mA @ 100V ac

**TACT With LED Illumination**
- 50mA @ 12Vdc

---

**Mfrs.**
- Order Code
- Price Each

**Price Each**
- 1 + 10 + 25 + 50 + 100 + 250 +
TACT With LED Illumination - continued

50mA @ 12Vdc - continued

- Sharp click with positive tactile feedback
- Ultra miniature and light weight
- Contact moulding prevents flux build-up enabling auto-dipping
- Rated 50mA @ 12V dc
- Contact arrangement: DPST
- Operating temperature: -25°C to +75°C
- Momentary 1500000 ops
- Operating force: 160±50gf
- Resistance, contact: 100mohm
- Operating life: 200000 ops
- Operating temperature: -25°C to +70°C
- Contact resistance: <100mohm
- Operating force: 9W ac
- Mechanical life: 250mA @ 120V, 9W ac/6W dc

Unimec - DPNO + DPNC Momentary and Latching

250mA @ 120V, 9W ac/6W dc

- Assisted switch
- Hinge - B3J Series, SPNO
- Rated 50mA @ 24V dc
- Contact arrangement: OR-ON
- Contact resistance: 100mohm
- Insulation resistance: 250V AC/1 min.
- Operating temperature: -25°C to +75°C
- Contact moulding prevents flux build-up enabling auto-dipping
- Momentary/silver
- Force, operating: 160±50gf
- Resistance, contact: 100mohm
- Operating life: 200000 ops
- Operating temperature: -25°C to +70°C

Hinge - Series 96 SPCO

Sealed 42V/100mA

- Attractive modern lens design
- Available with LED Illumination
- Sealed to IP67 for process washing
- 1NO/1NC Gold Plated Contacts

Bezels

- Black Momentary: K96-907.01BLK
- White Momentary: K96-907.01WH
- Grey Momentary: K96-907.01GY
- Black Latching: K96-906.01BLK
- White Latching: K96-906.01WH
- Grey Momentary: K96-906.81/0GY

Switches

- 17.4, W=12.8, D=10.3
- Max. Rating: 42V/100mA
- Contact Resistance: <100mohm
- Mechanical Life: >50000000dps
- Contact Voltage: <2.2V
- Lens Size: 17.4 x 12.4mm

Switch Without LED

- Black Momentary: K96-907.01BLK
- White Momentary: K96-907.01WH
- Grey Momentary: K96-907.01GY

Switch With Red LED

- Black Momentary: K96-905.01BLK/2
- White Momentary: K96-905.01WH/2
- Grey Momentary: K96-905.81/0GY
Rocker Style Pushbuttons

- Flat button switch with unique hinged rocker style caps
- Switch available in throughhole or surface mount
- Caps with or without bezels should be ordered separately
- Bezel option with clear lens for opto applications, LED should be ordered separately

Tactile Switch - SPST

- Suitable for high density mounting with dimensions of 5.2 x 5.2mm
- Reflow solderable
- Vertical mounting
- Operating temperature -30 to 85°C

Applications
- Audio equipment
- Video recorders
- Communication devices
- Cameras
- Notebook PCs

Dimensions (mm): H=1.2, W=5.2, D=5.2

Tactile Switch - SPST

Vertical Dimensions (mm): SKHH Series

- Flat button switch with unique hinged rocker style caps
- Switch available in throughhole or surface mount
- Caps with or without bezels should be ordered separately
- Bezel option with clear lens for opto applications, LED should be ordered separately

Tactile Switches - C&K

- Snap-in type allows switch to be mounted directly onto the PCB board
- Part of the output terminal can also be applied as jumper leads, making circuit design easier
- Horizontal or Vertical mounting options available
- Operating temperature -35 to 85°C

Applications
- Audio equipment
- Office devices
- Communication devices
- Measuring devices
- TVs, VCRs and in-car components

Nano-Miniature SMT Top Actuated Switches

- Smallest footprint
- Smallest thickness with integrated actuator
- High number of cycles within the smallest packaging
- IP65/IP67 rated
- Applications: Mobile phones, hearing aids, MP3 accessories and Bluetooth headset

Rating
- Dielectric Strength ≥2500Vrms
- Contact Resistance ≤300mΩ
- Insulation Resistance ≥50MΩ
- Bounce Time ≤5ms
- Operating Temperature -40°C to 85°C

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# Tactile Switches - C&K - continued

## Miniature Tactile Switches

- Excellent tactile feel
- Wide variety of LED's, travel and actuation forces
- Designed for low-level switching
- Applications: Automotive, industrial electronics, computers and network equipment

### Through Hole with LED

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Color</th>
<th>LED</th>
<th>Force</th>
<th>Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>K6B1.S2N0D</td>
<td>–</td>
<td>2N</td>
<td>SPST-NO</td>
<td></td>
</tr>
<tr>
<td>K6B1.S2N0D</td>
<td>–</td>
<td>5N</td>
<td>SPST-NO</td>
<td></td>
</tr>
</tbody>
</table>

### Through Hole with LED

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Color</th>
<th>LED</th>
<th>Force</th>
<th>Configuration</th>
</tr>
</thead>
<tbody>
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<td>3N</td>
<td>SPST-NO</td>
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<td>K6BLG01.S3NL306</td>
<td>Green</td>
<td>2N</td>
<td>SPST-NO</td>
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<tr>
<td>K6BLG01.S3NL306</td>
<td>Green</td>
<td>3N</td>
<td>SPST-NO</td>
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<td>K6BLYE1.S3NL327</td>
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<tr>
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<td>2N</td>
<td>SPST-NO</td>
<td></td>
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</tbody>
</table>

### Surface Mount with LED

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Color</th>
<th>LED</th>
<th>Force</th>
<th>Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>K6SL1.5N0DSD</td>
<td>–</td>
<td>2N</td>
<td>SPST-NO</td>
<td></td>
</tr>
<tr>
<td>K6SL1.5N0DSD</td>
<td>–</td>
<td>5N</td>
<td>SPST-NO</td>
<td></td>
</tr>
</tbody>
</table>

### Surface Mount with LED

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Color</th>
<th>LED</th>
<th>Force</th>
<th>Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>K6SLW01.5NL302SD</td>
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<td>5N</td>
<td>SPST-NO</td>
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<tr>
<td>K6SLW01.5NL327SD</td>
<td>Yellow</td>
<td>5N</td>
<td>SPST-NO</td>
<td></td>
</tr>
</tbody>
</table>

## Tactile Switches

- Wide choice of LED colors, travel and actuator forces
- High reliability / long life
- Sealed version available
- Designed for low-level switching

### Through Hole with LED

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Color</th>
<th>LED</th>
<th>Force</th>
<th>Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>K6B1.S2N0D</td>
<td>–</td>
<td>2N</td>
<td>SPST-NO</td>
<td></td>
</tr>
<tr>
<td>K6B1.S2N0D</td>
<td>–</td>
<td>5N</td>
<td>SPST-NO</td>
<td></td>
</tr>
</tbody>
</table>

### Through Hole with LED

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Color</th>
<th>LED</th>
<th>Force</th>
<th>Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>K6BLYE1.5NL327</td>
<td>Yellow</td>
<td>2N</td>
<td>SPST-NO</td>
<td></td>
</tr>
<tr>
<td>K6BLYE1.5NL327</td>
<td>Yellow</td>
<td>5N</td>
<td>SPST-NO</td>
<td></td>
</tr>
</tbody>
</table>

### Surface Mount

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Color</th>
<th>LED</th>
<th>Force</th>
<th>Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>K6SL1.5N0DSD</td>
<td>–</td>
<td>2N</td>
<td>SPST-NO</td>
<td></td>
</tr>
<tr>
<td>K6SL1.5N0DSD</td>
<td>–</td>
<td>5N</td>
<td>SPST-NO</td>
<td></td>
</tr>
</tbody>
</table>

### Surface Mount with LED

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Color</th>
<th>LED</th>
<th>Force</th>
<th>Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>K6SLW01.5NL302SD</td>
<td>Yellow</td>
<td>5N</td>
<td>SPST-NO</td>
<td></td>
</tr>
<tr>
<td>K6SLW01.5NL327SD</td>
<td>Yellow</td>
<td>5N</td>
<td>SPST-NO</td>
<td></td>
</tr>
</tbody>
</table>

## Sealed Tact Switch

### KSA Series

- Designed for automatic or manual insertion
- Cambered terminals to ensure self retention
- Suitable for automotive, industrial and telecommunication networks applications

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Contact Resistance</th>
<th>Operating Force</th>
<th>Operating Temperature</th>
<th>Mfrtrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSR4: H=2.5, W=4, D=2.8mm</td>
<td>2N</td>
<td>1mm</td>
<td>-40°C to 85°C</td>
<td>element14.com</td>
</tr>
<tr>
<td>KMR: H=2.5, W=4, D=2.8mm</td>
<td>2N</td>
<td>1mm</td>
<td>-40°C to 85°C</td>
<td>element14.com</td>
</tr>
</tbody>
</table>

### Tact Switch - Miniature

- Extremely small overall dimension
- 3 different actuating force
- Designed for easy pick and place operation
- KMR micro-miniature features sharp tactile feedback in the smallest dimensions available

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Voltage</th>
<th>Actuation Force</th>
<th>Material</th>
<th>Grounding Option</th>
<th>Low Current Capability</th>
</tr>
</thead>
<tbody>
<tr>
<td>KSR221G LFS</td>
<td>20V</td>
<td>2N</td>
<td>Silver</td>
<td>2N</td>
<td>x</td>
</tr>
<tr>
<td>KSR221G LFS</td>
<td>25V</td>
<td>1.8N</td>
<td>Silver</td>
<td>2N</td>
<td>x</td>
</tr>
<tr>
<td>KSR251G LFS</td>
<td>20V</td>
<td>3N</td>
<td>Silver</td>
<td>2N</td>
<td>x</td>
</tr>
<tr>
<td>KSR251G LFS</td>
<td>25V</td>
<td>4.5N</td>
<td>Silver</td>
<td>2N</td>
<td>x</td>
</tr>
</tbody>
</table>
Tact Switch - Side Actuated

Micro-miniature KMS

- Compact size
- Strong tactile feedback
- Minimum travel - 0.3mm to make, 0.45mm total
- Compatible with infrared reflow soldering and pick & place SMT machines

A side-actuated microminiature SPST, sharp tactile feedback switch with normally open contacts.

Operating force (N) | Voltage (V) | Switching current (mA) | Contact resistance (mΩ) | Insulation resistance (MΩ) | Operating temp. (°C) |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>1</td>
<td>32</td>
<td>50</td>
<td>100</td>
<td>-40 to 85</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>32</td>
<td>50</td>
<td>100</td>
<td>-40 to 85</td>
</tr>
</tbody>
</table>

Price Each

<table>
<thead>
<tr>
<th>Mfrs. List No.</th>
<th>Order Code</th>
<th>1+</th>
<th>50+</th>
<th>100+</th>
</tr>
</thead>
<tbody>
<tr>
<td>KM221G LFS</td>
<td>2</td>
<td>50+</td>
<td>100+</td>
<td></td>
</tr>
<tr>
<td>KM231G LFS</td>
<td>3</td>
<td>50+</td>
<td>100+</td>
<td></td>
</tr>
</tbody>
</table>

Electromechanical

Switches

Multimec® IP67 - SPNO Momentary

PCB and surface mounting SPNO momentary action switches with a very positive tactile feel. The switches employ high temperature plastics, silicone seals, ultrasonic welding and insert moulded terminals, sealed to IP67.

The switches are available as either:
- a) Stand-alone
- b) Basic switches plus caps and bezels
- c) Illuminated switches plus caps and bezels
- d) Rocker Style Pushbuttons

The caps and bezels are available in various shapes and colours, suitable for both through hole and surface mount switches.

Contact resistance <50mΩ
Insulation resistance >MR
Mechanical life 100,000,000 operations
Operating temperature -40°C to +115°C (through hole) -40°C to +115°C (surface mount)

Stand Alone Switches

- Stand-alone SPNO switches for use in through panel applications or under a membrane overlay to produce a high tactile keyboard
- Choice of button colour and button height
- Surface mount and right angled versions available
## Tactile Switches - MEC - continued

### Stand Alone Switches - continued

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>113-2895€</td>
<td>1+  50+  100+  250+</td>
</tr>
</tbody>
</table>

- **Standard Height, 6.4mm Button**
  - White 3TFL6
  - Black 3TFL9
- **Extended Height, Black Button**
  - 8mm 3TFL8-8.0 199-5308€
  - 9.5mm 3TFL9-9.5 113-2861€
  - 10.4mm 3TFL9-10.4 113-2862€
  - 12mm 3TFL9-12.0 113-2864€
  - 15mm 3TFL9-15.0 113-2953€

### Switches with Caps and Bezels

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1132985, 1133000, 11332901, 11332915</td>
<td>1+  50+  100+  250+</td>
</tr>
</tbody>
</table>

- **Switch base W=10.1, D=10.1, Overall H: Round=14.9, Square=19.1, Rectangular=14.4**
- **Caps**: Round=11 dia., Square=14.3 x 14.3, Rectangular=12.5 x 6.5, Bezel=17.75 x 17.75

- These switches and caps should be ordered separately.
- Switch available as through-hole or surface mount.
- Caps available in 3 shapes and wide colour selection.
- Bezels are available and recommended for use with square caps.

### Softline Style Caps

- Softline styled caps with curved top for aesthetic and ergonomic appeal with square, round and arrow options.

### Extended Height Caps

<table>
<thead>
<tr>
<th>Order Multiple</th>
<th>Mfrs.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
<td></td>
<td>1+  50+  100+  250+</td>
</tr>
</tbody>
</table>

- **16mm** 113-2971€
- **19mm** 113-2978€
- **22.5mm** 113-2999€
- **10mm Extender** 2509-10.8 113-2920€

### Illuminated with Caps and Bezels

<table>
<thead>
<tr>
<th>Order Multiple</th>
<th>Mfrs.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
<td></td>
<td>1+  50+  100+  250+</td>
</tr>
</tbody>
</table>

- **Round caps**
  - Black 1009 113-2886€
  - Grey 1003 113-2887€
  - Red 1008 113-2888€
  - Blue 1000 113-2912€
  - Yellow 1004 113-2913€
  - White 1006 113-2914€
- **Square caps**
  - Black 1K009 113-2889€
  - Grey 1K003 113-2890€
  - Red 1K008 113-2928€
- **Rectangular caps**
  - Black 1P09 113-2893€
  - Grey 1P03 113-2904€
  - White 1P06 113-2915€

### Switch Body with LED

<table>
<thead>
<tr>
<th>Order Multiple</th>
<th>Mfrs.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>1+  50+  100+  250+</td>
</tr>
</tbody>
</table>

- **Green LED** 3FL620 113-2901€
- **Red LED** 3FL680 113-2902€
- **Blue LED** 3FL600 113-2954€
- **Red/Green LED** 3FL6001 113-2955€
- **H.I. Green LED** 3FL622 113-2903€
- **H.I. Red LED** 3FL688 113-2904€

### Extended Height Caps with Clear Lens - Round

<table>
<thead>
<tr>
<th>Order Multiple</th>
<th>Mfrs.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td>1+  50+  100+  250+</td>
</tr>
</tbody>
</table>

- **Square cap, with diffuser** 1K1116 113-2911€
- **Round Black** 1091 113-2956€
- **Round Grey** 1093 113-2958€
- **Rectangular Black** 1091 113-2907€
- **Rectangular Grey** 1093 113-2909€
Variable Height & Extender Components
- Select stand alone switch (3C/PE) or switch (3F) & extender & cap
- Extenders are stackable offering a large range of overall height options
- Extenders are suitable for both illuminated and non illuminated variants

Order Multiple = 10
Description Mrtr. List No. Order Code Price Each
Panel bush 0.5 - 2.5 5 AQN0.5 113-29560
Panel bush 2.5 - 4.0 5 AQN2.5 113-29560
Sealing boot - black 5 AQB0111 113-2961
Sealing boot - transparent 5 AQB0111 113-2961
Clear Round caps - Height (mm) 113-2919
9 1S09-19.0
22.5 1S09-22.5
Extender caps - Height (mm) 113-2920
9 2S09-10.0
19 2S09-19.0
22.5 2S09-22.5

Tactile Switches - Multicomp

LED Mrtrs. List No. Order Code Price Each
Through Hole versions Colour Colour Code 1 25 50 100
Blue 4FSH801 139-0587
Green 4FSH802 139-0586
Yellow 4FSH804 139-0589
White 4FSH806 139-0590
Red / Green 4FSH802 139-0596

TACT Switch - Vertical
Ultra Low Profile - SMD
Ultra-low design with a very small profile, dust-proof case for a multitude of applications in telecommunications, video recorders, digital cameras and audio devices.

Voltage Rating (VDC) Current Rating (mA) Dielectric Strength (VAC/1 minute) Contact Resistance (mΩ) Insulation Resistance (MΩ) @ 500V dc Operating Temp. min/max (°C)
12 50 350 100 @ -20 to 70

Order Multiple = 5
Description Mrtr. List No. Order Code Price Each
MCDT56 Raised Right Angled (6 x 6mm) MCTA3
MCDTJ56 Washable (6 x 6mm) MCTH4
MCDTSHW6 SMD Washable (6 x 6mm) MCTA4 & MCTH4

Applicable Series MCDT52, MCDT56, MCDTSHW6, MCDTSHW6, MCDTSA6 & MCDTJW6

Order Multiple = 10
Voltage Rating 12V dc 5VDC 50VDC Current rating 50mA 1.5mA 50mA

Order Multiple = 5
Actuator style/Operating Force (N)
MCDTS2 Series (12 x 6mm) - PCB drilling 12.5mm x 5.0mm
Raised/160 947-16340
Flat/160 947-16420
Raised/260 947-16500
Flat/260 947-16690

MCDTS6 Series (8mm x 6mm) - PCB drilling 6.5mm x 4.5mm

Overall height/Operating Force (N)
4.3mm/100 947-16770
3.8mm/100 947-16850
3.3mm/200 947-16930
5mm/160 947-17070
5mm/260 947-17150
7mm/100 947-17230
7mm/260 947-17310
9.5mm/100 947-17400
9.5mm/260 947-17500

MCDTSHW6 Series (6mm x 6mm) Washable - PCB drilling 6.5mm x 4.0mm

Overall height/Operating Force (N)
3.8mm/160 947-17720

MCDTS6A Series (6mm x 6mm) Right Angled - PCB drilling about C/L of actuator

4.5mm & 7.0mm row separation 2.5mm

Electromechanical

Switches

Variable Height & Extender Components
- Select stand alone switch (3C/PE) or switch (3F) & extender & cap
- Extenders are stackable offering a large range of overall height options
- Extenders are suitable for both illuminated and non illuminated variants

Order Multiple = 10
Description Mrtr. List No. Order Code Price Each
Panel bush 0.5 - 2.5 5 AQN0.5 113-29560
Panel bush 2.5 - 4.0 5 AQN2.5 113-29560
Sealing boot - black 5 AQB0111 113-2961
Sealing boot - transparent 5 AQB0111 113-2961
Clear Round caps - Height (mm) 113-2919
9 1S09-19.0
22.5 1S09-22.5
Extender caps - Height (mm) 113-2920
9 2S09-10.0
19 2S09-19.0
22.5 2S09-22.5

Tactile Switches - Multicomp

LED Mrtrs. List No. Order Code Price Each
Through Hole versions Colour Colour Code 1 25 50 100
Blue 4FSH801 139-0587
Green 4FSH802 139-0586
Yellow 4FSH804 139-0589
White 4FSH806 139-0590
Red / Green 4FSH802 139-0596

TACT Switch - Vertical
Ultra Low Profile - SMD
Ultra-low design with a very small profile, dust-proof case for a multitude of applications in telecommunications, video recorders, digital cameras and audio devices.

Voltage Rating (VDC) Current Rating (mA) Dielectric Strength (VAC/1 minute) Contact Resistance (mΩ) Insulation Resistance (MΩ) @ 500V dc Operating Temp. min/max (°C)
12 50 350 100 @ -20 to 70

Order Multiple = 5
Description Mrtr. List No. Order Code Price Each
MCDT56 Raised Right Angled (6 x 6mm) MCTA3
MCDTJ56 Washable (6 x 6mm) MCTH4
MCDTSHW6 SMD Washable (6 x 6mm) MCTA4 & MCTH4

Applicable Series MCDT52, MCDT56, MCDTSHW6, MCDTSHW6, MCDTSA6 & MCDTJW6

Order Multiple = 10
Voltage Rating 12V dc 5VDC 50VDC Current rating 50mA 1.5mA 50mA

Order Multiple = 5
Actuator style/Operating Force (N)
MCDTS2 Series (12 x 6mm) - PCB drilling 12.5mm x 5.0mm
Raised/160 947-16340
Flat/160 947-16420
Raised/260 947-16500
Flat/260 947-16690

MCDTS6 Series (8mm x 6mm) - PCB drilling 6.5mm x 4.5mm

Overall height/Operating Force (N)
4.3mm/100 947-16770
3.8mm/100 947-16850
3.3mm/200 947-16930
5mm/160 947-17070
5mm/260 947-17150
7mm/100 947-17230
7mm/260 947-17310
9.5mm/100 947-17400
9.5mm/260 947-17500

MCDTSHW6 Series (6mm x 6mm) Washable - PCB drilling 6.5mm x 4.0mm

Overall height/Operating Force (N)
3.8mm/160 947-17720

MCDTS6A Series (6mm x 6mm) Right Angled - PCB drilling about C/L of actuator

4.5mm & 7.0mm row separation 2.5mm

Electromechanical

Switches
Tactile Switches - Multicomp - continued

Tact Switches - Multicomp - continued

SPNO - continued

<table>
<thead>
<tr>
<th>Order Multiple = 5</th>
<th>Order Code</th>
<th>5+</th>
<th>50+</th>
<th>100+</th>
<th>250+</th>
<th>500+</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCDS346 Series (8mm x 6mm) Light Engraved - PCB drilling over C/L of actuator</td>
<td>947-1874</td>
<td>1+</td>
<td>100+</td>
<td>250+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.85mm/250</td>
<td>947-1855</td>
<td>10+</td>
<td>50+</td>
<td>100+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.8mm/6mm</td>
<td>947-1856</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>MCDS346W Series (8mm x 6mm) SMD Washable</td>
<td>160-5469</td>
<td>1+</td>
<td>100+</td>
<td>250+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.3mm/947-1863</td>
<td>1+</td>
<td>10+</td>
<td>50+</td>
<td>100+</td>
<td>500+</td>
<td></td>
</tr>
<tr>
<td>2.3mm/152-2041</td>
<td>1+</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>3.1mm/152-1877</td>
<td>1+</td>
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</tr>
</tbody>
</table>

**Caps for MCDS2 series**

- Round and square caps for use with 12x12 Multicomp tact switches

<table>
<thead>
<tr>
<th>Square caps:</th>
<th>Order Code</th>
<th>5+</th>
<th>100+</th>
<th>500+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>956-1468</td>
<td>1+</td>
<td>100+</td>
<td>250+</td>
</tr>
<tr>
<td>Green</td>
<td>956-1471</td>
<td>1+</td>
<td>100+</td>
<td>250+</td>
</tr>
<tr>
<td>Yellow</td>
<td>956-1444</td>
<td>1+</td>
<td>100+</td>
<td>250+</td>
</tr>
<tr>
<td>Blue</td>
<td>956-1455</td>
<td>1+</td>
<td>100+</td>
<td>250+</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Round caps:</th>
<th>Order Code</th>
<th>5+</th>
<th>100+</th>
<th>500+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>956-1501</td>
<td>1+</td>
<td>100+</td>
<td>250+</td>
</tr>
<tr>
<td>Yellow</td>
<td>956-1510</td>
<td>1+</td>
<td>100+</td>
<td>250+</td>
</tr>
<tr>
<td>Blue</td>
<td>956-1528</td>
<td>1+</td>
<td>100+</td>
<td>250+</td>
</tr>
</tbody>
</table>

**Tact Switches - SPNO**

50mA @ 12Vdc - Sharp Click

- Long life
- Short stroke
- Sharp click positive tactile feedback

<table>
<thead>
<tr>
<th>Order Multiple = 5</th>
<th>Order Code</th>
<th>5+</th>
<th>50+</th>
<th>100+</th>
<th>250+</th>
</tr>
</thead>
<tbody>
<tr>
<td>TM-533-T/R</td>
<td>DTSL-61K-B</td>
<td>947-1880</td>
<td>1+</td>
<td>100+</td>
<td>250+</td>
</tr>
<tr>
<td>DTSL-61R-B</td>
<td>TAEF</td>
<td>947-1882</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current rating</td>
<td>50mA</td>
<td>Voltage rating</td>
<td>12Vdc min</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contact resistance</td>
<td>100mΩ max</td>
<td>Insulation resistance</td>
<td>1000Ω Vdc</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Detergic strength</td>
<td>250 VAC 1 minute</td>
<td>Slop strength</td>
<td>150 Vdc</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-25°C to +70°C</td>
<td>Wave solder</td>
<td>260°C max 5 sec</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical life</td>
<td>100000 operations min</td>
<td>Hand solder</td>
<td>327°C 2 sec, 300W iron</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Materials</td>
<td>Base: High temp. thermoplastic (947-1880) Nylon, UL recognised</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30mm: Brass (947-1880) Nylon, UL recognised</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Tact Switches - Double Action**

50mA @ 12Vdc

- Double Action Switches
- Standard 6mm x 6mm size
- 1st Action = 80gf, 2nd Action = 250gf
- Stainless steel disc with silver cladding
- Long life of 30,000 cycles

<table>
<thead>
<tr>
<th>50mA @ 12Vdc</th>
<th>Order Code</th>
<th>List No.</th>
<th>5+</th>
<th>50+</th>
<th>100+</th>
<th>500+</th>
</tr>
</thead>
<tbody>
<tr>
<td>152-2041, H = 1.5mm</td>
<td>1+</td>
<td>50+</td>
<td>100+</td>
<td>500+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>152-2042, H = 3mm</td>
<td>1+</td>
<td>50+</td>
<td>100+</td>
<td>500+</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Pushbutton TACT Switch**

50mA @ 12Vdc

- SPST
- Long operational life
- Long travel of 1.3mm
- Excellent tactile feedback without audible click sound
- Low contact resistance

<table>
<thead>
<tr>
<th>50mA @ 12Vdc</th>
<th>Order Code</th>
<th>List No.</th>
<th>5+</th>
<th>50+</th>
<th>100+</th>
<th>500+</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+</td>
<td>50+</td>
<td>100+</td>
<td>500+</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Tact Pushbutton**

50mA @ 12Vdc

- SPST
- Momentary action
- Black switch body
- Strong tactile feedback
- Short switch travel
- Low operating force

<table>
<thead>
<tr>
<th>50mA @ 12Vdc</th>
<th>Order Code</th>
<th>List No.</th>
<th>5+</th>
<th>50+</th>
<th>100+</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+</td>
<td>50+</td>
<td>100+</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PCB Mount, SPNO
B3F/W Series - Sealed and Unsealed, 50mA @ 24V dc

- Positive tactile switch action through dome design
- Available with flat, projected or extended plunger
- Horizontal or Vertical mounting options available

Switching capacity 5 to 24 VDC, 1 to 50 mA (resistive load)
Contact configuration SPST-NO
Contact resistance 100 mV max.
Insulation resistance 100 MΩ min. (at 50 VDC)
Dielectric strength 500 VAC, 50/60 Hz for 1 min
Bounce time 5 ms max.

6 x 6mm - B3F Series

<table>
<thead>
<tr>
<th>Type</th>
<th>Plunger Height</th>
<th>Operating Force</th>
<th>Ground Terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal</td>
<td>4.3mm</td>
<td>0.98N</td>
<td>B3F1000</td>
</tr>
<tr>
<td>Horizontal</td>
<td>4.3mm</td>
<td>1.47N</td>
<td>B3F1100</td>
</tr>
<tr>
<td>Horizontal</td>
<td>4.3mm</td>
<td>2.55N</td>
<td>B3F1005</td>
</tr>
<tr>
<td>Horizontal</td>
<td>4.3mm</td>
<td>4.9N</td>
<td>B3F1006</td>
</tr>
<tr>
<td>Horizontal</td>
<td>5.0mm</td>
<td>0.98N</td>
<td>B3F1020</td>
</tr>
<tr>
<td>Horizontal</td>
<td>5.0mm</td>
<td>1.47N</td>
<td>B3F1122</td>
</tr>
<tr>
<td>Horizontal</td>
<td>5.0mm</td>
<td>2.55N</td>
<td>B3F1225</td>
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<tr>
<td>Horizontal</td>
<td>5.0mm</td>
<td>4.9N</td>
<td>B3F1226</td>
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<tr>
<td>Horizontal</td>
<td>5.0mm</td>
<td>9.8N</td>
<td>B3F1110</td>
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<tr>
<td>Horizontal</td>
<td>7.0mm</td>
<td>9.8N</td>
<td>B3F1060</td>
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<td>7.0mm</td>
<td>1.47N</td>
<td>B3F1062</td>
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<tr>
<td>Horizontal</td>
<td>9.5mm</td>
<td>9.8N</td>
<td>B3F1070</td>
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<tr>
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<td>1.47N</td>
<td>B3F107N</td>
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<tr>
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<td>9.5mm</td>
<td>2.55N</td>
<td>B3F1075</td>
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<tr>
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<td>B3F1155</td>
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<tr>
<td>Horizontal</td>
<td>9.5mm</td>
<td>9.8N</td>
<td>B3F1150</td>
</tr>
<tr>
<td>Horizontal</td>
<td>9.5mm</td>
<td>1.47N</td>
<td>B3F1152</td>
</tr>
<tr>
<td>Horizontal</td>
<td>9.5mm</td>
<td>2.55N</td>
<td>B3F1055</td>
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<tr>
<td>Vertical</td>
<td>3.15mm</td>
<td>0.98N</td>
<td>B3F1075</td>
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<tr>
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<td>3.15mm</td>
<td>1.47N</td>
<td>B3F1072</td>
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<tr>
<td>Vertical</td>
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<td>2.55N</td>
<td>B3F1070</td>
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<tr>
<td>Vertical</td>
<td>3.15mm</td>
<td>9.8N</td>
<td>B3F1060</td>
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<tr>
<td>Vertical</td>
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<tr>
<td>Vertical</td>
<td>3.15mm</td>
<td>4.9N</td>
<td>B3F1155</td>
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<tr>
<td>Vertical</td>
<td>3.15mm</td>
<td>9.8N</td>
<td>B3F1150</td>
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<tr>
<td>Vertical</td>
<td>3.15mm</td>
<td>1.47N</td>
<td>B3F1152</td>
</tr>
<tr>
<td>Vertical</td>
<td>3.15mm</td>
<td>2.55N</td>
<td>B3F1055</td>
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6 x 6mm - B3F Series

<table>
<thead>
<tr>
<th>Type</th>
<th>Plunger Height</th>
<th>Operating Force</th>
<th>Ground Terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal</td>
<td>4.3mm</td>
<td>0.98N</td>
<td>B3F0000</td>
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<tr>
<td>Horizontal</td>
<td>4.3mm</td>
<td>1.47N</td>
<td>B3F0100</td>
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<tr>
<td>Horizontal</td>
<td>4.3mm</td>
<td>2.55N</td>
<td>B3F0200</td>
</tr>
<tr>
<td>Horizontal</td>
<td>4.3mm</td>
<td>4.9N</td>
<td>B3F0205</td>
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<tr>
<td>Horizontal</td>
<td>5.0mm</td>
<td>0.98N</td>
<td>B3F0300</td>
</tr>
<tr>
<td>Horizontal</td>
<td>5.0mm</td>
<td>1.47N</td>
<td>B3F0302</td>
</tr>
<tr>
<td>Horizontal</td>
<td>5.0mm</td>
<td>2.55N</td>
<td>B3F0305</td>
</tr>
<tr>
<td>Horizontal</td>
<td>5.0mm</td>
<td>4.9N</td>
<td>B3F0306</td>
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12 x 12mm - B3W Series

<table>
<thead>
<tr>
<th>Type</th>
<th>Plunger Height</th>
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<th>Ground Terminal</th>
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</thead>
<tbody>
<tr>
<td>Horizontal</td>
<td>4.3mm</td>
<td>0.98N</td>
<td>B3W1000</td>
</tr>
<tr>
<td>Horizontal</td>
<td>4.3mm</td>
<td>1.47N</td>
<td>B3W1100</td>
</tr>
<tr>
<td>Horizontal</td>
<td>4.3mm</td>
<td>2.55N</td>
<td>B3W1102</td>
</tr>
<tr>
<td>Horizontal</td>
<td>4.3mm</td>
<td>4.9N</td>
<td>B3W1150</td>
</tr>
<tr>
<td>Horizontal</td>
<td>5.0mm</td>
<td>0.98N</td>
<td>B3W1150</td>
</tr>
<tr>
<td>Horizontal</td>
<td>5.0mm</td>
<td>1.47N</td>
<td>B3W1152</td>
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Unsealed Switches - B3F Series

<table>
<thead>
<tr>
<th>List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>176-432</td>
<td>B3F1000</td>
<td>0.965</td>
</tr>
<tr>
<td>176-437</td>
<td>B3F1005</td>
<td>0.965</td>
</tr>
<tr>
<td>176-439</td>
<td>B3F1006</td>
<td>0.965</td>
</tr>
<tr>
<td>176-440</td>
<td>B3F1020</td>
<td>0.965</td>
</tr>
<tr>
<td>176-441</td>
<td>B3F1100</td>
<td>0.965</td>
</tr>
<tr>
<td>176-443</td>
<td>B3F1105</td>
<td>0.965</td>
</tr>
<tr>
<td>176-444</td>
<td>B3F1122</td>
<td>0.965</td>
</tr>
<tr>
<td>176-445</td>
<td>B3F1125</td>
<td>0.965</td>
</tr>
<tr>
<td>176-446</td>
<td>B3F1150</td>
<td>0.965</td>
</tr>
<tr>
<td>176-447</td>
<td>B3F1152</td>
<td>0.965</td>
</tr>
<tr>
<td>176-448</td>
<td>B3F1155</td>
<td>0.965</td>
</tr>
<tr>
<td>176-449</td>
<td>B3F1156</td>
<td>0.965</td>
</tr>
<tr>
<td>176-450</td>
<td>B3F1157</td>
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</tr>
<tr>
<td>176-451</td>
<td>B3F1158</td>
<td>0.965</td>
</tr>
</tbody>
</table>

- Available either unsealed or sealed suitable for immersion cleaning or harsh environ-
Tactile Switches - Omron - continued

PCB Mount, SPNO - continued

6 x 6mm Radial Models - B3F Series - continued

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsealed Switches - B3F Series</td>
<td>B3F1002</td>
<td>MRC 196-0990</td>
<td>5+</td>
</tr>
<tr>
<td></td>
<td>B3F6050</td>
<td>MRC 196-0990</td>
<td>100+</td>
</tr>
<tr>
<td></td>
<td>B3F6062</td>
<td>MRC 196-0991</td>
<td>250+</td>
</tr>
</tbody>
</table>

Unsealed Switches - B3F Series

- B3F1000P MRC 196-0992
- B3F1002P MRC 196-0993
- B3F1005 MRC 196-0994
- B3F1015 MRC 196-0996

Sealed Switches - B3W Series

- B3W1000 176-886
- B3W1050 176-887
- B3W1052 MRC 196-1037
- B3W1100 MRC 196-1039
- B3W1102 MRC 196-1040
- B3W1150 MRC 196-1041
- B3W1152 MRC 196-1042
- B3W400S 176-888
- B3W405 176-1043
- B3W450 176-999
- B3W455 MRC 196-1045

Accessories

- Caps All Order Codes

Long Stroke Tactile Switches

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Actuator</th>
<th>Operating Force</th>
<th>Releasing Force</th>
<th>Pre-travel</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>B3A1000P</td>
<td>Red 1.96N</td>
<td>0.24N</td>
<td>1.3mm</td>
<td>190-8272</td>
<td></td>
</tr>
<tr>
<td>B3A1001P</td>
<td>Green 2.45N</td>
<td>0.49N</td>
<td>1.3mm</td>
<td>190-8274</td>
<td></td>
</tr>
<tr>
<td>B3A300P</td>
<td>Black 1.9N</td>
<td>0.6N</td>
<td>1.3mm</td>
<td>190-8275</td>
<td></td>
</tr>
<tr>
<td>B3A303P</td>
<td>White 3.5N</td>
<td>0.7N</td>
<td>1.3mm</td>
<td>190-8276</td>
<td></td>
</tr>
</tbody>
</table>

SPNO B3S Series - Sealed

- Flat plunger H (max) = 4.3
- Surface mount version of Omron B3W keyswitch
- Sealed construction, suitable for PCB immersion cleaning
- General purpose and high force actuation versions available
- Operating force 1.57N
- Pre-travel 0.25mm
- Contact resistance 100mohm
- Mech. + elec. life 500000 ops min

SPNO B3S Series - Sealed

Dimensions: 12mm x 12mm x 4.3mm

SPNO B3S-4 Series

- Surface-mounting device of B3F-4 series
- Distinguishable snapping action
- Extended mechanical/electrical durability

SPNO B3SN Series - Sealed

- 30mA @ 24V dc

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>B3SN-000P</td>
<td>190-8272</td>
<td>250+</td>
<td></td>
</tr>
<tr>
<td>B3SN-002P</td>
<td>190-8274</td>
<td>500+</td>
<td></td>
</tr>
</tbody>
</table>

SPST-NO B3U Series

- 30mA @ 12V dc

- Ultra-small size
- Dust-proof construction
- Surface mount
- Available with or without mounting boss
Ultra-Low Profile Dome Key
Tactile - B3D Series

- No soldering required. Attach directly to PCB to make an ultra-low-profile tactile switch
- Construction provides strong resistance to static electricity by having no soldered terminals
- Matrix adhesive used to create highly dust-proof construction with good ventilation
- Lower profile, lighter weight and crisp clicking action achieved using stainless steel contact dome
- Omron’s unique circular contact action ensures a high level of resistance to foreign matter
- Supplied as a Sheet of 25, on a 5 x 5 grid

SPNO B3FS Series

- Low cost unsealed switch specifically designed for no clean production processes
- Available in 2 operating force versions, 100gf and 150gf
- Contact configuration: SPST-NO
- Contact rating: 50mA - 24V dc
- Contact resistance: 100mR max
- Operating temperature: -25°C to +70°C

Tactile Switches - Panasonic

SMD Light Touch Tactile Switch
EVPAF Series

- External dimensions: 3 x 2.6mm
- High operability
- Snap action / Push-on type SPST
- Bouncing: 10 ms max. (ON, OFF)
- Equipped with J-bent terminals and actuator
- Applications: Operation switches for portable electronic equipment (Mobile phone, portable audio etc.)
### 4mm Square SMD Tactile Switches

**Panasonic Ideas for Life**

**NEW**

**4mm Square SMD Tactile Switches**

**Light Touch, EVQP6 / EVQP8 series**

- **External Dimensions:** 4.1 x 4.1mm
- **Snap action / Push-on type SPST**
- **Long life:** 10,000,000 cycles min.
- **With or without actuator as well as with ground terminal (without actuator)**
- **Operating force:** 1.6 or 2.4N
- **Bouncing:** 8 ms max. (ON, OFF)
- **Dust-proof structure**
- **Applications:** Operating switches for portable electronic equipment (mobile phones, camcorders, portable audio players etc.)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>EVQP6B55</td>
<td>2.4N</td>
<td>207-9539</td>
<td></td>
<td>EVQP8B55</td>
<td>2.4N</td>
<td>207-9541</td>
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</tr>
<tr>
<td>EVQP6B65</td>
<td>1.6N</td>
<td>207-9543</td>
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<td>EVQP8B65</td>
<td>1.6N</td>
<td>207-9545</td>
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<td>EVQP6B85</td>
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<td>EVQP8B85</td>
<td>1.6N</td>
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<td>1.6N</td>
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<td>207-9576</td>
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<td>EVQP8B100</td>
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<td>207-9579</td>
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</table>

<table>
<thead>
<tr>
<th>Rating</th>
<th>10μA @ 2Vdc to 20mA @ 15Vdc (Resistive Load)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Resistance</td>
<td>500 mΩ max.</td>
</tr>
<tr>
<td>Insulation Resistance</td>
<td>50 MΩ min. (10 Vdc)</td>
</tr>
<tr>
<td>Dielectric Withstanding Voltage</td>
<td>250 Vac for 1 min</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-30°C to 85°C</td>
</tr>
</tbody>
</table>


### Surface Mount Tactile Switches

**EVQPQ Series**

- **External Dimensions:** 4.5 x 4.5mm
- **Lightweight:** 20 mg (1/2 compared with conventional type)
- **Applications:** Operating switches for portable electronic equipment (eg. portable audio players, camcorders etc.)

<table>
<thead>
<tr>
<th>List No.</th>
<th>Force</th>
<th>Height</th>
<th>Operating Life</th>
<th>Order Code</th>
<th>Mftrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVQPQ6B55</td>
<td>2.4N</td>
<td>0.55mm</td>
<td>2000000</td>
<td>207-9479</td>
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</tr>
<tr>
<td>EVQPQ8B55</td>
<td>1.6N</td>
<td>0.55mm</td>
<td>500000</td>
<td>207-9480</td>
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</tr>
</tbody>
</table>

### 6mm Square SMD Tactile Switches

**Panasonic Ideas for Life**

**NEW**

**6mm Square SMD Tactile Switches**

**Light Touch, EVQQ2 series**

- **External Dimensions:** 4.9 x 4.9mm
- **Available with or without actuator**
- **Applications:** Operating switches for portable electronic equipment (eg. notebooks, PCs, camcorders, portable audio players), car audio systems etc.

<table>
<thead>
<tr>
<th>List No.</th>
<th>Force</th>
<th>Height</th>
<th>Operating Life</th>
<th>Order Code</th>
<th>Mftrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVQQ2S03W</td>
<td>1.3</td>
<td>3.1</td>
<td>1000000</td>
<td>EVQQ2203W</td>
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<tr>
<td>EVQQ2S01W</td>
<td>1.3</td>
<td>3.1</td>
<td>100000</td>
<td>EVQQ2103W</td>
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<tr>
<td>EVQQ2S02W</td>
<td>0.5</td>
<td>3.1</td>
<td>2000000</td>
<td>EVQQ2220W</td>
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</tr>
<tr>
<td>EVQQ2S04W</td>
<td>1.3</td>
<td>3.1</td>
<td>100000</td>
<td>EVQQ2120W</td>
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<tr>
<td>EVQQ2S05W</td>
<td>1.3</td>
<td>3.1</td>
<td>100000</td>
<td>EVQQ2122W</td>
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</tr>
<tr>
<td>EVQQ2D03W</td>
<td>1.3</td>
<td>3.1</td>
<td>100000</td>
<td>EVQQ2230W</td>
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</tr>
<tr>
<td>EVQQ2D02W</td>
<td>0.5</td>
<td>3.1</td>
<td>2000000</td>
<td>EVQQ2130W</td>
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</tr>
<tr>
<td>EVQQ2D01W</td>
<td>0.5</td>
<td>3.1</td>
<td>2000000</td>
<td>EVQQ2132W</td>
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<tr>
<td>EVQQ2T03W</td>
<td>0.5</td>
<td>3.1</td>
<td>2000000</td>
<td>EVQQ2232W</td>
<td></td>
</tr>
<tr>
<td>EVQQ2U03W</td>
<td>0.5</td>
<td>3.1</td>
<td>2000000</td>
<td>EVQQ2140W</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contact Configuration</th>
<th>SPST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Rating</td>
<td>10μA @ 2Vdc, 50mA @ 12Vdc</td>
</tr>
<tr>
<td>Insulation Resistance</td>
<td>500 mΩ (10 Vdc)</td>
</tr>
<tr>
<td>Operating Force</td>
<td>40μlbf</td>
</tr>
<tr>
<td>Travel</td>
<td>1mm ± 0.15mm</td>
</tr>
<tr>
<td>Life</td>
<td>100000</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40°C to 85°C</td>
</tr>
</tbody>
</table>

### 10mm Square Center Light Touch Switches

- **Easy operation with push plate**
- **Low Contact Resistance**
- **Short push travel:** 0.25 mm
- **J - bend or Straight terminals available**
- **Suitable for use as control switches in small electronic devices**

<table>
<thead>
<tr>
<th>List No.</th>
<th>Operating Height</th>
<th>Operating Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVQ2030W</td>
<td>0.5 3.1</td>
<td>2000000</td>
</tr>
<tr>
<td>EVQ2010W</td>
<td>0.5 3.1</td>
<td>2000000</td>
</tr>
<tr>
<td>EVQ2020W</td>
<td>0.5 3.1</td>
<td>2000000</td>
</tr>
<tr>
<td>EVQ2040W</td>
<td>0.5 3.1</td>
<td>2000000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>List No.</th>
<th>Operating Height</th>
<th>Operating Life</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVQ2030W</td>
<td>0.5 3.1</td>
<td>2000000</td>
</tr>
<tr>
<td>EVQ2010W</td>
<td>0.5 3.1</td>
<td>2000000</td>
</tr>
<tr>
<td>EVQ2020W</td>
<td>0.5 3.1</td>
<td>2000000</td>
</tr>
<tr>
<td>EVQ2040W</td>
<td>0.5 3.1</td>
<td>2000000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Rating</th>
<th>20mA @ 15V DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Resistance</td>
<td>100 mΩ</td>
</tr>
<tr>
<td>Life</td>
<td>100000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>List No.</th>
<th>Order Code</th>
<th>Mftrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVQ2030W</td>
<td>182-1246</td>
<td></td>
</tr>
<tr>
<td>EVQ2010W</td>
<td>182-1244</td>
<td></td>
</tr>
<tr>
<td>EVQ2020W</td>
<td>182-1242</td>
<td></td>
</tr>
<tr>
<td>EVQ2040W</td>
<td>182-1240</td>
<td></td>
</tr>
</tbody>
</table>

### 6mm Square SMD Tactile Switches

**Panasonic Ideas for Life**

**NEW**

**6mm Square SMD Tactile Switches**

- **External Dimensions:** 4.9 x 4.9mm
- **Available with or without actuator**
- **Applications:** Operating switches for portable electronic equipment (eg. notebooks, PCs, camcorders, portable audio players), car audio systems etc.

<table>
<thead>
<tr>
<th>List No.</th>
<th>Force</th>
<th>Height</th>
<th>Operating Life</th>
<th>Order Code</th>
<th>Mftrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVQ2L03W</td>
<td>1.3</td>
<td>3.1</td>
<td>100000</td>
<td>EVQ2L30W</td>
<td></td>
</tr>
<tr>
<td>EVQ2L10W</td>
<td>0.5</td>
<td>3.1</td>
<td>2000000</td>
<td>EVQ2L50W</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Contact Configuration</th>
<th>SPST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Rating</td>
<td>10μA @ 2Vdc, 50mA @ 12Vdc</td>
</tr>
<tr>
<td>Insulation Resistance</td>
<td>500 mΩ (10 Vdc)</td>
</tr>
<tr>
<td>Operating Force</td>
<td>40μlbf</td>
</tr>
<tr>
<td>Travel</td>
<td>1mm ± 0.15mm</td>
</tr>
<tr>
<td>Life</td>
<td>100000</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40°C to 85°C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>List No.</th>
<th>Order Code</th>
<th>Mftrs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVQ2L03W</td>
<td>182-1254</td>
<td></td>
</tr>
<tr>
<td>EVQ2L05W</td>
<td>182-1252</td>
<td></td>
</tr>
<tr>
<td>EVQ2L02W</td>
<td>182-1250</td>
<td></td>
</tr>
<tr>
<td>EVQ2L01W</td>
<td>182-1248</td>
<td></td>
</tr>
</tbody>
</table>

---

**Switches**

33

**Electromechanical**

2712

**RoHS**

Compliant ▲ Non-compliant
### Tactile Switches

#### EVOJ Series

- **External Dimensions**: 8 x 8mm
- **Long life (self-cleaning)**
- **Low contact resistance with metal contacts**
- **Small bouncing**
- **Operating switches for car air conditioners, car audio systems etc**
- **Camcorders**
- **Ten key switch for telephones**

<table>
<thead>
<tr>
<th>List No.</th>
<th>Force</th>
<th>Colour</th>
<th>Life</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVQJU005</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EVQJU010</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EVQJU025</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EVQJU050</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EVQJU075</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### EVQJ Series

- **External Dimensions**: 3.5 x 2.9mm
- **Applications**: operating switches for telephones
- **Can be automatically dip-soldered**
- **Integral molding of the terminals and main body prevents the escape of flux**
- **Actuator colour: black**
- **Operating life: 100000 cycles**

<table>
<thead>
<tr>
<th>List No.</th>
<th>Force</th>
<th>Colour</th>
<th>Life</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPAA002K</td>
<td>1N</td>
<td>Black</td>
<td>100000 cycles</td>
<td>207-9583</td>
</tr>
<tr>
<td>EVPAA003K</td>
<td>1.6N</td>
<td>Black</td>
<td>100000 cycles</td>
<td>207-9582</td>
</tr>
<tr>
<td>EVPAA006K</td>
<td>2.4N</td>
<td>White</td>
<td>100000 cycles</td>
<td>207-9581</td>
</tr>
<tr>
<td>EVPAA009K</td>
<td>3.5N</td>
<td>White</td>
<td>100000 cycles</td>
<td>207-9580</td>
</tr>
</tbody>
</table>

### Side-operational Light Touch Switches

#### EVQP Series

- **Horizontal, snap action/Push-on type SPST**
- **Can be automatically dip-soldered**
- **Integral molding of the terminals and main body prevents the escape of flux**
- **Actuator colour: black**
- **Operating life: 100000 cycles**

<table>
<thead>
<tr>
<th>List No.</th>
<th>Force</th>
<th>Colour</th>
<th>Life</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVQPC005K</td>
<td>1N</td>
<td>Through Hole</td>
<td>100000 cycles</td>
<td>207-9527</td>
</tr>
<tr>
<td>EVQPC010K</td>
<td>1.6N</td>
<td>Through Hole</td>
<td>100000 cycles</td>
<td>207-9526</td>
</tr>
<tr>
<td>EVQPC025K</td>
<td>1.6N</td>
<td>Through Hole</td>
<td>100000 cycles</td>
<td>207-9524</td>
</tr>
<tr>
<td>EVQPC045K</td>
<td>1N</td>
<td>Through Hole</td>
<td>100000 cycles</td>
<td>207-9523</td>
</tr>
</tbody>
</table>

### SMD Light Touch Switches

#### EVPAA Series

- **External Dimensions**: 3.5 x 2.9mm
- **Snap action/Push-on type SPST**
- **High operating force (5 N max.)**
- **Bouncing: 10 ms max. (ON, OFF)**
- **Applications**: operating switches for mobile phones, digital cameras etc

<table>
<thead>
<tr>
<th>List No.</th>
<th>Force</th>
<th>Colour</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVPAA002K</td>
<td>1N</td>
<td>Black</td>
<td>207-9583</td>
</tr>
<tr>
<td>EVPAA003K</td>
<td>1.6N</td>
<td>Black</td>
<td>207-9582</td>
</tr>
<tr>
<td>EVPAA006K</td>
<td>2.4N</td>
<td>White</td>
<td>207-9581</td>
</tr>
<tr>
<td>EVPAA009K</td>
<td>3.5N</td>
<td>White</td>
<td>207-9580</td>
</tr>
</tbody>
</table>
Tactile Switches - Panasonic - continued

SMD Light Touch Switches - continued
EVPAA Series - continued

- Insulation Resistance 50 M
- Dielectric Withstanding Voltage 250 Vac for 1 min
- Contact Resistance 500 m
- Insulation Resistance 100 M
- Rating 10

Side-operational, SMD, EVQP7 Series
Light Touch Tactile Switches
EVOPA/EVOPB Series
- Snap action / Push-on type SPST
- With or without ground terminal
- Operating force: 2.6N
- Actuator colour: Red
- Can be automatically dip-soldered
- Integral molding of the terminals and main body prevents the escape of flux
- Applications: Operating switches for electronic equipment

Rating
Contact Resistance: 50mΩ max.
Insulation Resistance: 50 MΩ min. (at 100 Vdc)
Dielectric Withstanding Voltage: 250 Vac for 1 min
Operating Temperature: -20°C to 70°C

List No. Force Type Order Code
Mfrs Operating Terminal

EVQPAG05R 1.6N 207-9538
EVQPBG05R 1.6N 207-9529

EVQPAA Series - continued

- External Dimensions: 3.5 x 2.9mm
- Terminal type: Straight, J-bent
- Operating force: 1.6 or 2.2N
- High mount ability
- Applications: Operation switches for portable electronic equipment (mobile phones, digital still cameras, camcorders etc)

Rating
Contact Resistance: 500 mΩ max.
Insulation Resistance: 100 MΩ min. (at 100 Vdc)
Dielectric Withstanding Voltage: 250 Vac for 1 min
Operating Temperature: -40°C to 85°C

List No. Force Type Order Code
Mfrs Operating Mounting

EVQPUK02K 1.6N 207-9467
EVQPUK02K 1.6N 207-9468

Surface Mount Tactile Switches
Side Operational, EVQPS Series
- External Dimensions: 6.2 x 4.0mm
- Snap action / Push-on type SPST
- Terminal shapes: straight, J-bent
- Applications: Operating switches for electronic equipment
- Actuator Colour: Black
- Height: 1.8mm

Rating
Contact Resistance: 500 mΩ max.
Insulation Resistance: 100 MΩ min. (at 100 Vdc)
Dielectric Withstanding Voltage: 250 Vac for 1 min
Operating Temperature: -20°C to 70°C

List No. Force Type Order Code
Mfrs Operating Mounting

EVQPSG02K 2.2N J-bent 207-9475
EVQPSM02K 1.6N Straight 207-9473
EVQPSQ02K 2.2N 207-9472
EVQPSR02K 2.2N 207-9470

SMD Small Tactile Switches
Side-operational, EVQO Series
- External Dimensions: 4.7 x 3.5mm
- Snap action / Push-on type SPST
- Terminal shapes: J-bent
- Applications: Operating switches for portable equipment (Mobile phones, cameras, camcorders etc)
- Actuator Colour: Black
- Height: 1.65mm

Rating
Contact Resistance: 500 mΩ max.
Insulation Resistance: 100 MΩ min. (at 100 Vdc)
Dielectric Withstanding Voltage: 250 Vac for 1 min
Operating Temperature: -40°C to 85°C

List No. Force Type Order Code
Mfrs Operating Mounting

EVQO0C03K 1st Action 1N / 2nd Action 2.6N Surface Mount 207-9462
EVQO0G03K 1st Action 1N / 2nd Action 2.6N Edge Mount 207-9461

Double Action Tactile Switches
Edge Mount/Surface Mount, EVQQO Series
- External Dimensions: 6.2 x 3.75mm (excluding actuator)
- Good operability due to long stroke: 1.0 x 4.0mm, 2nd 0.5mm
- Improved soldering strength in the operating direction when mounted
- Recommended applications: Camera function (digital still, camcorders, mobile phones etc)
- Operating switches for menu scrolling and confirmation for portable equipment

Rating
Contact Resistance: 500 mΩ max.
Insulation Resistance: 100 MΩ min. (at 100 Vdc)
Dielectric Withstanding Voltage: 100 Vac for 1 min
Operating Temperature: -20°C to 70°C

List No. Force Type Order Code
Mfrs Operating Mounting

EVQQ0C03K 1st Action 1N / 2nd Action 2.6N Edge Mount 207-9461
EVQQ0G03K 1st Action 1N / 2nd Action 2.6N Surface Mount 207-9462

33 Switches

Electromechanical

element14.com
farnell.com
**Edge Mount Tactile Switch**

**Applications:**
- Operation switches for portable electronic equipment (Mobile phones, Digital still cameras, Camcorders, Portable audio players, etc.)
- Keyless entry (car electronics)
- Car audio equipment

- **SPST**
- **Travel of 0.25mm**
- **Side operation**
- **Surface mount**
- **Operating temperature: -40°C to 85°C**

**Body:**
- W = 5.7, D = 2.55, H = 3.5mm

---

**Tactile Switches**

**Press Fit / Surface Mount, EVQ Series**

- **External Dimensions:** 6 x 3.5mm
- **Snap action / Push-on type SPST**
- **Mounting type:** Surface mount and pressfit / through hole
- **Side operation**
- **Wave soldering available for press fit type**

**Applications:** Press fit, Operating switches for electronic products. Surface mount, car audio equipment

**Light Touch, EVQP Series**

- **External Dimensions:** 4.7 x 3.5mm
- **Snap action / Push-on type SPST**
- **Mounting type:** Surface mount and pressfit / through hole

---

**SMD Light Touch Tactile Switches**

**EVQP Series**

- **External Dimensions:** 4.7 x 3.5mm
- **Snap action / Push-on type SPST**
- **Bidirectional return**
- **High operating force and long operational life (up to 1000000 cycles)**
- **High mountability with J-terminal connectors**
- **With or without ground terminal**
- **Applications:** Operation switches for portable electronic equipment (mobile phones, digital cameras, camcorders etc.), Keyless entry systems (automotive), car audio equipment

**Over Travel Tactile Switches**

**Light Touch, EVQPQ Series**

- **External Dimensions:** 6.2 x 6.2mm
- **Snap action / Push-on type SPST**
- **Excellent light-touch operational feel**
- **Actuator Colour:** Black
- **Applications:** Operating switches for electronic equipment, operational switch for PC mice

**Long Travel Tactile Switches**

**6mm, EVQP1 Series**

- **External Dimensions:** 6 x 6.1mm
- **Steady, low contact resistance**
- **Snap action / Push-on type SPST**
- **Sourcing:** 10 ms max. (ON, OFF)
- **Excellent solderability (J-terminal type terminals)**
- **Actuator colour:** natural
- **Applications:** Operating switches for car electronic equipment,
Tactile Switches - Panasonic - continued

Long Travel Tactile Switches - continued
6mm, EVQP1 Series - continued

input on operating switches for telephones, electronic musical instruments etc.

- Rating: 10μA @ 2Vdc to 50mA @ 12Vdc (Resistive Load)
- Contact Resistance: 100 mΩ max.
- Insulation Resistance: 100 MΩ min (at 100 Vdc)
- Dielectric Withstanding Voltage: 250 Vac for 1 min
- Operating Temperature: -30°C to 85°C

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Operating Force</th>
<th>Operating Life</th>
<th>Contacts</th>
<th>Height (mm)</th>
<th>Actuator Colour</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVQP1K05</td>
<td>2.2N</td>
<td>1</td>
<td>207-9659</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>EVQP1F05</td>
<td>2N</td>
<td>1.3mm</td>
<td>207-9658</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EVQP1D05</td>
<td>2.5N</td>
<td>1.3mm</td>
<td>207-9659</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Price Each

6.35mm, EVQP4 Series

- External Dimensions: 6 x 6.1mm
- Snap action / Push-on type SPST
- Applications: Operating switches for car electronic equipment, input on operating switches for telephones, electronic musical instruments etc.
- Actuator Colour: Black
- Height: 5mm (including actuator)

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Operating Force</th>
<th>Operating Life</th>
<th>Contacts</th>
<th>Height (mm)</th>
<th>Actuator Colour</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVQP4V05K</td>
<td>2N</td>
<td>1.3</td>
<td>207-9463</td>
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<td></td>
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<tr>
<td>EVQP4V05S</td>
<td>2.5N</td>
<td>1.3</td>
<td>207-9464</td>
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<td></td>
</tr>
<tr>
<td>EVQP4A05</td>
<td>2.2N</td>
<td>1</td>
<td>207-9465</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Price Each

J-Bend - 6.35mm

- External Dimensions: 8.5 x 8.5mm (including the actuator)
- High operating force which prevents incorrect operation
- Actuator Colour: Natural
- Applications: Operating switches for car electronic equipment, car audio systems as well as steering switches

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Contact Rating (V / mA)</th>
<th>Force (g)</th>
<th>Life Contacts (mm)</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVQP4D05S</td>
<td>12 / 50</td>
<td>160</td>
<td>100000</td>
<td>186-7941</td>
</tr>
<tr>
<td>EVQP4D05I</td>
<td>12 / 50</td>
<td>160</td>
<td>100000</td>
<td>186-7942</td>
</tr>
<tr>
<td>EVQP4D05K</td>
<td>12 / 50</td>
<td>160</td>
<td>100000</td>
<td>186-7943</td>
</tr>
</tbody>
</table>

Price Each

Tactile Switches - Wurth

- Operating force: 160g to 260g
- Height: 0.8mm up to 5mm
- Washable and non-washable types available
- Operating temperature: -40°C to 85°C
- Contact: Stainless steel with silver cladding
- Terminals: Silver plated

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Contact Rating (V / mA)</th>
<th>Operating Force (g)</th>
<th>Operating Life</th>
<th>Contacts</th>
<th>Height (mm)</th>
<th>Actuator Colour</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>4301830518</td>
<td>12 / 50</td>
<td>160</td>
<td>100000</td>
<td>186-7993</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4301830519</td>
<td>12 / 50</td>
<td>160</td>
<td>100000</td>
<td>186-7994</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4301830520</td>
<td>12 / 50</td>
<td>160</td>
<td>100000</td>
<td>186-7995</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Price Each
Tactile Switches

50mA @ 12V dc

- Operating force: 160g to 360g
- Washable and non-washable types available
- Positive tactile operation
- Sealed construction
- Compatible with all surface mount soldering processes
- Low profile snap-action SPNO switch
- Very short stroke 0.3mm
- Precious metal contact system gives long life and reliability

Contact resistance 100mR max
Dielectric strength 250Vac

100mA @ 24V dc

- Surface mount 4mm size
- Dielectric withstand voltage 250V dc
- Low profile snap-action SPNO switch
- Very short stroke 0.3mm
- Precious metal contact system gives long life and reliability

List No. 7914J-001-000

Order Code: 25 + 100 + 250 +

High profile SPNO switch

- Surface mount 4mm size
- Dielectric withstand voltage 250V dc
- Low profile snap-action SPNO switch
- Very short stroke 0.3mm
- Precious metal contact system gives long life and reliability

List No. 7914J-001-000

Order Code: 25 + 100 + 250 +

High profile SPNO switch

Current rating 100mA
Contact resistance 100mR max
Insulation resistance 100Ω min @ 500V dc
Dielectric withstand voltage 250V dc
Life cycle 10000 actuations
Operating temperature -55°C to +125°C

Order Code: 25 + 100 + 250 +

High profile SPNO switch

Price Each

List No.

Order Code

1+ 25+ 50+ 100+ 250+

Price Each

List No.

Order Code

1+ 25+ 50+ 100+ 250+
**Switches**

**Electromechanical Terminals:**
- Through hole
- Through hole
- Through hole

**Switch Characteristics:**
- Contact Voltage: DC 24V
- Contact Voltage: 12VDC@50mA
- Stroke Length: 0.25mm

**Sealing Kit:**
- 0098.9201

**Contact Resistance:**
- 110 to 115mΩ

**Mechanical Life:**
- 1000000 ops

**Solderability:**
- 230Ω

**Membrane, SPNO Momentary**
- 125mA @ 48V dc

**Switches**

**Electromechanical Terminals Through Hole**
- Through hole
- Through hole
- Through hole

**Contact Voltage**
- DC 24V
- 24V
- 48V

**Temperature Range**
- Storage: -20°C to +70°C
- Operating: -5°C to +70°C

**Contact Current**
- 50mA
- 50mA
- 125mA

**Contact Resistance**
- 100R max.

**Environ sealing**
- Insulating resistance: 50MR

**Actuation force**
- 160g typ

**Operating Current**
- 50mA max.

**Operating Voltage**
- 24V max.

**Operational life**
- To 70°C 2 million cycles

**Illuminated keypads**
- 0.1" gold plated connectors (compatible with Moex KX range)

**Legend Tiles**
- Six legend tile sets available, for information see legend tile character library

**Sealed and Rugged Keypads - IP67**

**Storm 700 Series and 900 Series**

**Keypad Specifications**

**Legend Tiles**
- Engineering grade silicone rubber

**Keytop Legend Tiles**
- Anodized aluminium

**Keytop Legend Tiles**
- LED drive voltage (double side)

**Storm 420 Series Encoder**
- Universal Keypad + Keyboard Encoder

The Storm 420 Series encoder allows interfacing between keypad and host system.
- Input Power: +5V ± 0.25V dc
- RS232 Output via 6 pin Molex 2.54mm (.100") Pitch KK® connector
- Connection to underpanel mounted 12-, 16- and 20 way Storm Keypads
- Ribbon Cable needed for top panel fixing

**Sealed and Rugged Keypads - IP67**

**Storm 700 Series and 900 Series**

**Keypad Specifications**

**Legend Tiles**
- Engineering grade silicone rubber

**Keytop Legend Tiles**
- Anodized aluminium

**Keytop Legend Tiles**
- LED drive voltage (single side)

**Keytop Legend Tiles**
- LED drive voltage (double side)

**Legend Tiles**
- Six legend tile sets available, for information see legend tile character library

**Sealed and Rugged Keypads - IP67**

**Storm 700 Series and 900 Series**

**Keypad Specifications**

**Legend Tiles**
- Engineering grade silicone rubber

**Keytop Legend Tiles**
- Anodized aluminium

**Keytop Legend Tiles**
- LED drive voltage (single side)

**Keytop Legend Tiles**
- LED drive voltage (double side)

**Legend Tiles**
- Six legend tile sets available, for information see legend tile character library
Storm Graphic Series++

Configurable Keypads

Keypad legends can be custom configured without the need to dismantle the keypad. Transparent polymer legend tiles can be selected from an extensive library of standard characters or symbols and located in the keytop by a unique snap-on keytop cap. Customised keytop graphics can be created using laser printed acetate film or screen printed polymer film. Coloured keytops are achieved by inserting a second, coloured tile under the polymer legend tile. The impact resistant keytop cap provides a permanent, tamper resistant lens protecting the encapsulated legend from wear, physical damage and water ingress.

- High impact polymer
- Sealed to IP54
- Quick and easy to install
- Top surface or under panel mounting
- Interchangeable with Storm K Series keypads
- Ideal for use in industrial, commercial, public and point of sale applications
- Six legend tile sets available, for information see legend tile character library below

Legend Tile Character Library

STORM Graphic and 700/900 Series Keypads

<table>
<thead>
<tr>
<th>Legend</th>
<th>Character</th>
<th>Character</th>
<th>Character</th>
<th>Character</th>
<th>Character</th>
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<tbody>
<tr>
<td>A</td>
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<tr>
<td>B</td>
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<tr>
<td>C</td>
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<td>E</td>
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<tr>
<td>F</td>
<td>F</td>
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<td>F</td>
<td>F</td>
<td>F</td>
</tr>
</tbody>
</table>

Library of standard format keytop character sets (‘A’ to ‘F’) for use with STORM Graphic and 700/900 series keypads.

Storm Multi-Purpose Keypad Range - Up to IP67

Storm ‘K’ Series

- 5 ranges of keypads offering excellent price/performance for all applications
- Keypads are completely interchangeable across the series
- Easy to install and use
- High specification gold plated circuitry and connectors provide high reliability
- Supplied with comprehensive instructions

Product Selection Guide

INTELLIGENT ONLINE BUYING SYSTEM PROVIDING

Complete cost control, reduced administration time, visibility of your spend, flexibility and personalised to your company’s needs.

farnell.com/ibuy

<table>
<thead>
<tr>
<th>Legend Background</th>
<th>Grey</th>
<th>Yellow</th>
<th>Spare Keytops</th>
<th>Grey</th>
<th>Yellow</th>
<th>Spare Keytops</th>
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<tbody>
<tr>
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<td>135-0260</td>
<td>135-0261</td>
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</table>

4 Key 981-0170
12 Key 981-0180
16 Key 981-0190

Storm Multi-Purpose Keypad Range - Up to IP67

STORM ‘K’ Series

- 5 ranges of keypads offering excellent price/performance for all applications
- Keypads are completely interchangeable across the series
- Easy to install and use
- High specification gold plated circuitry and connectors provide high reliability
- Supplied with comprehensive instructions

1000 Series Public Outdoor
1000PLX Series Public Outdoor
2000 Series Industrial Outdoor
3000 Series Sheltered Outdoor
4000 Series Light Duty/Indoor

Series Key Life (cycles) | Service Temperature | Case Material | Keytop Material | Keytop Legends | Legend Colour |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1000</td>
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<td>Chroomed zinc</td>
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<td>Black</td>
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<tr>
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<tr>
<td>2000</td>
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<td>Super impact polymer</td>
<td>Laser marked Dark Grey</td>
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<tr>
<td>3000</td>
<td>-10°C to +85°C</td>
<td>General Service Polymer</td>
<td>General Service Polymer</td>
<td>Printed Dark Grey</td>
<td></td>
</tr>
<tr>
<td>4000</td>
<td>0°C to +70°C</td>
<td>General Service Polymer</td>
<td>General Service Polymer</td>
<td>Silicon Rubber</td>
<td></td>
</tr>
</tbody>
</table>

Contact Rating: 24V dc, 50mA
Insulation: 50MΩ
Temperatures: General Service Polymer

Legend Sets:
- Set A 70A00101
- Set B 70B00101
- Set C 70C00101
- Set D 70D00101
- Set E 70E00101
- Set F 70F00101

Sealed to IP54

Under panel mounting

Surface Mounting

Product Selection Guide

<table>
<thead>
<tr>
<th>Series Key Life (cycles)</th>
<th>Service Temperature</th>
<th>Case Material</th>
<th>Keytop Material</th>
<th>Keytop Legends</th>
<th>Legend Colour</th>
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Sealed to IP54

Under panel mounting

Surface Mounting

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Sealed to IP54

Under panel mounting

Surface Mounting

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- Set D 70D00101
- Set E 70E00101
- Set F 70F00101

Sealed to IP54

Under panel mounting

Surface Mounting

Product Selection Guide
Alpha Numeric Keypad - DDA Compliant
Storm 6000 Series

The 6000 series keypad is perfectly suited for vending applications, access control devices or any public data entry device. Large, brightly coloured keys with raised tactile symbols ensure maximum usability by those with visual or mobility impairments. The 6000 series keypad, features Storm’s patented weather and vandal switch technology, which allows these devices to be confidently deployed in the harshest outdoor/public environments.

- DDA Compliant
- Rugged, reliable and responsive data entry keypads
- Vandal resistant
- Weather resistant to IP65
- Large buttons for clarity and ease of use
- High contrast, laser engraved keytop graphics will not wear off over time
- Front plate is made of brushed stainless steel
- Keys: Super high impact polymer

For full legislative details, see: www.dda-compliance.com

---

Keypads - continued
Storm Multi-Purpose Keypad Range - Up to IP67 - continued
Storm 'K' Series - continued

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Price Each</th>
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<td></td>
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<tr>
<td>2000 Series</td>
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</tr>
<tr>
<td>12 Key Calc. style</td>
<td>980-9929</td>
</tr>
<tr>
<td>12 Key Tel. style</td>
<td>980-9937</td>
</tr>
<tr>
<td>16 Key Calc. style</td>
<td>980-9945</td>
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<tr>
<td>3000 Series</td>
<td></td>
</tr>
<tr>
<td>General Service - IP64</td>
<td></td>
</tr>
<tr>
<td>4 Key</td>
<td>980-9956</td>
</tr>
<tr>
<td>12 Key Tel. style</td>
<td>980-9961</td>
</tr>
<tr>
<td>16 Key Tel. style</td>
<td>980-9970</td>
</tr>
<tr>
<td>4000 Series</td>
<td></td>
</tr>
<tr>
<td>Light Duty</td>
<td></td>
</tr>
</tbody>
</table>

Mounting box for 12 way keypads 135-0245
Blank Keys 1000 series (set of 4)

---

Toughened Display Module
Storm 5000 Series

- Impact resistant to 10J BS EN 60668-2-75
- Clear, scratch resistant, anti-reflective window
- Weather resistant to IP65
- Responsive menu navigation and option selection keys
- Under-panel fixing through panel thicknesses of up to 2 mm
- Supplied complete with panel gasket and 4 x 20 character LCD display
- Resistant to petrochemicals and most commonly used cleaning agents
- Silver-grey bezel with black keys
- Compatible with STORM keypads and interface devices

Unit is supplied complete with a 4 line x 20 character backlit LCD display module.

---

Low Cost Miniature Keypads
ECO Series

<table>
<thead>
<tr>
<th>Description</th>
<th>Order Code</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>1+</td>
</tr>
<tr>
<td>Bezel with 20 x 4 LCD 5001-20002-REC</td>
<td>131-5744</td>
</tr>
</tbody>
</table>

---

Vandal Resistant Keypads - IP67
5. Series illuminated/Non-illuminated

A range of vandal resistant keypads which include yellow or blue LED illuminated and lower cost non-illuminated 12 key keypads. These rugged impact resistant keypads can either be front mounted using screws or rear mounted using studs. The polished chrome Zamak keys and casing offers superb looks along with a high degree of vandal and impact resistance. Non illuminated versions have superb black filled markings whilst illuminated versions have glass filled keys for bright clear illumination and a good viewing angle.

- High impact resistance housing and keys
- Anti-pull off keys
- Key lifetime 4 million operations
- Front or rear panel mounting
- Front face sealed to IP67 using gasket supplied
- Connection via 0.1" pitch headers

---

Plastic Keypad
Telephone Type

Connection is via PCB pre drilled 2.54mm solder terminals. Switches are configured on a standard matrix layout. White keypads have white keys with black legends. Black keypads have white keys with black legends.

12 Key - Non illuminated
Telephone keypad S.12100.242
100-6082

12 Key - Illuminated
Yellow LED - Telephone markings S.12150.241
100-6083

16 Key - Illuminated
Yellow LED - 16 Key hex. markings S.16350.241
100-6084

---

Miniature matrix circuit keypads in a black flush mounting case with white keys and black markings. Fitted with a 0.1" pitch header (7 pin for 12 way and 8 pin for 16 way keypads).

Operating voltage 24V max.
Operating Current 50mA max.
Contact resistance 220Ω/1N
Contact bounce 5ms

1000M cycles 1000000 operations
Amorphous Carbon on Gold -25°C to +70°C

---

Price Each

<table>
<thead>
<tr>
<th>Description</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1+</td>
</tr>
<tr>
<td>12 Keys - 4 x 3</td>
<td>118-2236</td>
</tr>
<tr>
<td>16 Keys - 4 x 4</td>
<td>118-2239</td>
</tr>
</tbody>
</table>
Plastic Keypad - IP67

Connection is via PCB pre drilled 2.54mm solder terminals. Switches are configured on a standard matrix layout. Black keys with white legends.

- 12 Key - H = 14 (overall), W = 56.2, D = 72mm
- Life 2000000 Cycles per key
- Key travel 2mm
- Contact rating 20mA @ 24V
- Operating temperature -20 to 60°C
- Contact force 0.98N
- Connection is via predrilled 2.54mm solder terminals.

Metal Keypad - IP67

Connection is via PCB pre drilled 2.54mm solder terminals.

- Contact rating 20mA @ 24V
- Operating temperature -20 to 60°C
- Life 2000000 Cycles per key

Membrane Keypad Developer's Kit

The developer’s keypad can be simply cut to various shapes to suit several standard keypad enclosures. Alternately the keypad can be used as is, without trimming.

- To enhance your prototypes, the kit includes many useful design tools to enable you to create prototype overlays for design presentations, exhibitions, concept models, or prototype function testing.
- Cut and paste your chosen keypad profiles, key shapes, borders, and colours into your preferred graphics design software. Colour print your design onto self adhesive paper. (5 sheets included with this kit).
- For added protection, your printout self adhesive paper. (5 sheets included with this kit).
- Your chosen enclosure or support panel.

- Dimensions, are also included on the CD for cutting the required keypad tail exit slot into the required shape. (5 self adhesive polyester sheets included with this kit)
- Templates, including your chosen design can be over laminated with clear self adhesive polyester before cutting to the required shape. (5 sheets included with this kit).
- For added protection, your printout self adhesive paper. (5 sheets included with this kit).

Waterproof Vandal Resistant Keypads

Illuminated and Non-Illuminated

- Connection is via PCB pre drilled 2.54mm solder terminals
- Switches are configured on a standard matrix layout
- Illuminated versions have each key lit by a LED producing a low level glow
- Keypads are supplied with front fitting sealing gasket

Membrane Keypads

Customisable membrane keypads which can be attached to any clean flat surface.
- Keypads with insertable legends for custom use
- Graphic material polyester/poly-carbonate
- Tactile feedback
- Perimeter embossed for key finger location
- 3M adhesive backed
- Sealed to IP65

- Voltage Rating 30V
- Operating Temperature -30°C to 55°C
- Current rating 100mA
- Contact Force 400g
- Dielectric Strength 250V
Membrane Keypads - continued

**Keyboards**

**Vandal Resistant Keyboards**
- Vandal resistant
- Weather resistant
- Operational life: 4 million cycles per key
- Integral 38mm trackball with left & right click keys
- 63 keys
- Compact format: 360 x 118.5 x 43.85mm
- RFI/EMI Protection in accordance with current European and US directives

**Top Mounting Keyboards**
- Vandal resistant
- Weather resistant to IP65
- Integral 38mm trackball with left & right click keys
- 63 keys
- Compact format: 384 x 142 x 40mm
- Suitable for fixing into work surfaces
- USB encoder
- Languages: UK, USA, French, Spanish and German

**Intgrated Keypad & Display**

Storm 5000 Series

Developed for a wide range of industrial and commercial applications. This integrated keypad and display module is extremely tough and weather resistant. It is ideal for use in hostile, exposed or public environments.

The integrated keypad and display module can be supplied with a 20 character x 4 line illuminated LCD display securely located behind a coated, scratch resistant, polycarbonate window. Alternatively, the module can be ordered without the LCD display module for those applications requiring different display types or technologies. The module is designed for easy installation into a control panel or equipment housing with generous provision for the fixing and accomodation of additional circuit boards and components.

Connection to the keypad device is achieved via a 0.1” square pin male connector with locking ramps. Connection to the display module (when fitted) is via a 16 way 0.1” square female connector.

Available in either ‘vandal resistant’ (VR) specification (with a brushed stainless steel front plate and engraved metal keys) or ‘robust’ (R) specification (with black polycarbonate front plate and re-legendable ‘Graphics Keys’).

**Industrial Push Button Switches**

Miniature 8mm - 19 Series

Illuminated Push Buttons and Indicators

**Miniature - A3A Series**

SPST Momentary and Latching
Miniature 12mm - A3C Series
Illuminated Push Buttons and Indicators - 1A @ 125V ac, 30V dc

- Excellent operability
- Sealed to IP40
- High visibility
- CSA approved, UL recognised
- All LEDs, lamps, lenses and legends replaceable without tools
- Compact housing - requires only 22mm mounting depth
- Round, square and rectangular options
- Switch contacts are SPST NO + SPST NC
- Note: For suitable light source's see Omron A16 series, AC3 range not suitable for Neon illumination.

Switch Bodies - Momentary

<table>
<thead>
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<th>List No.</th>
<th>Order Code</th>
<th>Price Each</th>
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<td>118-1356</td>
<td>A3CT-7011</td>
<td>1+ 50+ 100+</td>
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<tr>
<td>118-1357</td>
<td>A3CA-7011</td>
<td>1+ 50+ 100+</td>
</tr>
<tr>
<td>118-1358</td>
<td>A3CT-7021</td>
<td>1+ 50+ 100+</td>
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</tbody>
</table>

Switch Bodies - Latching

<table>
<thead>
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</tr>
</thead>
<tbody>
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<td>A3CT-7011</td>
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</tr>
<tr>
<td>118-1357</td>
<td>A3CA-7011</td>
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<td>118-1358</td>
<td>A3CT-7021</td>
<td>1+ 50+ 100+</td>
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Lens - Round

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<th>Order Code</th>
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<td>A3CJ-500R</td>
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<tr>
<td>619-308</td>
<td>A3CJ-500G</td>
<td>1+ 50+ 100+</td>
</tr>
<tr>
<td>619-307</td>
<td>A3CJ-500Y</td>
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</tr>
<tr>
<td>619-306</td>
<td>A3CJ-500W</td>
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Lens - Square

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<tbody>
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<td>619-309</td>
<td>A3CJ-500R</td>
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<td>619-308</td>
<td>A3CJ-500G</td>
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<td>619-307</td>
<td>A3CJ-500Y</td>
<td>1+ 50+ 100+</td>
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<tr>
<td>619-306</td>
<td>A3CJ-500W</td>
<td>1+ 50+ 100+</td>
</tr>
</tbody>
</table>

Illuminated Miniature Push Button Switches
1A @ 125V ac, 250V ac or 1A @ 30V dc

- Super bright LED illumination
- Audible and tactile feedback with responsive action
- Long life, snap-action mechanism
- 12mm body diameter
- Molded-in terminals lock out flux, dust and other contaminants
- 8mm panel thickness
- CSA Approved, UL Recognised

Switch Specifications
- Electrical capacity: 1A @ 125V / 250V ac or @ 30V dc
- Electrical life: 50000 Cycles
- Contact resistance: 50mOhm
- Insulation resistance: @ 500VDC
- Dielectric strength: 1000VAC between contacts for 1 minute minimum
- Operating temperature: -25°C to 50°C

Miniature 8mm - A3D Series
100mA @ 30V dc

- Round, square and rectangular options
- Compact housing - requires only 18mm mounting depth
- Super bright LED illumination
- Audible and tactile feedback with responsive action
- 8mm panel thickness
- CSA Approved, UL Recognised

Switch Contacts are SPST NO + SPST NC

Contacts
- SPNO
- Operating force: 250g max.
- Insulation resistance: 100MΩ @ 500V dc

LED Ratings
- V=2.1V (3.0V max.), I=10mA ( 20mA max.)

Contact Switch Rating
- From 1mA @ 5V dc to 6A @ 125V ac, 2A @ 250V ac

Note: Built-in LED requires appropriate current limiting resistor.

Triebleshooting Tips

Chat online to one of our technical engineers at farnell.com
### Industrial Push Button Switches - continued

#### Illuminated Miniature Push Button Switches - continued

1A @ 125V ac/250V ac or 1A @ 30V dc - continued

<table>
<thead>
<tr>
<th>Color &amp; Mfrs.</th>
<th>LED Colour</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>Standard</td>
<td>1+ 25+ 50+</td>
</tr>
<tr>
<td>Blue</td>
<td>5+ 25+ 100+</td>
<td></td>
</tr>
<tr>
<td>Yellow</td>
<td>1+ 25+ 100+</td>
<td></td>
</tr>
<tr>
<td>Red</td>
<td>1+ 25+ 100+</td>
<td></td>
</tr>
</tbody>
</table>

### Pushbutton Switches

#### D16 Series

- Each contact block has one double break snap action switching mechanism
- SPD & DPDT, momentary or latching action versions
- Silver contact material

<table>
<thead>
<tr>
<th>Rating</th>
<th>5A (@ 250V ac)</th>
<th>2A (@ 120V ac</th>
<th>0.2A (@ 250V dc)</th>
<th>Operating force</th>
<th>Actuating force</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6A @ 220V ac</td>
<td>8A @ 120V ac</td>
<td>0.2A @ 250V ac</td>
<td>1000N operations</td>
<td>2 - 5N</td>
</tr>
</tbody>
</table>

#### Standard 16mm - A01 Series

Illuminated Push Buttons and Indicators - 6A @ 250V ac

- Modular constructed push buttons and indicators
- Single or double pole C/O switch blocks
- Momentary or latching action
- Illuminated by neon, filament or multi segmented LED lamps
- Gold flashed silver contacts
- IP66 sealed
- Approved to BEAB, VDE and CSA. UL recognised
- Push button assembly: Actuator+Lens+Lamp+Contact block
- Indicator assembly: Indicator body+Lens+Lamp

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>104-24694</td>
<td>A0165Y</td>
<td>Red</td>
</tr>
<tr>
<td>104-24695</td>
<td>A0165X</td>
<td>Green</td>
</tr>
<tr>
<td>104-24696</td>
<td>A0165Z</td>
<td>Blue</td>
</tr>
</tbody>
</table>

#### Protection Covers

- Max depth behind panel = 42
- Max panel thickness = 4

<table>
<thead>
<tr>
<th>Protection Covers</th>
<th>18mm dia X 18mm</th>
<th>18mm dia X 18mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>18mm dia X 18mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18mm dia X 18mm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Contact blocks

- Single pole
- Double pole

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>104-24694</td>
<td>A0165Y</td>
<td>Red</td>
</tr>
<tr>
<td>104-24695</td>
<td>A0165X</td>
<td>Green</td>
</tr>
<tr>
<td>104-24696</td>
<td>A0165Z</td>
<td>Blue</td>
</tr>
</tbody>
</table>

#### Lenses

- 18mm Round Lens
- 18mm Square Lens

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue</td>
<td>104-24694</td>
<td>A0165Y</td>
<td>Red</td>
</tr>
<tr>
<td>Green</td>
<td>104-24695</td>
<td>A0165X</td>
<td>Green</td>
</tr>
<tr>
<td>Orange</td>
<td>104-24696</td>
<td>A0165Z</td>
<td>Blue</td>
</tr>
</tbody>
</table>

#### Tools

- Bulb remover 30-6002 925-639
- Lens remover 30-6006 925-640
- Tool kit (all above) 30-6126 108-2291

#### Protection Covers

- 18mm dia X 18mm
- 18mm dia X 18mm

<table>
<thead>
<tr>
<th>Protection Covers</th>
<th>18mm dia X 18mm</th>
<th>18mm dia X 18mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>18mm dia X 18mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18mm dia X 18mm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Improved back order delivery**

Receive email updates with the exact status, date and despatch information of all your back order items farnell.com
Standard 16mm - A01 Series

Key Switches and Rotary Lever Switches - 6A @ 250V ac

- Modular constructed key switch and rotary lever
- Single or double pole switching
- Two position latching operators
- Gold flashed silver contacts
- IP65 sealed
- Approved to BEAB, VDE and CSA
- UL recognised
- Key switch and rotary lever assembly: Actuator + contact block

Contact resistance: <10mΩ @ -40°C, 1A
Operating temperature: -20°C to +55°C

<table>
<thead>
<tr>
<th>Contact</th>
<th>Resistance (Ω)</th>
<th>Temperature (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP65</td>
<td>&gt;100,000</td>
<td>-20°C to +55°C</td>
</tr>
</tbody>
</table>

Emergency Stop Switch - 6A 250V ac
Standard 16mm - A01 Series

- Emergency stop
- Supplied with double pole positive break switch block
- Prominent 24 mm diameter red mushroom actuator
- Push to operate, twist to reset
- IP65 sealed
- Yellow self-adhesive 60mm emergency stop label available
- Approved to VDE and CSA, UL recognised

<table>
<thead>
<tr>
<th>Key Switch Actuator</th>
<th>Mfrs. List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>18mm dia two position</td>
<td>A018301</td>
<td>108-2375</td>
<td>1+ 25+ 100+</td>
</tr>
<tr>
<td>18 x 18mm two position</td>
<td>A018201</td>
<td>108-2374</td>
<td>1+ 25+ 100+</td>
</tr>
<tr>
<td>18 x 24mm two position</td>
<td>A019101</td>
<td>108-2376</td>
<td>1+ 25+ 100+</td>
</tr>
</tbody>
</table>

Rotary Lever Actuator

- 6A @ 250V ac max.
- Mechanical life: 10mR @ 4V dc, 1A
- Operating temperature: -20°C to +85°C

<table>
<thead>
<tr>
<th>Rotary Lever Actuator</th>
<th>Mfrs. List No.</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>A019301</td>
<td>108-2377</td>
<td></td>
</tr>
<tr>
<td>A019101</td>
<td>108-2378</td>
<td></td>
</tr>
</tbody>
</table>

Contact Blocks

- Single Pole: A0151B, 108-2354
- Double Pole: A0152B, 108-2354

Compact 16mm IP65 Sealed - A16 Series

Illuminated Push Buttons, Indicators, Key Switch, Selector Switch, Emergency Stop, Buzzer. 3A @ 250Vac or 30Vac, 5A @ 125Vac. 1mA @ 5Vdc minimum load

- 16 x 18mm dia.
- Max depth behind panel = 42 max panel thickness = 4

Contact rating: 10mA @ 5V ac max.
6A @ 250V ac max.

Contact resistance: <10mΩ @ -40°C, 1A
Operating temperature: -20°C to +55°C

Switches & Indicators L = 37.8, depth behind panel = 28.5
Key Switch L = 38, depth behind panel = 28.5
Selector Switch L = 47, depth behind panel = 28.5
Emergency Stop Switch L = 48.5, depth behind panel = 28.5
Buzzer L = 38, depth behind panel = 28.5

All switches Tabo = 2.8 x 0.5. Panel cut-out = 16
Panel spacing: Round. Square = 19 x 19. Rectangular = 24 x 19

Light Source

- Choice of filament, neon or LED illumination
- LED lamps are 4 LED clusters and offer much longer life, thereby reducing maintenance costs

<table>
<thead>
<tr>
<th>Light Source</th>
<th>Voltage (V)</th>
<th>Current (mA)</th>
<th>Operational Life (hrs)</th>
<th>Mfrs. List No.</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filament lamp</td>
<td>5</td>
<td>60</td>
<td>3000</td>
<td>A16-5</td>
<td>118-1320</td>
</tr>
<tr>
<td>Filament lamp</td>
<td>14</td>
<td>40</td>
<td>16000</td>
<td>A16-12</td>
<td>118-1329</td>
</tr>
<tr>
<td>Filament lamp</td>
<td>28</td>
<td>24</td>
<td>16000</td>
<td>A16-24</td>
<td>118-1330</td>
</tr>
<tr>
<td>Neon, orange</td>
<td>110-150</td>
<td>1.5</td>
<td>10000</td>
<td>A16-2NRN</td>
<td>118-1331</td>
</tr>
<tr>
<td>Neon, green</td>
<td>110-150</td>
<td>1.5</td>
<td>10000</td>
<td>A16-2NRN</td>
<td>118-1333</td>
</tr>
<tr>
<td>Neon, green</td>
<td>250-300</td>
<td>1.5</td>
<td>10000</td>
<td>A16-2NRN</td>
<td>118-1334</td>
</tr>
<tr>
<td>LED, red</td>
<td>5</td>
<td>30</td>
<td>50000</td>
<td>A16-5D0R</td>
<td>118-1335</td>
</tr>
<tr>
<td>LED, red</td>
<td>12</td>
<td>15</td>
<td>50000</td>
<td>A16-12D0R</td>
<td>118-1336</td>
</tr>
<tr>
<td>LED, red</td>
<td>24</td>
<td>10</td>
<td>50000</td>
<td>A16-24D0R</td>
<td>118-1337</td>
</tr>
<tr>
<td>LED, yellow</td>
<td>5</td>
<td>30</td>
<td>50000</td>
<td>A16-S0Y</td>
<td>118-1339</td>
</tr>
<tr>
<td>LED, yellow</td>
<td>12</td>
<td>15</td>
<td>50000</td>
<td>A16-12D0Y</td>
<td>118-1340</td>
</tr>
<tr>
<td>LED, yellow</td>
<td>24</td>
<td>10</td>
<td>50000</td>
<td>A16-24D0Y</td>
<td>118-1341</td>
</tr>
<tr>
<td>LED, green</td>
<td>5</td>
<td>30</td>
<td>50000</td>
<td>A16-5DG</td>
<td>118-1342</td>
</tr>
<tr>
<td>LED, green</td>
<td>12</td>
<td>15</td>
<td>50000</td>
<td>A16-12D0G</td>
<td>118-1343</td>
</tr>
<tr>
<td>LED, green</td>
<td>24</td>
<td>10</td>
<td>50000</td>
<td>A16-24D0G</td>
<td>118-1344</td>
</tr>
<tr>
<td>LED, blue</td>
<td>5</td>
<td>30</td>
<td>50000</td>
<td>A16-5D0B</td>
<td>118-1345</td>
</tr>
<tr>
<td>LED, blue</td>
<td>12</td>
<td>15</td>
<td>50000</td>
<td>A16-12D0B</td>
<td>118-1346</td>
</tr>
<tr>
<td>LED, blue</td>
<td>24</td>
<td>10</td>
<td>50000</td>
<td>A16-24D0B</td>
<td>118-1347</td>
</tr>
</tbody>
</table>
### Industrial Push Button Switches - continued

**Light Source - continued**

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+</td>
<td>10+</td>
</tr>
<tr>
<td><strong>All Lamps</strong></td>
<td></td>
</tr>
<tr>
<td>All Neons</td>
<td></td>
</tr>
<tr>
<td>All LEDs</td>
<td></td>
</tr>
</tbody>
</table>

**Lens Screen**
- Round, square or rectangular options to match bodies
- Choice of 6 colours

<table>
<thead>
<tr>
<th>Colour</th>
<th>Light Source</th>
<th>Lens Screen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Filament lamp or LED</td>
<td>Round Order Code: 118-1302 118-1303 118-1304</td>
</tr>
<tr>
<td>Yellow</td>
<td>Filament lamp or LED</td>
<td>118-1305 118-1306 118-1307</td>
</tr>
<tr>
<td>Green</td>
<td>Filament lamp or LED</td>
<td>118-1308 118-1309 118-1310</td>
</tr>
<tr>
<td>White</td>
<td>Filament lamp or LED*</td>
<td>118-1311 118-1312 118-1314</td>
</tr>
<tr>
<td>Blue</td>
<td>Filament lamp</td>
<td>118-1315 118-1316 118-1317</td>
</tr>
<tr>
<td>Red</td>
<td>Neon</td>
<td>118-1318 118-1319 118-1320</td>
</tr>
<tr>
<td>Green</td>
<td></td>
<td>118-1321 118-1322 118-1323</td>
</tr>
<tr>
<td>Black</td>
<td></td>
<td>118-1325</td>
</tr>
</tbody>
</table>

* Using yellow LED

**Compact, 16mm hole mounting - 35mm Series**

**Illuminated Push Buttons and Indicators - 6A @ 250V ac**

- 35mm maximum back panel depth
- Removable contact blocks for pre-wiring
- Lamp or LED Illumination T 1¾ midget groove
- IP40 and IP65 version available

<table>
<thead>
<tr>
<th>18 x 18mm Bezeled Actuators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Momentary IP40 680-6000-00 185-6440</td>
</tr>
<tr>
<td>Momentary IP65 680-6000-W 185-6560</td>
</tr>
<tr>
<td>Latching IP40 600-6000-00 185-6660</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>18 x 24mm Bezeled Actuators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Momentary IP40 680-6000-00 185-7000</td>
</tr>
<tr>
<td>Momentary IP65 680-6000-W 185-7110</td>
</tr>
<tr>
<td>Latching IP40 600-6000-00 185-7220</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>18 x 18mm Lenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red 600-3120-00 185-7660</td>
</tr>
<tr>
<td>Yellow 600-3172-00 185-7720</td>
</tr>
<tr>
<td>Green 600-3140-00 185-7440</td>
</tr>
<tr>
<td>Blue 600-3150-00 185-7960</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>18 x 24mm Lenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red 600-3120-00 185-8020</td>
</tr>
<tr>
<td>Yellow 600-5170-00 185-8140</td>
</tr>
<tr>
<td>Green 600-5140-00 185-8210</td>
</tr>
<tr>
<td>Blue 600-5150-00 185-8380</td>
</tr>
</tbody>
</table>

**Contact Blocks**
- 1 NO/1 NC 601-0000-00 185-8400 |
- 2 NO/2 NC 602-0000-00 185-8510 |
- Indicator Lamp Block 600-0000-00 185-8650

**Indicators (depth behind panel)**
- T1¾ lamp fitting/buzzer = 30, T5.5 lamp fitting = 40, Mounting hole = 16.2

**Switches (depth behind panel)**
- T1¾ lamp fitting/key switch = 55, T5.5 lamp fitting = 70, Mounting hole = 16.2

**Standard, 16mm hole mounting - 55-70mm Series**

**Illuminated Push Buttons, Indicators, Key Operated Switch, Buzzer - 6A @ 250V ac**

- Panel mounting through 16.2mm hole diameter
- Square and rectangle bezelled units available, matching lenses
- Matching indicators available
- Same switch mechanism can serve as either latching or momentary. Supplied as latching, can be converted to momentary by simply removing a phosphor bronze spring on the side of the switch body
- Choice of body style, to take either T1¾ midget groove or T5.5 telephone side lamps
- SPDT or DPDT contacts, 1 or 2 contact elements of 1N/O + 1N/C
- Extra elements (1N/D + 1N/C) can be added to a maximum of 3
- Contacts are hard silver, gold plated
- Matching key operated switch available 1N/O + 1N/C contacts, 2 positions, latching
- Matching 12 volt buzzer available
- Approved to VDE, SEV, SEMKO, DEMKO, NEMKO and CSA

**Contact Blocks**
- Extra elements (1N/O +1NC) can be added to a maximum of 3
- SPDT or DPDT contacts, 1 or 2 contact elements of 1N/O + 1N/C
**Tactile Snap Action, 16mm hole mounting - 31 Series**

**Illuminated Pushbuttons and Indicators 5A, 250Vac, IP40**

- Tactile self-cleaning elements
- One or two changeover elements
- Square or rectangular front bezels
- Gold plated silver contacts
- VDE, CSA, 3E V approved, UL recognised

**Depth behind panel**
- Unit 1NO, 1NC = 29
- Unit 2NO, 2NC = 36.5
- Indicator = 23.5

**Order Multiple**
- =1
- =2

**Application**
- LED
- Electronic
- Instrumentation
- Automation

**Flush Mounted Pushbutton Switches**

- 6A @ 25V ac, 6A @ 12V dc
- Solder and quick-connect terminals
- Flashing mounted
- Sealed to IP65
- Illuminated and non-illuminated
- 22mm diameter panel cut-out

**Switch Specifications**
- Rating: 6A @ 250V AC, 6A @ 12V DC
- Electrical life: 50000 Cycles
- Contact resistance: 10mΩ
- Insulation resistance: Dielectric strength: 750V/μs
- Operating temperature: -20°C to +55°C

**Price Each**

<table>
<thead>
<tr>
<th>16 x 18mm Bezeled Units</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lens extractor</td>
<td>141-235</td>
<td></td>
</tr>
<tr>
<td>Lamp extractor</td>
<td>141-236</td>
<td></td>
</tr>
<tr>
<td>18 x 24 splashproof cover</td>
<td>141-239</td>
<td></td>
</tr>
<tr>
<td>18 x 24 protection cover</td>
<td>141-240</td>
<td></td>
</tr>
</tbody>
</table>

**Industrial 22mm - A02 Series**

**Illuminated Push Buttons and indicators - 16A @ 250V ac**

- 29mm Plastic Bezel
- 29mm Metal Bezel
- Push button: Actuator + Contact block + Lens + Lamp
- Indicator: Actuator + Lens + T 1 3/4 Midget Groove Lamp
- VDE, CSA and BEAB approved
- UL recognised

**Contact rating**
- 25mA @ 50V ac min
- 16A @ 250V ac

**Contact resistance**
- <10mΩ @ 1A 4Vdc

**Insulation resistance**
- >50MΩ

**Operating temperature**
- -20°C to +85°C

**Order Multiple**
- =1

**Mfrs.**

<table>
<thead>
<tr>
<th>List No.</th>
<th>Illumination</th>
<th>LED</th>
<th>Voltage</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
</table>

**Latching action**

- 29mm dia, plastic: A0020Y
- 29mm dia, metal: A0020X

**Push Button Actuators - Momentary**

- 29mm dia, plastic: A0020Y
- 29mm dia, metal: A0020X

**Push Button Actuators - Latching**

- 29mm dia, plastic: A0020Y
- 29mm dia, metal: A0020X

**Replacement Neon Lamps**

- 110V A0143G
- 230V A0143H

**Price Each**

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
</table>
Low Level Switching 16mm - 31 Series
Illuminated Silent Action Push Button Switches, Indicators, 10mA/100V to 100mA/42V

- Low signal level switches
- Silent operation for momentary actuators
- Square or rectangular push buttons and indicators
- Terminals suitable for PCB, solder or plug-in (2.8 x 0.5mm) connection
- PCB socket adaptor available for easy switch removal
- Contact bounce less than 100μs, initial contact resistance ≤50mΩ
- Mechanical life 5 million operations

Order Multiplier = 1

<table>
<thead>
<tr>
<th>Mfrs. List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+ 10+ 100+</td>
<td></td>
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</tbody>
</table>

Order Multiplier = 3

<table>
<thead>
<tr>
<th>18 x 24mm Bezel Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mfrs. List No.</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>1+ 10+ 100+</td>
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Order Multiplier = 1

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<tr>
<th>18 x 24mm Lenses</th>
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<tr>
<td>Mfrs. List No.</td>
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<td>1+ 10+ 100+</td>
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Order Multiplier = 1

<table>
<thead>
<tr>
<th>Accessories</th>
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<tbody>
<tr>
<td>Mfrs. List No.</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>1+ 10+ 100+</td>
</tr>
</tbody>
</table>

Ultra Flush Mount IP67 - 84 Series

- Ultra flush mounting - height above panel 2mm only
- Integrated multi-chip LED (illuminated versions, 24V dc operating voltage)
- Flying lead or solder/plug-in terminations
- Detachable switch unit for easy wiring
- Gold plated normally open, momentary contacts
- Sealing to IP67

Order Multiplier = 1

<table>
<thead>
<tr>
<th>Mfrs. List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
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<td>1+ 10+ 100+</td>
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Accessories

<table>
<thead>
<tr>
<th>Mfrs. List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+ 10+ 100+</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Low Profile Flushmount Switches
Series 84 Halo Bezel

- IP67 Frest Protection
- Short Black Panel Depth with plug-in terminals
- Bi-colour red/green switch 300mm flying leads
- High Brightness LED Illuminated bezel
- Raised aluminium lens
- 2x40V LED Voltage
- Gold Plated 1NO Momentary Contact
- 100mA / 42V Max Power 2W

Push Button Illuminated – Plug-in
- List No. A01ESSP354B+PEA01 = 108-2380
- A01MMESP352B+PEA01 = 108-2385
- Price Each

Push Button Illuminated – Flying Lead
- Red / Green K84-603.HRG 175-5875
- Price Each

Mushroom Head Pushbutton Switches - Enclosed
6A 250V ac

- Push button switches in robust polycarbonate enclosures
- Available with coloured momentary and twist-to-release (emergency stop) actuators
- Sealed to IP65
- Knockouts for popular conduit sizes

Bezel dia. = 24, Depth = 22, Panel cut-out (dia.) = 16, thickness = 8 max.

Push-Pull Switches
2A @ 250V ac

- Latching double-pole changeover
- Selection of button colours
- Solder lug terminals
- Electrical Life: 10000 ops
- Contact Resistance: 10mR
- Operating Temp: -20 to +70°C
- Travel: 2.3mm

Mushroom Switch with Key Reset
Panel Cut-out 22.5mm

- Mushroom cap, 40mm diameter
- Positive opening operation
- Light action
- Faston terminals 2.8 x 0.5mm
- 1NO + 1NC contacts

Switching Contact: Momentary IP66
- Operating IP: 6A @ 230VAC <30msec -25 to 55°C IP40
- Cap dia 40mm, panel cut-out 22.5mm

16mm - Sealed
Emergency Stop Switch

- Emergency stop
- Push to operate, twist to reset
- Supplied with Snap On, 2 x NC/NO contact block
- High actuation force to prevent inadvertent operation
- Quick Connect/Solder terminals
- Complete with terminal cover and self adhesive "EMERGENCY STOP" disc
- Plain and Illuminated versions available

Sealed Emergency Stop Switch to EN 418
Panel Cut-out 16.2mm

- Mushroom cap, 27mm diameter
- Rotary reset
- Faston terminals 2.8 x 0.5mm
- Two normally closed terminals

The first online technical portal for design engineers
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### Industrial Push Button Switches - continued

#### E-Stop Push Button Switches - continued

**Contact Rating**
- Solder: 5 VAC/DC @ 1 mA min., 250 VAC/DC @ 5 A max.
- Faston: 5 VAC/DC @ 1 mA min., 250 VAC/DC @ 5 A max.
- PCB: 100 mA/10 mA min., 42 VAC/DC @ 100 mA max.

**Operating life**
100000 cycles

**Temperature**
-20°C to 55°C

**Actuating force**
4 to 6N (depending on the switching element)

**Housing Material**
Polyamide, Thermoplastic elastomer

**Contact Material**
- Solder: Gold Plated Silver
- Faston: Gold Plated Silver
- PCB: Gold Plated

**Specifications**
- 3A @ 120V ac, 1.5A @ 240V ac
- Illuminated E-Stop Push Button Switches
- Vandal Resistant - IP66
- Vandal Resistant - IP65

**Housing Material**
Polyamide, Thermoplastic elastomer

**Operating Temperature**
-25°C to 55°C

**Contact Life**
100000 cycles

**Contact Resistance**
50mohm

**Contact Rating**
- Solder: 5 VAC/DC @ 1 mA min., 250 VAC/DC @ 5 A max.
- Faston: 5 VAC/DC @ 1 mA min., 250 VAC/DC @ 5 A max.
- PCB: 100 mA/10 mA min., 42 VAC/DC @ 100 mA max.

**Operation**
- Electrical 200000

**Operating Force**
4N

**Contact Material**
- Solder: Gold Plated Silver
- Faston: Gold Plated Silver
- PCB: Gold Plated

**Contact Life**
100000 cycles

**Contact Resistance**
50mohm

#### E-Stop Push Button

- **Button dia:** 32, cut-out = 22.3, depth below panel = 18 (mtr terminals), 13.5 (ribbon cable version)

#### Illuminated E-Stop Push Button

- **3A @ 120V ac, 1.5A @ 240V ac**

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Contact Configuration</th>
<th>Contact Termination</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>84-0303.0028</td>
<td>3NC/1NO</td>
<td>Solder</td>
<td>188-89179B</td>
<td>$10</td>
</tr>
<tr>
<td>84-0303.0040</td>
<td>3NC/1NO</td>
<td>Ribbon cable</td>
<td>188-89179B</td>
<td>$10</td>
</tr>
</tbody>
</table>

#### Vandal Resistant Switches

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Contact Configuration</th>
<th>Contact Termination</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>84-0301.2112</td>
<td>2NC</td>
<td>Solder</td>
<td>188-89179B</td>
<td>$10</td>
</tr>
<tr>
<td>84-0301.2210</td>
<td>2NC</td>
<td>Ribbon cable</td>
<td>188-89179B</td>
<td>$10</td>
</tr>
</tbody>
</table>

#### Vandal-Resistant Switches

- **Vandal Resistant - IP65**
  - Three actuator styles available
  - 25.4mm bezel diameter
  - M10 panel hole
  - Depth behind panel 26.2mm
  - Maximum panel thickness 10mm
  - Single Pole Momentary action
  - Stainless steel

#### Vandal-Resistant - IP66 - with internal resistors

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Contact Configuration</th>
<th>Actuator Style</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>AV01-B22-M1-F-IP65</td>
<td>Flat</td>
<td>148-3022E</td>
<td>$10</td>
<td></td>
</tr>
<tr>
<td>AV01-B22-M1-R-IP65</td>
<td>Raised</td>
<td>148-3024E</td>
<td>$10</td>
<td></td>
</tr>
<tr>
<td>AV01-B22-M1-P-IP65</td>
<td>Curved</td>
<td>148-3026E</td>
<td>$10</td>
<td></td>
</tr>
</tbody>
</table>

#### Displays

- **50mA @ 24V dc**

#### Illuminated - Vandal-Resistant - IP66 - with integral resistors

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Contact Configuration</th>
<th>Actuator Style</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1241.3020.F</td>
<td>Flat</td>
<td>197-3763E</td>
<td>$10</td>
<td></td>
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<tr>
<td>1241.3010</td>
<td>Raised</td>
<td>197-3729E</td>
<td>$10</td>
<td></td>
</tr>
<tr>
<td>1241.3011</td>
<td>Curved</td>
<td>197-3747E</td>
<td>$10</td>
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<tr>
<td>1241.3012</td>
<td>Raised</td>
<td>197-3758E</td>
<td>$10</td>
<td></td>
</tr>
</tbody>
</table>

#### IMPROVED BACK ORDER DELIVERY

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Vandal-Proof Piezo Switches

SPNO

- High reliability
- Vandal resistant
- Sealed to IP67
- Switch has no moving parts

Switch Types
- General Prolonged signal

- Voltage, switching dc max: 60 V
- Voltage, switching ac max: 42 V
- Current, switching max: 0.1 A
- Capacitance: 30 pF
- Resistance, isolation (OFF = not actuated): > 200 kΩ
- Life, at breaking capacity: ≥ 200 million cycles
- Travel (contact): 0.002 mm
- Life, at breaking capacity: 1250 W
- Capacity, breaking max: 2.6 A
- Current, switching max: 0.1 A
- Voltage, switching ac max: 42 V
- Voltage, switching dc max: 60 V

- Contact Rating - ac: 5 A @ 125 V
- Contact Resistance: 50 mΩ max.
- Insulation Resistance: > 20 MΩ
- Operating Temperature: -25°C to 85°C
- Force, operating min.: 1.53 N (2.54 N for mechanical stroke version)

- Standard Fitment
  - Panel sealed to IP67
  - Three options available, curved actuator, flat actuator, curved actuator with chamfer
  - Robust stainless steel construction
  - Screw terminal connections
  - Sealed to IP54

- Illumination Mfrs. List No.: AV0830C940 = 108-2435
- AV0630C940 = 108-2430
- AV0630C940 = 108-2431

- Panel cut-out = 19.25 dia.
- Max panel thickness = 3.0 mm

- M16 Plastic Housing
  - Panel cut-out = 21.5 dia.
  - Max panel thickness = 4.0 mm

- M16 Aluminum Housing
  - Panel cut-out = 23.8 dia.
  - Max panel thickness = 6.0 mm

- M19 Aluminum Housing
  - Panel cut-out = 25.0 dia.
  - Max panel thickness = 6.0 mm

- M22 Mounting - M25 Button diameter
  - List No.: 979-3712

Vandal-Proof Stainless Steel Switches

DPDT, mechanical stroke, M19 and M22

Both the housing and the actuator of this range of MSM, vandal-proof switches are made of high-quality stainless steel. This robust construction method enables the switches to be used in harsh environments. There are two mounting diameters available, 19mm and 22mm. The switch is equipped with two separate switching contacts which are available as normally open, normally closed or as change-over. These MSM switches are supplied with flat-pin plugs to permit fast and simple connection. The cables are plugged onto the microswitch which is subsequently plugged onto the previously mounted housing assembly. Point and ring illuminated versions are available for applications in low-light conditions or for optical status indication. The switches are delivered complete with fixing nut, gasket and microswitch.

- Switch action
  - Off-(On)

- Temperature, operating: -25°C to 85°C

- Contact Rating - ac: 5 A @ 125 V

- Capacity, breaking max: 1250 W

- Life, at breaking capacity: 200,000 cycles

<table>
<thead>
<tr>
<th>Type / Colour</th>
<th>Mfrs. List No.</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>M19 Mounting - M22 Button diameter</td>
<td>163-7580</td>
<td>1+ 25+ 100+ 250+</td>
</tr>
</tbody>
</table>

SPNO Momentary

200mA @ 48V dc ‘Vandal Resistant’, Screw Terminals

- Three options available, curved actuator, flat actuator, curved actuator with chamfer
- Robust stainless steel construction
- Screw terminal connections
- Sealed to IP54

- Insulation Resistance: NR min./500 V dc
- Operating Temperature: -20°C to 55°C
- Mechanical Life: 100,000 ops

- Illumination Mfrs. List No.: AV1630C940 = 108-2435
  - AV1630C940 = 108-2430
  - AV1630C940 = 108-2431

- Button Dia.: 16mm
  - Price Each: 438-5463
  - 10+ 25+ 100+ 250+
  - 25mm
  - Price Each: 438-5467
  - 1+ 10+ 25+ 100+ 250+

- SPNO and SPNC Momentary
  - 10mA @ 5V dc, 10A @ 250V ac IP67 Sealed
  - Vandal resistant
  - Attractively machined in stainless steel, available in six colours
  - Low profile bezel protrudes on the actuator and provides excellent protection for seal integrity
  - Panel sealed to IP67
Vandal Resistant Switches - continued

SPNO and SPNC Momentary - continued

10mA @ 5V dc, 10A @ 250V ac IP67 Sealed - continued

- Best dia = 21.5, D (behind panel) = 31.
- Panel cut-out dia = 19.25

- Contacts
  - Silver
- Contact resistance
  - 25mΩ
- Dielectric strength
  - 1kV ac

- Electrical life
  - 500,000 ops
- Operating temperature
  - -30°C to +105°C

- Terminal Solder Operations - Electrical
  - 35000 (Min.)

- Vandal Resistant - Stainless Steel

- Low profile
- Robust stainless steel construction
- Panel sealed versions

- Terminals
  - Solder
- Contact material
  - Silver
- Contact resistance
  - 10mΩ
- Dielectric strength
  - 2000VAC

- Switch rating
  - 2A @ 50V ac/dc

- Insulation resistance
  - 10mA @ 5V dc, 10A @ 250V ac

- Vandal Resistant - Stainless Steel

- Maximum panel thickness 6mm
- Single Pole Momentary action
- Polished stainless steel

- Terminals
  - Contact material
    - Silver
  - Contact resistance
    - 50mΩ

- Dielectric strength
  - 2000VAC

- Switch rating
  - 10000 (Min.)

- Insulation resistance
  - 10mA @ 5V dc, 10A @ 250V ac

Vandal Resistant - Stainless Steel

2A @ 50V ac/dc

- Low profile
- Robust stainless steel construction
- Panel sealed versions

- Terminals
  - Solder
- Contact material
  - Silver
- Contact resistance
  - 50mΩ
- Dielectric strength
  - 2000VAC

- Switch rating
  - 5A @ 250V ac/dc

- Insulation resistance
  - 10mA @ 5V dc, 10A @ 250V ac

Vandal Resistant - Stainless Steel

5A @ 250V ac

- Sealed to IP68
- 32mm bezel diameter
- 27.16mm panel hole
- Depth behind panel 30.5mm
- Maximum panel thickness 5.7mm
- Momentary action
- Polished stainless steel

- Terminals
  - Contact material
    - Silver
  - Contact resistance
    - 10mΩ

- Dielectric strength
  - 2000VAC

- Operating temperature
  - -20°C to 70°C

- Contact resistance
  - 50mΩ

- Maximum panel thickness 10mm
- Momentary and Latching action versions available
- Polished stainless steel

- Terminals
  - Contact material
    - Silver
  - Contact resistance
    - 50mΩ

- Dielectric strength
  - 2000VAC

- Operating temperature
  - -20°C to 55°C

SPNO Momentary

1A @ 50V dc 'Vandal Resistant', Screw Terminals

- Sealed
- Low profile
- Max panel thickness = 4.0, Panel cut-out = 19.2

- Terminals
  - Solder
- Contact material
  - Silver
- Contact resistance
  - 10mΩ
- Dielectric strength
  - 2000VAC

- Switch rating
  - 2A @ 50V dc

- Insulation resistance
  - 10mA @ 5V dc, 10A @ 250V ac

Vandal Resistant - Stainless Steel

3A @ 250V ac

- Sealed to IP68
- 32mm bezel diameter
- 18mm panel hole
- Depth behind panel 30.6mm

- Terminals
  - Contact material
    - Silver
  - Contact resistance
    - 50mΩ

- Dielectric strength
  - 2000VAC

- Operating temperature
  - -20°C to 70°C

- Contact resistance
  - 50mΩ

- Maximum panel thickness 10mm
- Momentary action
- Latching action versions available
- Polished stainless steel

- Terminals
  - Contact material
    - Silver
  - Contact resistance
    - 50mΩ

- Dielectric strength
  - 2000VAC

- Operating temperature
  - -20°C to 70°C

Vandal Resistant - Stainless Steel

3A @ 250V ac - LED Illuminated

- Sealed
- Low profile
- Max panel thickness = 3.3, Panel cut-out = 19.2

- Terminals
  - Solder
- Contact material
  - Silver
- Contact resistance
  - 10mΩ
- Dielectric strength
  - 2000VAC

- Switch rating
  - 3A @ 250V ac

- Insulation resistance
  - 10mA @ 5V dc, 10A @ 250V ac

- Vandal Resistant - Stainless Steel

- Maximum panel thickness 6mm
- Polished stainless steel

- Terminals
  - Contact material
    - Silver
  - Contact resistance
    - 50mΩ

- Dielectric strength
  - 2000VAC

- Operating temperature
  - -20°C to 55°C

- Contact resistance
  - 50mΩ

- Maximum panel thickness 6mm
- Single Pole Momentary action
- Polished stainless steel

- Terminals
  - Contact material
    - Silver
  - Contact resistance
    - 50mΩ

- Dielectric strength
  - 2000VAC

- Operating temperature
  - -20°C to 55°C

- Contact resistance
  - 50mΩ
**SPNO/SPNC Momentary – Low Profile**

5A @ 250V ac, Vandal Resistant, Solder Tags

- **Flush, Raised and Domed**
  - L = 21.5mm, D = 21.5, Depth behind panel = 31.6
  - Max. panel thickness = 7.1, Panel cut-out = 19.2

- **Dielectric Strength**: 2kV ac
- **Operating Temperature**: -20°C to +70°C
- **Contacts Off-(On)**
  - Contacts are both panel and barrier, sealed to IP66
- **Solder tag terminations** available
- **Robust stainless steel construction**
- **Vandal resistant, stainless steel**

**Operational Specifications**

- **Insulation Resistance**
  - 3kV ac
- **Contact Resistance**
  - 10mΩ
- **Temperature Range**
  - -20°C to 70°C
- **Dielectric Strength**
  - 2kV ac
- **Operating Temperature**
  - -30°C to 55°C

**Switch Rating**

- 5A @ 250V ac
- 1A @ 50V ac
- 1A @ 125V ac

**Front Panel Mfrs.**

- Mfrs. List No.: MPB031, MPB038, MPB037

**Price Each**

- $1 + 25 = 200 + 250

---

**Vandal Resistant - Brass, Chrome Plated**

- **Single Pole switches**
- **Tactile feel**
- **Choice of screw or solder tag termination**

---

**Order Code**

- **Dia. 21.5mm**
  - Flushed Actuator: 20mm
  - Raised Actuator: 28mm
  - Sealed: 32mm

- **Dia. 27.8mm**
  - Flushed Actuator: 35mm
  - Raised Actuator: 43mm
  - Sealed: 51mm

---

**Price Each**

- 1 + 25 = 100 + 250

---

**SPN and SPNC Momentary – Flush Mounting**

5A @ 250V ac, Vandal Resistant

- **Flush mounting**
- **Solder tag terminations**
- **Robust stainless steel construction**
- **Supplied with rear panel mounting bracket**

**Operational Specifications**

- **Insulation Resistance**
  - 3kV ac
- **Contact Resistance**
  - 32mΩ
- **Temperature Range**
  - -20°C to 70°C
- **Dielectric Strength**
  - 2kV ac
- **Operating Temperature**
  - -30°C to 55°C

**Switch Rating**

- 5A @ 250V ac
- 1A @ 50V ac
- 1A @ 125V ac

**Front Panel Mfrs.**

- Mfrs. List No.: MPB031, MPB038, MPB037

**Price Each**

- $1 + 25 = 200 + 250

---

**Vandal Resistant**

- **Black**
- **Green**
- **Red**

**Momentary, Rectangular Plastic Bezel**

- **Black**
- **Green**
- **Red**

**Momentary, Vandal Resistant Stainless Steel**

- **Black**
- **Green**
- **Red**
Vandal Resistant - 8300 Series
16(4)A @ 250V ac/8(0)A @ 250V ac - ENEC

- Approved to ENEC and CSA, UL recognised
- Robust stainless steel 'Vandal Resist' button
- Front panel sealed to IP66
- Choice of latching or momentary action
- Double pole

Insulation Resistance >MR
Contact Resistance 1000000
Electrical Life 1000000
Nitrile List No. H8350PAAA = 767-4228
H8351PAAA = 767-4236

Price Each
Order Code
DPST 767-4228
DPST 767-4236

Vandal Resistant - IP66
50mA @ 24V dc

- Stainless steel body
- Front panel sealed to IP66
- Dot and ring illumination styles, choice of illumination colours.

Contacts
SPST-NO
Switch rating 50mA @ 24V
LED Rating @ 20mA
Non-Illuminated: L = 20.45, Dia. = 18.5, Depth behind panel = 18.0
Illuminated: L = 29.0, Dia. = 21.5, Depth behind panel = 27.0
Max. panel thickness = 6.0, Panel cut-out = 16.1 x 14.75

Price Each
Order Code
1+ 10+ 25+ 100+ 250+

Dot Illumination
Red Connector MP801/28/RD 438-9430
Amber Connector MP801/28/AM 438-9426
Green Connector MP801/28/GN 438-9422
Blue Connector MP801/28/BL 438-9428

Ring Illumination
Red Connector MP802/28/RD 438-9431
Amber Connector MP802/28/AM 438-9427
Green Connector MP802/28/GN 438-9423
Blue Connector MP802/28/BL 438-9429

Price Each
Order Code
1+ 10+ 25+ 100+

Miniature Vandal Resistant - IP67
Illuminated and Non-Illuminated - 400mA @ 32V ac

- Logic-level switching
- Panel sealed to IP67
- Status illumination option
- Wide temperature range (up to 125°C)
- Solder terminals
- Gold contacts
- Momentary action

Switch rating 100mA max. (resistive), 24V dc
Insulation resistance MΩ min
Temperature range 80°C to +85°C (non-Illuminated)
Contact resistance 50mΩ max.

Mtrr. List No. 57-111 = 438-9396
57-110G = 438-9402
57-112R = 438-9414

Price Each
Order Code
1+ 10+ 25+ 100+

Non-Illuminated 438-9396
Illuminated
Green 438-9402
Red 438-9414

Vandal Resistant - IP67
Illuminated and Non-Illuminated - 400mA @ 32V ac

- Machined stainless steel
- Panel sealed to IP67
- Non-rotating button
- Wide operating temperature range
- Gold contacts
- Momentary action

Switch rating 100mA max. (resistive), 24V dc
Insulation resistance MΩ min
Temperature range 80°C to +85°C (non-Illuminated)
Contact resistance 50mΩ max.

Mtrr. List No. 76-5910 = 438-9426
76-5910G = 438-9438

Price Each
Order Code
1+ 10+ 25+ 100+

Non-Illuminated 438-9426
Illuminated
Green 438-9438
Red 438-9440
Blue 438-9451
Both the housing and the actuator of this range of MSM, vandal-proof switches are made of high-quality stainless steel. This robust construction method enables the switches to be used in harsh environments. There are two mounting diameters available, 19mm and 22mm. The MSM switches are equipped with flat-pin plugs to permit fast and simple connection. The cables are plugged onto the microswitch which is subsequently plugged onto the previously mounted switch. Point and ring illuminated versions are available for applications in low-light conditions or for optical status indication. The switches are delivered complete with fixing nut, gasket and microswitch.

**Switch action**
- ON (On)
- OFF (Off)

**Contact voltage**
- Maximum 28V
- Operating min. 2.5V

**Contact current**
- Maximum 125mA (Silver)
- Operating min. 3.7N

**Contact resistance**
- 100mΩ max.

**Contact capacity**
- Breaking: Max. 0.72W
- Rated: 50mA max. (resistive), 24V dc

**Switch rating**
- Switch=1,2; LED=3,4

**Contact insulation resistance**
- M19 = 108-2432 AV09C7L32D040E = 108-2433

**Temperature, operating**
- -25°C to 85°C

**Travel (contact)**
- 4.5mm

**Contact voltage**
- 24V dc

**Protection class**
- IP68

**Insulation resistance**
- MR min.

**Temperature range**
- -30°C to +70°C

**Weight**
- M19: 10.5g
- M16: 9.8g
- M14: 7.5g

**Type/Colour List No.**
- M19: 108-2432
- M16: 108-2434
- M14: 108-2436

**Order Code**
- 1+ 25+ 100+ 250+

**Finish**
- Standard Pins
- Zinc Diecast Housing Stainless Steel actuator – LED Illuminated

**Legend or LED illumination options**
- Available with plain stainless steel finish or diecast zinc finish
- Vandal resistant, low profile
- Momentary action

**SPDT Mechanical Switches**
- M19- M22 Button diameter
- SPNO, mechanical stroke
- Momentary/Snap action
- Gold plated contacts for low level switching

**SPNO, mechanical stroke**
- Momentary/Snap action
- Golden plated contacts for low level switching

**Order Code**
- 1+ 10+ 50+ 100+

**Finish**
- Standard Pins
- Zinc Diecast Housing, Stainless Steel actuator – LED Illuminated

**Order Code**
- 1241.2800
- 979-3542

**Legend or LED illumination options**
- Available with plain stainless steel finish or diecast zinc finish
- Vandal resistant, low profile
- Momentary action

**Vandal-Proof Mechanical Switches**
- M19- M22 Button diameter
- SPNO, mechanical stroke
- Momentary/Snap action
- Gold plated contacts for low level switching

**Order Code**
- 1+ 10+ 50+ 100+

**Finish**
- Standard Pins
- Zinc Diecast Housing, Stainless Steel actuator – LED Illuminated

**Order Code**
- 1241.2800
- 979-3542

**Legend or LED illumination options**
- Available with plain stainless steel finish or diecast zinc finish
- Vandal resistant, low profile
- Momentary action

**Vandal-Proof Rotary Switches**
- M19- M22 Button diameter
- SPNO, mechanical stroke
- Momentary/Snap action
- Gold plated contacts for low level switching

**Order Code**
- 1+ 10+ 50+ 100+

**Finish**
- Standard Pins
- Zinc Diecast Housing, Stainless Steel actuator – LED Illuminated

**Order Code**
- 1241.2800
- 979-3542

**Legend or LED illumination options**
- Available with plain stainless steel finish or diecast zinc finish
- Vandal resistant, low profile
- Momentary action

**Vandal-Proof Inductive Proximity Switches**
- M19- M22 Button diameter
- SPNO, mechanical stroke
- Momentary/Snap action
- Gold plated contacts for low level switching

**Order Code**
- 1+ 10+ 50+ 100+

**Finish**
- Standard Pins
- Zinc Diecast Housing, Stainless Steel actuator – LED Illuminated

**Order Code**
- 1241.2800
- 979-3542

**Legend or LED illumination options**
- Available with plain stainless steel finish or diecast zinc finish
- Vandal resistant, low profile
- Momentary action

**Vandal-Proof Lighted Rotary Switches**
- M19- M22 Button diameter
- SPNO, mechanical stroke
- Momentary/Snap action
- Gold plated contacts for low level switching

**Order Code**
- 1+ 10+ 50+ 100+

**Finish**
- Standard Pins
- Zinc Diecast Housing, Stainless Steel actuator – LED Illuminated

**Order Code**
- 1241.2800
- 979-3542

**Legend or LED illumination options**
- Available with plain stainless steel finish or diecast zinc finish
- Vandal resistant, low profile
- Momentary action

**Vandal-Proof Non-Lighted Rotary Switches**
- M19- M22 Button diameter
- SPNO, mechanical stroke
- Momentary/Snap action
- Gold plated contacts for low level switching

**Order Code**
- 1+ 10+ 50+ 100+

**Finish**
- Standard Pins
- Zinc Diecast Housing, Stainless Steel actuator

**Order Code**
- 1241.2800

**Legend or LED illumination options**
- Available with plain stainless steel finish or diecast zinc finish
- Vandal resistant, low profile
- Momentary action
**RMS Series**

<table>
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<tr>
<th>Switch Function</th>
<th>DPST</th>
<th>Switch Rating</th>
<th>4/80A @ 250V, 10A @ 12V</th>
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<td>3V ac (Initial)</td>
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<tr>
<td>Life</td>
<td>10000 Cycles</td>
<td></td>
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<tr>
<td>Contact resistance</td>
<td>&lt;200mohm (Initial)</td>
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<tr>
<td>Insulation resistance</td>
<td>&gt; 500VDC (mV)</td>
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<tr>
<td>Indexing angle</td>
<td>45°</td>
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<td>Contact material</td>
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<td>Operating temperature</td>
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**Switching Capacity**

<table>
<thead>
<tr>
<th>Contact resistance</th>
<th>10mA @ 24V</th>
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<tbody>
<tr>
<td>Dielectric strength</td>
<td>200mohm at 500VDC</td>
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<tr>
<td>Voltage Proof</td>
<td>500VAC</td>
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<tr>
<td>Life Expectancy</td>
<td>3000 steps min.</td>
</tr>
<tr>
<td>Ambient Temperature</td>
<td>-20 to 90°C</td>
</tr>
</tbody>
</table>

**Circuitry**

- **No. of Actuating**: List No. | Order Code | Price Each | Mfrs. |
- **7** | 1.27N | 112-4185 |
- **8** | 0.39N | 118-6545 |

**Switch Types**

- **Mfrs.** | **Order Code** | **Price Each** |
- **1** | MRJE11204 | 112-4185 |
- **2** | MRJE2604 | 118-6545 |
- **3** | MRJE3640 | 119-6546 |

**Rotary Switches - continued**

**Independent Lighted Rotary Switches - continued**

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>List No.</th>
<th>Order Code</th>
<th>Price Each</th>
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<tbody>
<tr>
<td>LS010</td>
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</table>

**Solder Terminals**

- **List No.** | **Order Code** | **Price Each** |
- **5040-559 | 5040-547 |           |            |

**Rotary Switches - continued**

**Rotary Encoder Switch**

- **Switching Type**: 25mA @ 24V dc
- **Switch Code**: 20mA @ 24V dc
- **Switch with ground terminal**: 8 Positions with either 7 or 8 circuits
- **Operational life in excess of 10,000 cycles**

<table>
<thead>
<tr>
<th>Switch Type</th>
<th>List No.</th>
<th>Order Code</th>
<th>Price Each</th>
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<tbody>
<tr>
<td>1</td>
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<tr>
<td>3</td>
<td>MRJE3640</td>
<td>119-6546</td>
<td></td>
</tr>
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</table>

**Miniature Waterproof**

- **Switching Type**: 0.4W @ 20AC
- **Switch Code**: 8 Positions with either 7 or 8 circuits
- **Operational life in excess of 10,000 cycles**

<table>
<thead>
<tr>
<th>Switch Type</th>
<th>List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<tr>
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<tr>
<td>3</td>
<td>MRJE3640</td>
<td>119-6546</td>
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</table>

**Adjustable Stopper Rotary Switches**

- **Switch Rating**: 4/80A @ 250V, 10A @ 12V
- **Switch with ground terminal**: 8 Positions with either 7 or 8 circuits
- **Operational life in excess of 10,000 cycles**

<table>
<thead>
<tr>
<th>Switch Type</th>
<th>List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>2</td>
<td>MRJE2604</td>
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</tr>
<tr>
<td>3</td>
<td>MRJE3640</td>
<td>119-6546</td>
<td></td>
</tr>
</tbody>
</table>

**Low Profile Switch**

- **Switch Code**: 20mA @ 24V dc
- **Switch with ground terminal**: 8 Positions with either 7 or 8 circuits
- **Operational life in excess of 10,000 cycles**

<table>
<thead>
<tr>
<th>Switch Type</th>
<th>List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>112-4185</td>
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<td>2</td>
<td>MRJE2604</td>
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</tr>
<tr>
<td>3</td>
<td>MRJE3640</td>
<td>119-6546</td>
<td></td>
</tr>
</tbody>
</table>

**Low Profile Shaft Actuated**

- **Switch Code**: 20mA @ 24V dc
- **Switch with ground terminal**: 8 Positions with either 7 or 8 circuits
- **Operational life in excess of 10,000 cycles**

<table>
<thead>
<tr>
<th>Switch Type</th>
<th>List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MRJE11204</td>
<td>112-4185</td>
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<td>2</td>
<td>MRJE2604</td>
<td>118-6545</td>
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</tr>
<tr>
<td>3</td>
<td>MRJE3640</td>
<td>119-6546</td>
<td></td>
</tr>
</tbody>
</table>

**Standard Shaft Actuated**

- **Switch Code**: 20mA @ 24V dc
- **Switch with ground terminal**: 8 Positions with either 7 or 8 circuits
- **Operational life in excess of 10,000 cycles**

<table>
<thead>
<tr>
<th>Switch Type</th>
<th>List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
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<td>MRJE2604</td>
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</tr>
<tr>
<td>3</td>
<td>MRJE3640</td>
<td>119-6546</td>
<td></td>
</tr>
</tbody>
</table>

**Switching Capacity**

- **Contact Rating**: 10mA @ 24V
- **Dielectric strength**: 200mohm at 500VDC
- **Voltage Proof**: 500VAC
- **Life Expectancy**: 3000 steps min.
- **Ambient Temperature**: -20 to 90°C
### Optical Encoder

- **MOS, TTL & HCMOS compatible**
- **1,000,000 cycle life**
- **No requirement to de-bounce.**
- **Smoother waveform than mechanical devices.**
- **Metal shaft and bushing for superior feel.**
- **Incorporates push button switch**
- **Supplied with nut and washer.**

Small device for detented incremental switching. Used for menu select & enter setting, radio frequency, drill depth, GPS and medical application systems.

- **Voltage:** 5 Vdc
- **Current:** 10 mA resistive
- **Contact resistance:** Less than 10 ohms
- **Contact bounce:** <4ms at make <10ms at break
- **Coding:** 2-bit quadrature coded output
- **Logic output levels:** High - 3.8 to 2.3 Vdc, Low - 0.8 Vdc
- **Operating temperature:** High - 3.8 to 2.3 Vdc, Low - 0.8 Vdc

### PCB Mount Optical Encoders

**Series 62P**

- **Low cost**
- **Compact size**
- **PCB mount**
- **Reliable, up to 2 million cycles**
- **Quadrature output**
- **Ideal for automotive controls, white goods and audio systems**

### Rotary Encoders

**EC11 Series**

- **Compact and highly accurate sliding contact type encoder**
- **Incremental type**
- **Operating temperature -40 to 85°C**
- **Ratings:** 10mA / 5 VDC

**Applications**

- **Controlling volume in car AV equipment**
- **Volume and menu selection in car navigation systems**
- **Various in-car components**
- **DVD players/recorders**
- **CD players, portable audio players and various AV equipment**

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Number of Operating</th>
<th>Shaft</th>
<th>Shaft</th>
<th>Life</th>
<th>Push-On</th>
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<tbody>
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<td>E12210300G</td>
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<td>12mm</td>
<td>Horizontal</td>
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### Comparator Outputs

**Push/Rotary Optical Encoder**

- **63P2/2-LPS 100-5754**

**Rotary Optical Encoder**

- **63P2/2-LPS 100-5755**

### Stepper Motors

<table>
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<tr>
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<th>Shaft</th>
<th>Size</th>
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<td>E1020200A01</td>
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<td>EC11E</td>
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<td>10mm</td>
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<td>EC11E</td>
<td>E112020100B</td>
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### Switches

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<th>Shaft</th>
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<td>Vertical</td>
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Switches - continued

Rotary Switches - continued

EC11 Series - continued

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<td>116-5226E</td>
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</tbody>
</table>

Miniature - MX Series

0.5A @ 115V

- Rugged construction
- Stainless steel shaft, double D form
- Ball indexing
- Adjustable switch stop
- Central fixing with M7 x 0.75 bush

Body - Depth behind panel = 17 (1 wafer), 23.5/2 (2 wafers)
Spindle Dia. = 4mm, 3mm Across Flats
Max of 12 positions (or 11 positions with ‘Stop’)

Selector Switches

01 Series

- Compact and versatile 12 positions multi wafer switch
- 25000 switching cycles with up to 5 Ncm switching torque
- Gold plated contacts: 3 micron
- Metal housing with metal shaft

Voltage rating

- 2A
- 3A
- 5A

Mfrs. List No. | Poles | Positions | Price Each |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>1+ 2+ 5+ 10+ 25+ 50+ 100+</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Non-Shorting

- Compact multi position switches
- 50000 switching cycles
- Operating temperature -40°C to 85°C

Contact resistance

- 100µm

Shorting

- 100µm

Selector Switches

01 Series

- Compact and versatile 12 positions multi wafer switch
- 25000 switching cycles with up to 5 Ncm switching torque
- Gold plated contacts: 3 micron
- Metal housing with metal shaft

Voltage rating

- 2A
- 3A
- 5A

Mfrs. List No. | Poles | Positions | Price Each |
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<tr>
<td>1+ 2+ 5+ 10+ 25+ 50+ 100+</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Non-Shorting

- Compact multi position switches
- 50000 switching cycles
- Operating temperature -40°C to 85°C

Contact resistance

- 100µm

Shorting

- 100µm

Miniature - 01 Series

1A @ 2V ac/dc, 0.5A @ 24V ac/dc, 0.1A @ 200V ac/dc

- Fiberglass reinforced Makrolon case
- Compact size
- Stainless steel shaft suitable for use in humid atmospheres
- Maximum of 12 positions (11 positions with ‘Stop’)

Current rating (non-switching)

- 0.5A
- 2A

Capacitance, contact to contact

- 0.8pF

Contact material

- Hard Silver with Gold Flash

Contact resistance

- 5mohm

Bush thread

- M7 x 0.75

Metal housing with metal shaft

- Compact size

- Operating temperature -40°C to 85°C

- 12 positions (or 11 positions with ‘Stop’)

Selector Switches

01 Series

- Compact and versatile 12 positions multi wafer switch
- 25000 switching cycles with up to 5 Ncm switching torque
- Gold plated contacts: 3 micron
- Metal housing with metal shaft

Voltage rating

- 2A
- 3A
- 5A

Mfrs. List No. | Poles | Positions | Price Each |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1+ 2+ 5+ 10+ 25+ 50+ 100+</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Non-Shorting

- Compact multi position switches
- 50000 switching cycles
- Operating temperature -40°C to 85°C

Contact resistance

- 100µm

Shorting

- 100µm

Non-Shorting - 30° Indexing - Endless Rotating

- 100µm

- 1113 1 10 187-6056E
- 2104 2 6 187-6060E

- 100µm

- 1113 1 10 187-6056E
- 2104 2 6 187-6060E

Non-Shorting - 60° Indexing - Endless Rotating

- 100µm

- 1116 1 6 187-6075E
- 1234 2 3 187-6076E
- 1424 4 2 187-6079E

- 100µm

- 1116 1 6 187-6075E
- 1234 2 3 187-6076E
- 1424 4 2 187-6079E
Selector Switches

08 Series

- Compact and versatile 12 positions multi wafer switch
- PCB mounting
- 25000 switching cycles with up to 9 Ncm switching torque
- Gold plated contacts: 3 micron
- Metal housing with metal shaft

Voltage rating: 500mA @ 30V ac/dc, 50mA @ 300V ac/dc
Mechanisms - 500mA @ 30V ac/dc, 50mA @ 300V ac/dc

Adjustable - 71 Series

200mA @ 115 Vac or 28 Vdc

The adjustable switch stops allow the number of positions per pole to be changed. Remove and relocate stop pins in the holes in the front of the switch. The shaft is sealed by an O-ring at the base of the bushing. The panel seal is silicone rubber. The shaft seal is an O-ring per MIL-F-5516B.

Contact resistance 20mohm

- Adjustable stops
- 30° indexing angle
- Shaft size 1/4"
- Compact design
- Stop position can be set as required using pins provided

25.4mm - MA Series, 2A

- Waters are 25.4mm diameter
- MA miniature version of MK standard switch
- Use mechanism with appropriate waters and accessories to assemble switches to specific requirements
- 140-047 features plastic mechanism of moulded construction, giving protection against corrosion

Plug terminal 1A @ 115V ac/28V dc
Contact material Silver Alloy

116-5268
116-5269
116-5270

25.4mm - MA Series, 5A

Mechanism - 500mA @ 30V ac/dc, 50mA @ 300V ac/dc
Rotary Switches - continued

32mm - MK Series, 5A - continued

Mechanism - 500mA @ 30V ac/dc, 150mA @ 250V ac, 60mA @ 250V dc - continued

- Use mechanism with MK wafers and accessories to assemble switches to specific requirements
- Wafers are 32mm diameter with silver plated 5A contacts

<table>
<thead>
<tr>
<th>Current rating</th>
<th>Voltage rating</th>
<th>Insulation resistance</th>
<th>Life</th>
<th>Proof voltage</th>
<th>Contact / Terminal Material</th>
<th>Operating temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>(non-switching)</td>
<td>250V ac/dc</td>
<td>5000V</td>
<td>10000 Cycles</td>
<td>1000V</td>
<td>Brass, Silver Plated</td>
<td>-30°C to +85°C</td>
</tr>
<tr>
<td>1000V</td>
<td>150mA @ 250V ac/dc</td>
<td>100000</td>
<td>60mA</td>
<td>250V</td>
<td>Brass, Silver Plated</td>
<td>-30°C to +85°C</td>
</tr>
</tbody>
</table>

Wafers and Accessories - MK Series

Standard

- Moulded from flame retardant polyester and rear glass fibre PCB
- Non-shorting
- Single bank switches moulded in glass filled nylon, UL recognised
- Adjustable stop facility mechanism
- Positive indexing obtained from dual spring plunger
- Choice of non-short or shorting contacts
- Choice of metric or imperial spindle diameter
- Choice of solder or PCB terminals

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+</td>
<td>25+</td>
</tr>
</tbody>
</table>

Key Actuator (for MK and MA Series)

- Six position key actuator for use with either MA or MK series wafers
- Maximum of 4 MA or 3 MK wafers may be used
- Supplied with two different sized shafts to accommodate MA or MK wafers
- 5 disc tumblers with 60° between positions is fitted, key being removable in any position
- Supplied with two random keys

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</table>

PT Series

H = 31.4, W = 31.8, D = 16.7

Indexing angle = 30°, Bush L = 6, Th = M10 x 0.75

Spindle L = 42.0 (incl. bush), Dia = 6.0

- Printed circuit mounting
- Non-shorting
- Moulded from flame retardant polyester and rear glass fibre PCB
- Supplied with adjustable stop, 2 to 12 position
- 3 pole/3 way switch can also have an OFF position

<table>
<thead>
<tr>
<th>Voltage rating</th>
<th>Insulation resistance</th>
<th>Life</th>
<th>Proof voltage</th>
<th>Contact / Terminal Material</th>
<th>Operating temperature</th>
</tr>
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<tbody>
<tr>
<td>250V ac/dc</td>
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<td>Brass, Silver Plated</td>
<td>-30°C to +85°C</td>
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<tr>
<td>1500V</td>
<td>150mA @ 250V ac/dc</td>
<td>60mA</td>
<td>250V</td>
<td>Brass, Silver Plated</td>
<td>-30°C to +85°C</td>
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</table>
### Binary Coded Rotary Switches - BCKS Series

**CKS Series**
150mA @ 250V ac/dc

- IP67 waterproof version of CK series
- Moulded 27.5mm diameter
- Standard 30° indexing
- Moulded in UL94 V0 material
- Printed Circuit Board Terminals
- Up to 4 poles per switch
- Maximum 12 positions

**JKM Series - Non-Shorting**
1A @ 28V dc, 100mA @ 250V ac, 50mA @ 300V dc

- Spindle dia = 6.4mm (1/4")
- Spindle L = 37, Bush thread = 1/8 x 32 UNEF

### MSD Series - Non-Shorting
6A @ 250V ac, 10A @ 30V dc

- Heavy duty, high current ratings
- Complies with BS3955

- Voltage rating: 250V ac, 2000V dc
- Proof voltage: 1000V ac
- Contact resistance: <5mΩ
- Rotor: Glass Filled Nylon

### Key Operated Switches

- 2 and 3 Position - S215 and S216 Series
4A @ 125V ac, 2A @ 250V ac, 4A @ 28V dc

- 150 combinations available
- 4 disk tumbler mechanism

- Contacts SPST
- ContactsResistance: 10mΩ
- Insulation Resistance: 1000Ω

### JMK Series - Non-Shorting
1A @ 28V dc, 100mA @ 250V ac, 50mA @ 300V dc

- Spindle dia = 6.4mm (1/4")
- Spindle L = 37, Bush thread = 1/8 x 32 UNEF

- Voltage rating: 250V ac, 1000V dc
- Proof voltage: 2000V dc
- Contact resistance: <3mΩ

### List No. Poles Positions Terminals Key Pulls Terminals Function Type Indexing

- NS105-1 1 2 2 1 Wire Mom - On - Mom 45°
- S215E-SP 3 2 1 Wire Mom - On - Mom 45°
- S216R 2 2 1 Solder On - Off - On 90°
- S215E-SP 3 2 1 Wire Mom - On - Mom 45°

**Navigation**

- PCB terminals
- Panel Sealed to IP65 rating
- Moulded 27.5mm diameter
- Moulded in UL94 V0 material
- Printed Circuit Board Terminals

**List No. Positions Terminals Key Pulls Terminals Function Type Indexing**

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<tr>
<td>NS105-1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>Mom - On - Mom</td>
<td>45°</td>
</tr>
<tr>
<td>S215E</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>Wire</td>
<td>Mom - On - Mom</td>
<td>45°</td>
</tr>
<tr>
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<td>2</td>
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<td>1</td>
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<td>90°</td>
</tr>
</tbody>
</table>
2 Position Miniature - E Series

100mA @ 30V dc

- Lock mechanism and key are glass filled polyester. UL recognised
- Gold plated contacts suitable for low level switching (5mV/1mA dc)
- Each keyswitch is provided with two keys
- Suitable as tamperproof switch in low level security applications where accidental operation of a function is undesirable

Proof voltage 1000V for 1 minute
Contact resistance 20mΩ max.
Operating temperature -30°C to +55°C

Mfrs. List No. E1ACAAAE = 116-2593

Price Each

Key removable in one position only
116-2593

2 Position Miniature - M Series

100mA @ 30V dc

- 5 disc tumbler lock and diecast body
- Polished chrome lock face has engraved arrowhead to indicate switch position
- Available with either flush mounting or raised bezel
- Raised bezel types give low depth behind panel
- Switch body is glass filled polyester. UL recognised
- Gold plated contacts and terminals suitable for low level switching (5mV/1mA dc)
- Each keyswitch is provided with two keys
- Suitable for use in cash registers, security panels, computers etc. to give tamperproof security

Proof voltage 1000V for 1 minute
Contact resistance 75V
Operating temperature -20°C to +55°C

Mfrs. List No. MTBAAAEE = 116-2594
MTBCEAAAE = 116-2595
MTEAAAEE = 116-2596

Price Each

Key removable in both positions, standard key MTBAAAEE = 116-2594

Low Depth 28.0
Panel cut-out = 15.1 x 15.1
Max. panel thickness = 12.28
D behind panel = 28.0
Panel cut-out = 15.1 x 15.1
W (bezel) = 18 x 18
Max. panel thickness = 14.28

150mA @ 250V ac/dc

CK Series

- Moulded Single Water Lock switch.
- Two part construction. The lock is inserted into the panel from the front
- The CK module either bracketed or snap-on, from the rear of the panel.
- Switch indexed 90°
- All contacts are non-shorting (BBM).
- Solder terminals
- Two keys per lock

Switch Rating Contact resistance
150mA @ 250V 1A @ 115V ac, 24V dc
Contact / Terminal Material Contact resistance
10000 Cycles 20mΩ (Initial)
Operating temperature Proof voltage
-20°C to +55°C > @ 500VDC (Initial)

Mfrs. List No. Key Switch Positions
CKL004 Differ 3
CKL004 Differ 3

Price Each

Mfrs. List No. Order Code
CKL004 177-40450
CKL014 177-40450

1 Position - IRL Series

1A @ 250V ac, 1A @ 25V dc

- Miniature key-operated lock switch
- Keys are double entry (they can be inserted into the lock either way up)
- Standard solder terminals
- Keys to pass (same key all locks) or differ (different key per lock)

Contact resistance
1A @ 115V ac, 24V dc <20mΩ (Initial)
Contact rating
1A @ 250V Insulation resistance Proof voltage
1A @ 115V ac, 24V dc 1A @ 1A @ 25V dc > @ 500VDC (Initial)

Mfrs. List No. Key Numbers Switch Type Position Key Free Order Code
IRL-5-K-S-2 Same DPDT 60° 187-60499
IRL-5-K-D-2 Differs DPDT 60° 187-60500

Price Each

Mfrs. List No. Order Code
IRL-5-S-2 116-25960
IRL-5-M-2 118-25552

1 Position - HRL Series

1A @ 250V ac, 1A @ 25V dc

- Miniature key-operated Lock switch
- Keys are double entry (they can be inserted into the lock either way up)
- Standard solder terminals
- Keys to pass (same key all locks) or differ (different key per lock)

Contact resistance
1A @ 115V ac, 24V dc <20mΩ (Initial)
Contact rating
1A @ 250V Insulation resistance Proof voltage
1A @ 115V ac, 24V dc 1A @ 25V dc > @ 500VDC (Initial)

Mfrs. List No. Key Numbers Switch Type Position Key Free Order Code
HRL-5-E-S-2 Same DPDT 60° 187-60510
HRL-5-M-S-2 Same DPDT 60° 187-60526
HRL-5-K-S-2 Same DPDT 60° 187-60500
HRL-5-K-D-2 Differs DPDT 60° 187-60510
HRL-5-M-D-2 Differs DPDT 60° 187-60526

Price Each

Mfrs. List No. Order Code
HRL-5-S-2 116-25950
HRL-5-M-2 118-25552

2 Position - MSL Series

4/80A @ 250V ac

- Two part construction. The lock is inserted into the panel from the front. The mains switch module either bracketed or snap-on, from the rear of the panel.
- Standard solder terminals
- Two keys per lock
- Keys to pass (same key all locks) or differ (different key per lock)

Contact resistance
4 / 80A @ 250V ac <20mΩ (Initial)
Contact rating
4 / 80A @ 250V ac Insulation resistance Proof voltage
> @ 500VDC (Initial) 3A (Initial)

Price Each

Operating life
Current rating (non switching) 1A
Insulation resistance
Radial cylinder with 7 pin tumblers
Key insertion/removal in one position
Radial cylinder with 7 pin tumblers

Proof voltage 750V dc
Insulation resistance MR
Each keyswitch is provided with two keys, random or common profile
Spare keys are available for common key profile
Silver plated brass contacts
Spare keys are available for common key profile
Each keyswitch is equipped with two keys, random or common profile

Proof voltage 500V dc
Current rating (non switching) 5A
Contact resistance 20mR max.
Indexing 90° (SPDT), 60° (DPDT)

Order Code
177-4547
177-4548
170-1495
112-3685
112-3682
112-3681
112-3680
112-3679
112-3678
112-3677
112-3676
112-3675

Key profiles
Random - 2 Pole NO
Common - 2 Pole NO
Key removable in 2 positions
Key removable in 1 position

Spare keys - Common
Dust Cap

2 Position - SRL Series

2 Position - S16 Series
1A @ 24V dc

2 Position - SRL Series
5A @ 110V ac, 3A @ 50V dc

Silver plated brass contacts
Spare keys are available for common key profile
Each keyswitch is equipped with two keys, random or common profile

Silver plated brass contacts
Spare keys are available for common key profile
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Spare keys - Common
Dust Cap

2 Position - S16 Series
1A @ 24V dc

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5A @ 110V ac, 3A @ 50V dc

Silver plated brass contacts
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Dust Cap

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Silver plated brass contacts
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1A @ 24V dc

2 Position - SRL Series
5A @ 110V ac, 3A @ 50V dc

Silver plated brass contacts
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Each keyswitch is equipped with two keys, random or common profile

Spare keys - Common
Dust Cap

2 Position - S16 Series
1A @ 24V dc

2 Position - SRL Series
5A @ 110V ac, 3A @ 50V dc

Silver plated brass contacts
Spare keys are available for common key profile
Each keyswitch is equipped with two keys, random or common profile

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Spare keys are available for common key profile
Each keyswitch is equipped with two keys, random or common profile

Spare keys - Common
Dust Cap

2 Position - S16 Series
1A @ 24V dc

2 Position - SRL Series
5A @ 110V ac, 3A @ 50V dc

Silver plated brass contacts
Spare keys are available for common key profile
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Spare keys - Common
Dust Cap

2 Position - S16 Series
1A @ 24V dc

2 Position - SRL Series
5A @ 110V ac, 3A @ 50V dc

Silver plated brass contacts
Spare keys are available for common key profile
Each keyswitch is equipped with two keys, random or common profile

Silver plated brass contacts
Spare keys are available for common key profile
Each keyswitch is equipped with two keys, random or common profile

Spare keys - Common
Dust Cap

2 Position - S16 Series
1A @ 24V dc

2 Position - SRL Series
5A @ 110V ac, 3A @ 50V dc

Silver plated brass contacts
Spare keys are available for common key profile
Each keyswitch is equipped with two keys, random or common profile

Silver plated brass contacts
Spare keys are available for common key profile
Each keyswitch is equipped with two keys, random or common profile

Spare keys - Common
Dust Cap

2 Position - S16 Series
1A @ 24V dc

2 Position - SRL Series
5A @ 110V ac, 3A @ 50V dc

Silver plated brass contacts
Spare keys are available for common key profile
Each keyswitch is equipped with two keys, random or common profile

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Spare keys - Common
Dust Cap

2 Position - S16 Series
1A @ 24V dc

2 Position - SRL Series
5A @ 110V ac, 3A @ 50V dc

Silver plated brass contacts
Spare keys are available for common key profile
Each keyswitch is equipped with two keys, random or common profile

Silver plated brass contacts
Spare keys are available for common key profile
Each keyswitch is equipped with two keys, random or common profile

Spare keys - Common
Dust Cap
Key Operated Switches - continued

2 Position - Y Series
2A @ 250Vac, 4A @ 125Vac/30Vdc

- SPC0 or DPC0 contacts
- 4 tumblers lock, 90° indexing
- Supplied with 2 standard keys
- Zinc alloy body with stainless steel face

N.B. Keys offer level 1 security and are interchangeable with all Y series key switch locks

Depth behind panel = 28.8
Maximum panel thickness = 4.95

Mftrs. List No: Y10112C2030NQ = 120-1397
Y101132C2030NQ = 120-1399
Y20112C2030NQ = 120-1400

<table>
<thead>
<tr>
<th>Rating</th>
<th>Order Code</th>
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</thead>
<tbody>
<tr>
<td>Key Removable in Both Positions</td>
<td>1+ 10+ 25+ 100+ 250+</td>
<td></td>
</tr>
<tr>
<td>SPST-CO</td>
<td>120-1397E</td>
<td></td>
</tr>
<tr>
<td>DPST-CO</td>
<td>120-1398E</td>
<td></td>
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</tbody>
</table>

3 Position - P2/3-TMA-1473
2A @ 250Vac, 4A @ 125Vac, 10A @ 12V dc

Ideal for 'Off' - 'Test' - 'Set Alarm' applications

- Key removable in all 3 positions
- 5 disc tumblers lock, 90° indexing
- 3 sets of N/O contacts, one set makes in each of the 3 positions, break-before-make

- Supplied with two keys, random selection (2000 variants)
- Switch lock protrudes from switch body by 0.05mm

Mftrs. List No: K2/3TMA 201 = 116-2584
K2/3TMA 109 = 116-2586
K2/3TMA 123 = 116-2578

<table>
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<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+ 10+ 25+ 100+ 250+</td>
<td>116-2584E</td>
</tr>
</tbody>
</table>

2 and 3 Position - K2/3
2A @ 250Vac, 4A @ 125Vac, 10A @ 12V dc

- Key removable in all positions
- 5 disc tumblers lock, 90° indexing
- Switch lock protrudes from switch body by 0.05mm

- Supplied with two keys, random selection (2000 variants)
- 2 and 3 position keyswitches with two sets of fine silver contacts, break-before-make

Mftrs. List No: K2/3TMA 201 = 116-2584
K2/3TMA 109 = 116-2586
K2/3TMA 123 = 116-2578

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+ 10+ 25+ 100+ 250+</td>
<td>116-2586E</td>
</tr>
</tbody>
</table>

CK & SK Series Key Switches

- Wide choice of security levels and keying options
- Single pole contacts
- Solder lug terminals

Switches

- 2 N/O + 2 N/C sets of fine silver contacts, break-before-make
- 5 disc tumblers lock, 90° indexing (except 116-2591, 45° indexing)

- Contact Rating: 3A @ 125V ac, 2A @ 250V ac
- Contact Resistance: 10mohm
- Insulation Resistance: 3000000
- Mechanical Life: 30000 operations
- Angle of Throw: 90° for 2-position, 45° for 3-position
- Keys: Low security: matt chrome-plated zinc alloy, high security: nickel-plated brass, PBT handle
- Keys Supplied: Low Security Switches: 2, Medium Security: 1 (random)

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+ 10+ 25+ 50+</td>
<td>116-7760E</td>
</tr>
</tbody>
</table>

Low Security
- On (On) On (Off) On (Off) On (Off)
- SK13DAW01 116-7760E
- SK12BAW01 116-7766E

High Security - CK Series
- Contact Rating: 3A @ 250V ac, 2A @ 250V ac
- Contact Resistance: 20mohm
- Insulation Resistance: 3000000
- Mechanical Life: 300000 operations
- Angle of Throw: 90° for 2-position, 45° for 3-position
- Keys: Low security: matt chrome-plated zinc alloy, high security: nickel-plated brass, PBT handle
- Keys Supplied: Low Security Switches: 2, Medium Security: 1 (random)

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+ 10+ 25+ 50+</td>
<td>116-7761E</td>
</tr>
</tbody>
</table>

Low Security
- On (On) On (Off) On (Off) On (Off)
- SK13DAW01 116-7760E
- SK12BAW01 116-7766E

High Security - CK Series
- Contact Rating: 3A @ 250V ac, 2A @ 250V ac
- Contact Resistance: 20mohm
- Insulation Resistance: 3000000
- Mechanical Life: 300000 operations
- Angle of Throw: 90° for 2-position, 45° for 3-position
- Keys: Low security: matt chrome-plated zinc alloy, high security: nickel-plated brass, PBT handle
- Keys Supplied: Low Security Switches: 2, Medium Security: 1 (random)

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+ 10+ 25+ 50+</td>
<td>116-7761E</td>
</tr>
</tbody>
</table>
SIL Switches

Splay Terminals - Automatic Insertion
100mA @ 50Vdc

Straight Terminals
- Double contacts
- Low contact resistance
- High reliability
- Self clean contact area
- High pressure contact structure prevents vibration shock
Contacts: Gold Dielectric strength 500V ac
Current, switching rating @ 5Vdc max Dielectric strength 300V AC/1 min.
Contacts: Alloy Copper C5210-EH Insulation resistance @ 500V dc
Self clean contact area
High reliability
Low contact resistance
Double contacts
100mA @ 50Vdc
16mm Bushing
16mm Bushing

DIL Switches

Surface Mount DIP Switches
25mA @ 24V dc

- Low profile of 3mm and 2.54 pitch
- Gold plated twin contact
- Self cleaning mechanisms
Contacts: Gold Dielectric strength 500V ac
Switching Capacity 25 mA at 24VDC,
- A variety of models with short or long actuators (levers) available
Electromechanical

Sealed A6E & A6ER Series
25mA @ 24V dc

- The sealed bottom prevents flux penetration
- A variety of models with short or long actuators (levers) available
Switching Capacity 25 mA at 24VDC,
Ambient Temperature -20 to 70°C (with no lugs)
Ambient Humidity Operating: 35 to 90%
Insulation Resistance 200MΩ max.
Dielectric Strength 500V AC for 1min between terminals of the same polarity and between terminals of different polarity
Vibration Resistance Malfunction: 10 to 55Hz, 1.5mm double amplitude
Shock Resistance Malfunction: 300m/s² min.
Operating Force 0.2N
Life Expectancy Mechanical: 1000 operations min.
Electrical: 1000 operations min.
Weight: A6E: 0.66g (2 poles), 1.05g (4 poles), 1.32g (6 poles), 1.65g (8 poles), 1.95g (10 poles)
- A6ER: 1.05g (2 poles), 1.57g (4 poles), 2.00g (6 poles), 2.51g (8 poles), 3.02g (10 poles)

<table>
<thead>
<tr>
<th>List No.</th>
<th>Mfrs. No. of Length</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>A6E2-2101</td>
<td>877-40720</td>
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<tr>
<td>3</td>
<td>A6E3-3101</td>
<td>196-00600</td>
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<td>4</td>
<td>A6E4-4101</td>
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<tr>
<td>5</td>
<td>A6E5-5101</td>
<td>196-00670</td>
</tr>
<tr>
<td>6</td>
<td>A6E6-6101</td>
<td>196-00710</td>
</tr>
<tr>
<td>7</td>
<td>A6E7-7101</td>
<td>196-00740</td>
</tr>
<tr>
<td>8</td>
<td>A6E8-8101</td>
<td>196-00710</td>
</tr>
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</table>
## DIL Switches - continued

### Sealed A6E & A6ER Series - continued

<table>
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<tr>
<th>No. of Ways</th>
<th>Mfrs. List No.</th>
<th>Order Code</th>
<th>Price Each</th>
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</thead>
<tbody>
<tr>
<td>2</td>
<td>AEE1-2104</td>
<td>877-4080</td>
<td>+</td>
</tr>
<tr>
<td>4</td>
<td>AEE4-4104</td>
<td>877-4120</td>
<td>+</td>
</tr>
<tr>
<td>5</td>
<td>AEE5-5104</td>
<td>877-4160</td>
<td>+</td>
</tr>
<tr>
<td>6</td>
<td>AEE6-6104</td>
<td>877-4200</td>
<td>+</td>
</tr>
<tr>
<td>7</td>
<td>AEE7-7104</td>
<td>877-4240</td>
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<tr>
<td>8</td>
<td>AEE8-8104</td>
<td>877-4280</td>
<td>+</td>
</tr>
</tbody>
</table>

Sealed Low Profile - A60 Series

<table>
<thead>
<tr>
<th>No. of Ways</th>
<th>Mfrs. List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>A60-2102</td>
<td>877-4180</td>
<td>+</td>
</tr>
<tr>
<td>4</td>
<td>A60-4104</td>
<td>877-4280</td>
<td>+</td>
</tr>
<tr>
<td>5</td>
<td>A60-5105</td>
<td>877-4320</td>
<td>+</td>
</tr>
<tr>
<td>7</td>
<td>A60-7107</td>
<td>877-4360</td>
<td>+</td>
</tr>
<tr>
<td>8</td>
<td>A60-8108</td>
<td>877-4400</td>
<td>+</td>
</tr>
</tbody>
</table>

### Low Profile - A60 Series

- BT approved to ES173 specification
- Moulded in polybutylene terephthalate
- Fully sealed construction, without tape seal
- Choice of IC style top actuators or ‘piano key’ actuators

<table>
<thead>
<tr>
<th>Mfrs. List No.</th>
<th>Ways Length</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>A60-2102</td>
<td>2</td>
<td>7.1</td>
<td>114-8630</td>
</tr>
<tr>
<td>A60-4104</td>
<td>4</td>
<td>12.2</td>
<td>990-1680</td>
</tr>
<tr>
<td>A60-6106</td>
<td>6</td>
<td>17.3</td>
<td>990-1690</td>
</tr>
<tr>
<td>A60-8108</td>
<td>8</td>
<td>22.4</td>
<td>990-1700</td>
</tr>
<tr>
<td>A60-1010</td>
<td>10</td>
<td>27.4</td>
<td>990-1710</td>
</tr>
</tbody>
</table>

### Raised Actuator

<table>
<thead>
<tr>
<th>Mfrs. List No.</th>
<th>Ways Length</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
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<tr>
<td>A60-2102</td>
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<td>114-8630</td>
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<tr>
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<td>6</td>
<td>17.3</td>
<td>990-1690</td>
</tr>
<tr>
<td>A60-8108</td>
<td>8</td>
<td>22.4</td>
<td>990-1700</td>
</tr>
<tr>
<td>A60-1010</td>
<td>10</td>
<td>27.4</td>
<td>990-1710</td>
</tr>
</tbody>
</table>

### Low Profile - A60 Series

- Bifurcated movable contacts offer superb reliability
- Smooth switching action
- Through hole version has raised actuators for easy operation
- Auto insertable

<table>
<thead>
<tr>
<th>Contacts Beryllium Copper</th>
<th>25mA @ 24Vdc</th>
<th>Operating temperature: -20°C to 70°C</th>
<th>Dielectric strength: 500Vdc</th>
</tr>
</thead>
<tbody>
<tr>
<td>H=3.6, W=6.2, Pins: 7.62 x 2.54 spacing</td>
<td>213317</td>
<td>213317</td>
<td>213317</td>
</tr>
</tbody>
</table>

### Half/Pitch Surface Mount A6H Series

- Very low profile of 1.55mm
- Mounting space reduced by 63%
- Compared with conventional models
- Washable, seal tape models available
- Embossed taping models available

<table>
<thead>
<tr>
<th>No. of Ways</th>
<th>Mfrs. List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>A6H2102</td>
<td>877-4250</td>
<td>+</td>
</tr>
<tr>
<td>4</td>
<td>A6H4102</td>
<td>877-4290</td>
<td>+</td>
</tr>
<tr>
<td>6</td>
<td>A6H6101</td>
<td>877-4320</td>
<td>+</td>
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<tr>
<td>8</td>
<td>A6H8101</td>
<td>877-4350</td>
<td>+</td>
</tr>
<tr>
<td>10</td>
<td>A6H1011</td>
<td>877-4400</td>
<td>+</td>
</tr>
</tbody>
</table>

### Flat Actuated Side Actuator (Short Lever)

<table>
<thead>
<tr>
<th>Mfrs. List No.</th>
<th>Ways Length</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>A60-2102</td>
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<td>7.1</td>
<td>114-8630</td>
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<td>A60-4104</td>
<td>4</td>
<td>12.2</td>
<td>990-1680</td>
</tr>
<tr>
<td>A60-6106</td>
<td>6</td>
<td>17.3</td>
<td>990-1690</td>
</tr>
<tr>
<td>A60-8108</td>
<td>8</td>
<td>22.4</td>
<td>990-1700</td>
</tr>
</tbody>
</table>

### Raised Actuator Side Actuator (Short Lever)

<table>
<thead>
<tr>
<th>Mfrs. List No.</th>
<th>Ways Length</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>A60-2102</td>
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<td>7.1</td>
<td>114-8630</td>
</tr>
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<td>A60-4104</td>
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<td>12.2</td>
<td>990-1680</td>
</tr>
<tr>
<td>A60-6106</td>
<td>6</td>
<td>17.3</td>
<td>990-1690</td>
</tr>
<tr>
<td>A60-8108</td>
<td>8</td>
<td>22.4</td>
<td>990-1700</td>
</tr>
</tbody>
</table>

### Low Profile - A60 Series

- Low profile DIL switches, tape sealed to allow washing
- Dielectric strength: 500V dc
- Operating temperature: -40°C to 100°C
- Mechanical life: 2000 ops

<table>
<thead>
<tr>
<th>No. of Ways</th>
<th>Mfrs. List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>M402SMGNL</td>
<td>990-8320</td>
<td>+</td>
</tr>
<tr>
<td>4</td>
<td>M404SMGNL</td>
<td>990-8360</td>
<td>+</td>
</tr>
<tr>
<td>6</td>
<td>M406SMGNL</td>
<td>990-8400</td>
<td>+</td>
</tr>
<tr>
<td>8</td>
<td>M408SMGNL</td>
<td>990-8440</td>
<td>+</td>
</tr>
<tr>
<td>10</td>
<td>M410SMGNL</td>
<td>990-8480</td>
<td>+</td>
</tr>
</tbody>
</table>

### Low Profile Machine Insertable

- Auto-insertable switches, tape sealed to allow washing
- Dielectric strength: 500Vrms 50Hz
- Dielectric strength: Less than 50mV
- Operating temperature: -40°C to 85°C

<table>
<thead>
<tr>
<th>Contacts Gold Plated sliding auto cleaning</th>
<th>100mA @ 24Vdc</th>
<th>Operating temperature: -20°C to 70°C</th>
<th>Dielectric strength: 500Vdc</th>
</tr>
</thead>
<tbody>
<tr>
<td>H=3.4, W=7.2, Pins: 7.62 x 2.54 spacing</td>
<td>213317</td>
<td>213317</td>
<td>213317</td>
</tr>
</tbody>
</table>
Piano Key
0.4VA @ 20mA

- High pressure wiping contact allows aqueous or solvent cleaning without tape seal
- Side mounted actuators for easy movement
- Lever down ‘ON’
- PCB mountable
- Unique design can withstand vapour phase reflow or wave soldering conditions

Dimensions: H=5.25, W=7.50

Extended and Flush Actuator

- High pressure wiping contact allows aqueous or solvent cleaning without tape seal
- Unique design can withstand vapour phase reflow or wave soldering conditions
- PCB mountable
- Extended actuator for easy movement

Dimensions: H=5.25, W=7.50

Half Pitch - Surface Mount

- Compact half pitch 1.27mm package
- Gold wiping contact system
- UL recognised

Dimensions: H=2.30, W=6.00, Pins = 7.8 x 1.27 spacing

Electromechanical Switches

NEW

Flat Actuator with Top Tape - Surface Mount
25mA @ 25V dc

- Contact rating: 25mA @ 24V
- Insulation resistance: 500mOhm
- Contact material: Copper Alloy
- Colour: Black
- Contact Plating: Gold
- Terminal plating: Gold
- Operating temperature: -40°C to 85°C

Dimensions: H=2, D=5.6, Pitch Spacing = 1.27mm

NEW

Piano Type with Flat Actuator - Surface Mount
25mA @ 24V dc

- Contact rating: 25mA @ 24V
- Insulation resistance: 500mOhm
- Contact material: Copper Alloy
- Colour: Red
- Terminal plating: Tin
- Operating temperature: -40°C to 85°C

Dimensions: H=9.6, D=7.99, Pitch Spacing=2.54mm

NEW

Right Angled with Flat Actuator - Through Hole
25mA @ 20V dc

- Contact rating: 25mA @ 24V
- Insulation resistance: 500mOhm
- Contact material: Copper Alloy
- Colour: Black
- Terminal plating: Gold
- Operating temperature: -40°C to 85°C

Dimensions: H=6.5, D=9.4, Pitch Spacing=2.54mm

NEW

Flat Actuator with Top Tape - Surface Mount
25mA @ 24V dc

- Contact rating: 25mA @ 24V
- Insulation resistance: 500mOhm
- Contact material: Copper Alloy
- Colour: White
- Contact Plating: Gold
- Terminal plating: Gold
- Operating temperature: -40°C to 85°C

Dimensions: H=3.2, D=6, Pitch Spacing=2.54mm
Flat Actuator with Top Tape - Surface Mount - continued

<table>
<thead>
<tr>
<th>No. of Width Mftrs.</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ways (mm) List No.</td>
<td>Order Code</td>
</tr>
<tr>
<td>1 2.98 4118212116801 206-51440</td>
<td>25+</td>
</tr>
<tr>
<td>2 5.52 4118212116802 206-51450</td>
<td></td>
</tr>
<tr>
<td>3 8.06 4118212116803 206-51460</td>
<td></td>
</tr>
<tr>
<td>4 10.6 4118212116804 206-51470</td>
<td></td>
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<tr>
<td>5 13.14 4118212116805 206-51480</td>
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</tr>
<tr>
<td>6 15.68 4118212116806 206-51510</td>
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<tr>
<td>8 20.76 418121160810 206-51520</td>
<td></td>
</tr>
<tr>
<td>10 25.84 418121160811 206-51530</td>
<td></td>
</tr>
<tr>
<td>12 30.92 418121160812 206-51540</td>
<td></td>
</tr>
</tbody>
</table>

Surface Mount DIP Switches - A6SN Series

25 mA @ 24V dc

| Operating temperature | -30°C to +85°C |
| Operating humidity | 95% to 95% |
| Insulation resistance | 100 MΩ @ 100 VDC |
| Contact resistance | 200 mΩ max. |
| Dielectric strength | 500 Vdc |
| Life expectancy | 1000 operations min. |
| Operating force | 0.98 to 7.9 N |

Gold plated contacts and terminals, single throw

20mA @ 50V dc

<table>
<thead>
<tr>
<th>Piano Key Actuated</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Width Mftrs.</td>
</tr>
<tr>
<td>Ways (mm) List No.</td>
</tr>
<tr>
<td>2 6.64 418121160801 206-51440</td>
</tr>
<tr>
<td>3 9.18 418121160802 152-20040</td>
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<td>4 11.71 418121160803 947-16000</td>
</tr>
<tr>
<td>5 14.26 418121160804 152-20050</td>
</tr>
<tr>
<td>6 16.89 418121160805 947-16100</td>
</tr>
<tr>
<td>8 21.87 418121160806 947-16200</td>
</tr>
<tr>
<td>9 24.42 418121160807 152-20070</td>
</tr>
<tr>
<td>10 26.96 418121160808 152-20430</td>
</tr>
<tr>
<td>12 32.04 418121160809 152-20530</td>
</tr>
</tbody>
</table>

Low Profile - Through Hole

25mA @ 24V dc

| End stackable DIL switches |
| Two types of actuators available, Raised and Re-ceded |
| Raised actuator is 0.40mm in height |
| Contact rating | 25mA @ 24V |
| Contact resistance | 100mΩ @ 500VDC |
| Dielectric Strength | 500VAC for 1 minute |
| Contacts | 2000 ops. |
| Terminals | Brass with Gold plating |
| Life expectancy | 2000 ops. |
| Operating temperature | -20°C to 85°C |

| No. of Width Mftrs. | Price Each |
| Ways (mm) List No.  | Order Code | 1+ | 50+ | 100+ | 500+ |
| 2 4.98 418121160810 206-51520 |
| 3 7.52 418121160811 206-51530 |
| 4 10.66 418121160812 206-51540 |
| 5 12.60 418121160813 947-16000 |
| 6 15.14 418121160814 947-16100 |
| 8 20.22 418121160815 947-16200 |
| 10 25.30 418121160816 947-16300 |
| 12 30.38 418121160817 947-16400 |

DS and DP Series

100mA @ 50V dc

<table>
<thead>
<tr>
<th>Piano Key Actuated</th>
</tr>
</thead>
<tbody>
<tr>
<td>No. of Width Mftrs.</td>
</tr>
<tr>
<td>Ways (mm) List No.</td>
</tr>
<tr>
<td>4 4.98 418121160818 206-51520</td>
</tr>
<tr>
<td>5 7.52 418121160819 206-51530</td>
</tr>
<tr>
<td>6 10.66 418121160820 206-51540</td>
</tr>
<tr>
<td>8 12.60 418121160821 947-16000</td>
</tr>
<tr>
<td>10 15.14 418121160822 947-16100</td>
</tr>
<tr>
<td>12 20.22 418121160823 947-16200</td>
</tr>
<tr>
<td>14 25.30 418121160824 947-16300</td>
</tr>
<tr>
<td>16 30.38 418121160825 947-16400</td>
</tr>
</tbody>
</table>

Low Profile - Surface Mount

25mA @ 24V dc

| End stackable DIL switches |
| Recessed actuator |
| Top tape sealed |
| Contact rating | 25mA @ 24V |
| Contact resistance | 100mΩ @ 500VDC |
| Dielectric Strength | 500VAC for 1 minute |
| Contacts | 2000 ops. |
| Terminals | Brass with Gold plating |
| Life expectancy | -20°C to 85°C |

| No. of Width Mftrs. | Price Each |
| Ways (mm) List No.  | Order Code | 1+ | 50+ | 100+ | 500+ |
| 2 4.98 418121160826 206-51520 |
| 3 7.52 418121160827 206-51530 |
| 4 10.66 418121160828 206-51540 |
| 5 12.60 418121160829 206-51550 |
| 6 15.14 418121160830 206-51560 |
| 8 20.22 418121160831 206-51570 |
| 10 25.30 418121160832 206-51580 |
| 12 30.38 418121160833 206-51590 |

Half Pitch

High or Low Profile
### Specifications of Switches

- **High Profile**
  - Single pole single throw half pitch DIL switches
  - Available in low or high profile
  - Recessed Actuator
  - UL recognised

<table>
<thead>
<tr>
<th>Contacts</th>
<th>Contact rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gold Plated over Nickel</td>
<td>25mA @ 24Vdc, @50Vdc non switching</td>
</tr>
<tr>
<td>Terminals</td>
<td>Life expectancy: 3000 ops.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operating temperature</th>
<th>Dielectric strength</th>
</tr>
</thead>
<tbody>
<tr>
<td>-55°C to 100°C</td>
<td>500V rms</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Insulation resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>@500V</td>
</tr>
</tbody>
</table>

- **Low Profile - Without Tape**
  - Body material: Glass Filled Polyamide

### DIL Switches

#### 1A @ 100V up to 10VA

<table>
<thead>
<tr>
<th>No. of Mftrs.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DS-1-014</td>
<td>422-5600</td>
</tr>
<tr>
<td>2</td>
<td>DS-2-014</td>
<td>422-5600</td>
</tr>
<tr>
<td>4</td>
<td>DS-4-014</td>
<td>422-5600</td>
</tr>
<tr>
<td>6</td>
<td>DS-6-014</td>
<td>422-5600</td>
</tr>
<tr>
<td>8</td>
<td>DS-8-014</td>
<td>422-5600</td>
</tr>
<tr>
<td>10</td>
<td>DS-10-014</td>
<td>422-5600</td>
</tr>
</tbody>
</table>

#### 2A @ 100V up to 10VA

<table>
<thead>
<tr>
<th>No. of Mftrs.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DS-1-023</td>
<td>422-6600</td>
</tr>
<tr>
<td>2</td>
<td>DS-2-023</td>
<td>422-6600</td>
</tr>
<tr>
<td>4</td>
<td>DS-4-023</td>
<td>422-6600</td>
</tr>
<tr>
<td>6</td>
<td>DS-6-023</td>
<td>422-6600</td>
</tr>
<tr>
<td>8</td>
<td>DS-8-023</td>
<td>422-6600</td>
</tr>
<tr>
<td>10</td>
<td>DS-10-023</td>
<td>422-6600</td>
</tr>
</tbody>
</table>

#### 5A @ 100V up to 10VA

<table>
<thead>
<tr>
<th>No. of Mftrs.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DS-1-043</td>
<td>422-7600</td>
</tr>
<tr>
<td>2</td>
<td>DS-2-043</td>
<td>422-7600</td>
</tr>
<tr>
<td>4</td>
<td>DS-4-043</td>
<td>422-7600</td>
</tr>
<tr>
<td>6</td>
<td>DS-6-043</td>
<td>422-7600</td>
</tr>
<tr>
<td>8</td>
<td>DS-8-043</td>
<td>422-7600</td>
</tr>
<tr>
<td>10</td>
<td>DS-10-043</td>
<td>422-7600</td>
</tr>
</tbody>
</table>

#### 250mA @ 7.5VA

<table>
<thead>
<tr>
<th>No. of Mftrs.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DS16C-4-2</td>
<td>422-9030</td>
</tr>
<tr>
<td>2</td>
<td>DS16C-4-3</td>
<td>422-9100</td>
</tr>
<tr>
<td>4</td>
<td>DS16C-4-5</td>
<td>422-9150</td>
</tr>
</tbody>
</table>

### Piano Key - Through Hole & Surface Mount

- 25mA @ 24V dc

<table>
<thead>
<tr>
<th>No. of Mftrs.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>102017</td>
<td>422-7100</td>
</tr>
<tr>
<td>2</td>
<td>102018</td>
<td>422-7100</td>
</tr>
<tr>
<td>4</td>
<td>102019</td>
<td>422-7100</td>
</tr>
<tr>
<td>6</td>
<td>102020</td>
<td>422-7100</td>
</tr>
<tr>
<td>8</td>
<td>102022</td>
<td>422-7100</td>
</tr>
</tbody>
</table>

### Surface Mount Versions

<table>
<thead>
<tr>
<th>No. of Mftrs.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>102023</td>
<td>422-8100</td>
</tr>
<tr>
<td>2</td>
<td>102024</td>
<td>422-8100</td>
</tr>
<tr>
<td>4</td>
<td>102025</td>
<td>422-8100</td>
</tr>
<tr>
<td>6</td>
<td>102026</td>
<td>422-8100</td>
</tr>
<tr>
<td>8</td>
<td>102027</td>
<td>422-8100</td>
</tr>
</tbody>
</table>

### End Stackable - 014 Series

- 1A @ 100V up to 10VA

### 1A @ 100V up to 10VA

<table>
<thead>
<tr>
<th>No. of Mftrs.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DS-1-014</td>
<td>422-5600</td>
</tr>
<tr>
<td>2</td>
<td>DS-2-014</td>
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<tr>
<td>4</td>
<td>DS-4-014</td>
<td>422-5600</td>
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<tr>
<td>6</td>
<td>DS-6-014</td>
<td>422-5600</td>
</tr>
<tr>
<td>8</td>
<td>DS-8-014</td>
<td>422-5600</td>
</tr>
<tr>
<td>10</td>
<td>DS-10-014</td>
<td>422-5600</td>
</tr>
</tbody>
</table>

### 2A @ 100V up to 10VA

<table>
<thead>
<tr>
<th>No. of Mftrs.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DS-1-023</td>
<td>422-6600</td>
</tr>
<tr>
<td>2</td>
<td>DS-2-023</td>
<td>422-6600</td>
</tr>
<tr>
<td>4</td>
<td>DS-4-023</td>
<td>422-6600</td>
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<tr>
<td>6</td>
<td>DS-6-023</td>
<td>422-6600</td>
</tr>
<tr>
<td>8</td>
<td>DS-8-023</td>
<td>422-6600</td>
</tr>
<tr>
<td>10</td>
<td>DS-10-023</td>
<td>422-6600</td>
</tr>
</tbody>
</table>

### 5A @ 100V up to 10VA

<table>
<thead>
<tr>
<th>No. of Mftrs.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DS-1-043</td>
<td>422-7600</td>
</tr>
<tr>
<td>2</td>
<td>DS-2-043</td>
<td>422-7600</td>
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<td>4</td>
<td>DS-4-043</td>
<td>422-7600</td>
</tr>
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<td>6</td>
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</tr>
<tr>
<td>8</td>
<td>DS-8-043</td>
<td>422-7600</td>
</tr>
<tr>
<td>10</td>
<td>DS-10-043</td>
<td>422-7600</td>
</tr>
</tbody>
</table>

### Slide - 16 Series

- 250mA @ 30V dc up to 7.5VA

<table>
<thead>
<tr>
<th>No. of Mftrs.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DS16C-4-2</td>
<td>422-9030</td>
</tr>
<tr>
<td>2</td>
<td>DS16C-4-3</td>
<td>422-9100</td>
</tr>
<tr>
<td>4</td>
<td>DS16C-4-5</td>
<td>422-9150</td>
</tr>
</tbody>
</table>

### Ganged Style

- 1A @ 100V up to 10VA

<table>
<thead>
<tr>
<th>No. of Mftrs.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DS-1-023</td>
<td>422-6610</td>
</tr>
</tbody>
</table>

### Double Throw Style (PCB Linked)

#### 2A @ 100V up to 10VA

<table>
<thead>
<tr>
<th>No. of Mftrs.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DS-1-023</td>
<td>422-6610</td>
</tr>
<tr>
<td>2</td>
<td>DS-2-023</td>
<td>422-8100</td>
</tr>
<tr>
<td>4</td>
<td>DS-4-023</td>
<td>422-8100</td>
</tr>
</tbody>
</table>

### Double Throw Style (PCB Linked)

#### 5A @ 100V up to 10VA

<table>
<thead>
<tr>
<th>No. of Mftrs.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DS-1-043</td>
<td>422-7600</td>
</tr>
<tr>
<td>2</td>
<td>DS-2-043</td>
<td>422-7600</td>
</tr>
<tr>
<td>4</td>
<td>DS-4-043</td>
<td>422-7600</td>
</tr>
</tbody>
</table>

### Double Throw Style (PCB Linked)

#### 250mA @ 7.5VA

<table>
<thead>
<tr>
<th>No. of Mftrs.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DS16C-4-2</td>
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</tr>
<tr>
<td>2</td>
<td>DS16C-4-3</td>
<td>422-9100</td>
</tr>
<tr>
<td>4</td>
<td>DS16C-4-5</td>
<td>422-9150</td>
</tr>
</tbody>
</table>

### Double Throw Style (PCB Linked)

#### 250mA @ 7.5VA

<table>
<thead>
<tr>
<th>No. of Mftrs.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DS16C-4-2</td>
<td>422-9200</td>
</tr>
<tr>
<td>2</td>
<td>DS16C-4-3</td>
<td>422-9210</td>
</tr>
<tr>
<td>4</td>
<td>DS16C-4-5</td>
<td>422-9250</td>
</tr>
</tbody>
</table>
**DIL Switches - continued**

**Rocker and Lever - 76 Series**
- Rocker and lever key operated single throw switches
- Reliable positive wiping contact action
- Base sealed to MIL-S-202, manufactured to MIL-S-3850 specification
- Tape sealed versions available for flow soldering and solvent cleaning

**Contacts**
- Gold Plated Brass
- Contacts: Gold Plated Brass
- Initial contact resistance: (50mV, 2mA max)
- Insulation resistance: 100G ohms
- Operating life: 20000 ops
- Operating temperature: -60°C to 85°C

**Body Material**
- Moulded thermoplastic polymer

**Switche**
- Slide - 90 Series
- Surface Mount

**Truth Tables**
Output codes as used in digital and rotary DIL switches.

**10mm x 10mm Rotary DIL Switches**
25mA @ 24V dc

- Real codes DIP switching
- Available in either Through Hole or Surface Mount versions
- Flammability rating UL 94V-0

**Contact Resistance**
- Through Hole Mounting - Recessed Actuator
- Through Hole Mounting - 3.2mm Actuator
- Through Hole Mounting - 7.3mm Actuator

**Through Hole Mounting - Recessed Actuator**
- Through Hole Mounting - 3.2mm Actuator
- Through Hole Mounting - 7.3mm Actuator

**Through Hole Mounting - Recessed Actuator**
- Through Hole Mounting - 3.2mm Actuator
- Through Hole Mounting - 7.3mm Actuator

**Surface Mount - Recessed Actuator**
- Through Hole Mounting - Right Angle Terminals

**Surface Mount - 3.2mm Actuator**
- Through Hole Mounting - Right Angle Terminals

**Surface Mount - 7.3mm Actuator**
- Through Hole Mounting - Right Angle Terminals

**Surface Mount - 3.2mm Actuator**
- Through Hole Mounting - Right Angle Terminals

**Surface Mount - 7.3mm Actuator**
- Through Hole Mounting - Right Angle Terminals

- Real codes DIP switching
- Available in either Through Hole or Surface Mount versions
- Flammability rating UL 94V-0

**Wire and Board Mounting**

- Through Hole Mounting - Recessed Actuator
- Through Hole Mounting - 3.2mm Actuator
- Through Hole Mounting - 7.3mm Actuator

**Contact Resistance**
- Through Hole Mounting - Recessed Actuator
- Through Hole Mounting - 3.2mm Actuator
- Through Hole Mounting - 7.3mm Actuator

**Through Hole Mounting - Recessed Actuator**
- Through Hole Mounting - 3.2mm Actuator
- Through Hole Mounting - 7.3mm Actuator

**Surface Mount - Recessed Actuator**
- Through Hole Mounting - Right Angle Terminals

**Surface Mount - 3.2mm Actuator**
- Through Hole Mounting - Right Angle Terminals

**Surface Mount - 7.3mm Actuator**
- Through Hole Mounting - Right Angle Terminals

**Surface Mount - 3.2mm Actuator**
- Through Hole Mounting - Right Angle Terminals

**Surface Mount - 7.3mm Actuator**
- Through Hole Mounting - Right Angle Terminals

**Surface Mount - 3.2mm Actuator**
- Through Hole Mounting - Right Angle Terminals

**Surface Mount - 7.3mm Actuator**
- Through Hole Mounting - Right Angle Terminals

**Surface Mount - 3.2mm Actuator**
- Through Hole Mounting - Right Angle Terminals

**Surface Mount - 7.3mm Actuator**
- Through Hole Mounting - Right Angle Terminals

**Surface Mount - 3.2mm Actuator**
- Through Hole Mounting - Right Angle Terminals

**Surface Mount - 7.3mm Actuator**
- Through Hole Mounting - Right Angle Terminals

**Surface Mount - 3.2mm Actuator**
- Through Hole Mounting - Right Angle Terminals

**Surface Mount - 7.3mm Actuator**
- Through Hole Mounting - Right Angle Terminals

**Surface Mount - 3.2mm Actuator**
- Through Hole Mounting - Right Angle Terminals

**Surface Mount - 7.3mm Actuator**
- Through Hole Mounting - Right Angle Terminals

**Surface Mount - 3.2mm Actuator**
- Through Hole Mounting - Right Angle Terminals

**Surface Mount - 7.3mm Actuator**
- Through Hole Mounting - Right Angle Terminals
### Miniature Rotary DIP Switches

**25mA @ 24V dc**
- **Throughhole or SMD versions** with gold plated contacts for high reliability
- **1.96N operating torque**

<table>
<thead>
<tr>
<th>Mftrs.</th>
<th>No. of Pin</th>
<th>Contact resistance</th>
<th>Insulation resistance</th>
<th>Contact material</th>
</tr>
</thead>
<tbody>
<tr>
<td>RO194F</td>
<td>10</td>
<td>200mohm</td>
<td>20000 oops.</td>
<td>Gold over Nickel</td>
</tr>
<tr>
<td>RO194F</td>
<td>16</td>
<td>200mohm</td>
<td>20000 oops.</td>
<td>Gold over Nickel</td>
</tr>
<tr>
<td>RO194F</td>
<td>20</td>
<td>200mohm</td>
<td>20000 oops.</td>
<td>Gold over Nickel</td>
</tr>
</tbody>
</table>

### Rotary Encoder Switch

**25mA @ 24V dc**
- **Rotary code switches**
- **Switch with ground terminal**
- **8 Positions with either 7 or 8 circuits**
- **Operational life in excess of 10,000 cycles**

<table>
<thead>
<tr>
<th>Mftrs.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCDCRed</td>
<td>AEG-10CR</td>
<td>990-1760</td>
</tr>
<tr>
<td>BCDBlue</td>
<td>AEG-10CR</td>
<td>990-1761</td>
</tr>
<tr>
<td>BCDBlue</td>
<td>AEG-10CR</td>
<td>990-1762</td>
</tr>
</tbody>
</table>

### Knob Control

**125mA @ 30V**
- **Large coloured knob with Y cut-out to indicate code selected**
- **Selection of knob colours**
- **Available BCD (10 positions, 0 - 9) and hex (16 positions, 0 - 9, A - F)**

<table>
<thead>
<tr>
<th>Mftrs.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>990-1795</td>
<td>990-1796</td>
</tr>
</tbody>
</table>

### Sealed 'IC Style' - 46C Series

**100mA @ 30V dc**

- **16 position hexadecimal coding**
- **Rugged environments**
- **Up to 3.5 Ncm switching torque**
- **Gold plated contacts**
- **Washable (sealed contact system)**

<table>
<thead>
<tr>
<th>Mftrs.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex</td>
<td>187-6082</td>
<td>187-6083</td>
</tr>
</tbody>
</table>
Sealed PCB Mounting

400mA @ 24V dc (non-switching), 150mA @ 24Vdc (switching)

- Initial contact resistance: <60mOhm
- Mechanical life: 10000 operations
- Insulation resistance: >250MΩ
- Soldering recommendations: 340°/2 secs. (40W iron max.)
- Hand soldering (max.): 260°/10 secs.

Through hole, BCD 108-2471

Switching Capacity 25mA @ 24V Operating Temperature (MCRJ Series) -30 to 80°C Life Expectancy 20000 steps

MCRJ Series

<table>
<thead>
<tr>
<th>No. of Pin</th>
<th>Mfrs.</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>MCRJ3H-10R-Q</td>
<td>208-3026</td>
</tr>
<tr>
<td>16</td>
<td>MCRJ3H-10R-Q</td>
<td>208-3027</td>
</tr>
<tr>
<td>3</td>
<td>MCRJ3H-10R-Q</td>
<td>208-3028</td>
</tr>
<tr>
<td>16</td>
<td>MCRJ3H-10R-Q</td>
<td>208-3029</td>
</tr>
<tr>
<td>3</td>
<td>MCRJ3H-16R-Q</td>
<td>208-3030</td>
</tr>
<tr>
<td>16</td>
<td>MCRJ3H-16R-Q</td>
<td>208-3031</td>
</tr>
</tbody>
</table>

Surface Mount - Recessed Actuator

<table>
<thead>
<tr>
<th>No. of Pin</th>
<th>Mfrs.</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>MCRJ3M-10R-Q</td>
<td>208-3026</td>
</tr>
<tr>
<td>16</td>
<td>MCRJ3M-10R-Q</td>
<td>208-3027</td>
</tr>
<tr>
<td>3</td>
<td>MCRJ3M-16R-Q</td>
<td>208-3028</td>
</tr>
<tr>
<td>16</td>
<td>MCRJ3M-16R-Q</td>
<td>208-3029</td>
</tr>
</tbody>
</table>

Sealed Through Hole and Surface Mount - P36 Series

400mA @ 24V dc (non-switching), 100mA @ 24V dc (switching)

- Flux sealed and washable
- Positive detent
- High reliability and long life
- BCD (10 position) and hex (16 position) version
- Through hole and surface mount versions
- Compact, low profile
- Real codes DIP switching
- Available in either Through Hole or Surface Mount versions
- Flammability rating UL 94V-0

7mm x 7mm Rotary DIP Switches

25mA @ 24V dc

Switching Capacity 25mA @ 24V Operating Temperature (MCR7 Series) -30 to 80°C Life Expectancy 20000 steps

MCR7 Series

<table>
<thead>
<tr>
<th>No. of Pin</th>
<th>Mfrs.</th>
<th>Order Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>MCR7H3-10R-V</td>
<td>208-3026</td>
</tr>
<tr>
<td>10</td>
<td>MCR7H3-10R-V</td>
<td>208-3027</td>
</tr>
<tr>
<td>3</td>
<td>MCR7H3-16R-V</td>
<td>208-3028</td>
</tr>
<tr>
<td>10</td>
<td>MCR7H3-16R-V</td>
<td>208-3029</td>
</tr>
</tbody>
</table>
Rotary DIP Switches

- Operating force: 120g or 700g versions
- Height: 3.65mm (7x7mm version) and 6.5mm (10x10mm version)
- Washable and non-washable types available
- Contact: Gold plated
- Terminals: Gold plated

Sealed PCB Mounting, 4 + 1 Pin Connection

With Spindles and Segment Wheels

400mA @ 24Vdc (non-switching), 150mA @ 24V dc (switching)

Rotary Switch Actuators

- The cut-out of the actuator types should be in line with the positioning arrow of the rotary switch
- POM UL HB material
- To be fitted after the soldering process

Digital Switches

Truth Tables

Output codes as used in digital and rotary DIL switches.

Ultra-Miniature Push Button - PA Series

100mA @ 50V ac/dc

- White engraved legends behind perspex windows
- Panel mounting by means of snap-in end chucks
- All parts, including spacers and end chucks, clipped together by means of integral clips and lugs

Contacts

Gold

Contact resistance 0.01mΩ

Operating life 1000000 operations

Housing material PPO Noryl

Insulation resistance 1000Ω

Operating temperature -20°C to +80°C

Dielectric strength 500V ac

Mfrs.

List No.

Order Code

Price Each

PAAC000118-0018

600080118-0014

600803118-0015

Output Code

Readout

Order Code

Price Each

Decimal

0 - 9

116-00170

116-00180

Accessories

LH end cheek

116-00110

RH end cheek

116-00120

2.5mm spacer

116-00150

Through Hole Mounting - 3mm Actuator

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<thead>
<tr>
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Surface Mount - Recessed Actuator

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Surface Mount - 3mm Actuator

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<td>1+</td>
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Through Hole Mounting - 3mm Actuator

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Surface Mount - Recessed Actuator

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Surface Mount - 3mm Actuator

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<td>4X1</td>
<td>-</td>
<td>206-3035</td>
<td>1+</td>
<td>25+</td>
</tr>
</tbody>
</table>

Sealed PCB Mounting, 4 + 1 Pin Connection

With Spindles and Segment Wheels

Horizontal cross-head: H=4, W=10, D=10, PIns (3 x 2.54) x 7.62

Right angle cross-head: H=10, W=10, D=10, PIns (3 x 2.54) x 6.5mm

- Choice of horizontal or right angle orientation
- 4 + 1 Pin connection
- Press-fit actuators
- Choice of two spindle heights
- Selection of segment wheel colours
- Operating force: 120g or 700g versions
- Height: 3.65mm (7x7mm version) and 6.5mm (10x10mm version)
- Washable and non-washable types available
- Contact: Gold plated
- Terminals: Gold plated

Mfrs.

List No. | Order Code | Price Each |
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>7x7mm THT</td>
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<td>25+</td>
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<tr>
<td>7x7mm THT</td>
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<td></td>
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<tr>
<td>206-5150</td>
<td>1+</td>
<td>25+</td>
</tr>
</tbody>
</table>
Digital Switches - continued

Sub-Miniature Push Button - PE Series
100mA @ 50V ac/dc

![Image](element14.com)

L = (N x 6.3) + (S x 2.5) where N = No of switches and S = No of spacers
Switch: H = 24, W = 7.62, D = 26 (behind panel)
Spacer: H = 24, W = 2.5, D = 26 (behind panel)
End cheek: H = 24, W = 3.0, D = 26 (behind panel)
- As PA series detailed above, but switch height is 24mm instead of 15mm

<table>
<thead>
<tr>
<th>Output Code</th>
<th>Readout</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch Modules</td>
<td>Order Code</td>
<td>1+ 25+ 100+ 250+ 1K+</td>
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<tr>
<td>Decimal</td>
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<td>143-620</td>
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<tr>
<td>BCD + Complement</td>
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<td>143-621</td>
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<tr>
<td>Hex</td>
<td>0 - 9, A - F</td>
<td>143-622</td>
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<tr>
<td>Accessories</td>
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<tr>
<td>LH end cheek</td>
<td>118-0007</td>
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<tr>
<td>RH end cheek</td>
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<tr>
<td>Order Multiple</td>
<td>2.5mm spacer</td>
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Miniature Rocker - 84214 Series

<table>
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<tbody>
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<td>Order Code</td>
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</tr>
<tr>
<td>Decimal</td>
<td>0 - 9</td>
<td>143-625</td>
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</table>

LED Readout Modules

B.C.D. = 5V

- End plates, pair |
- Spacer |
- Separator |

Standard Thumbwheel and LED Readout Module

84210/84216 Series

<table>
<thead>
<tr>
<th>Output Code</th>
<th>Readout</th>
<th>Price Each</th>
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<tbody>
<tr>
<td>Switch Modules</td>
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<tr>
<td>Decimal</td>
<td>0 - 9</td>
<td>143-625</td>
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</tbody>
</table>

Joystick / Direction Controllers

Single Axis Fingertip Rocker (Potentiometer)

- Conductive plastic track technology - absolute position control and maintenance free operating life
- Developed for applications where compact size and minimal audible panel height is paramount
- Fitted with flying leads
- Sealed to IP65

Input voltage (max) | 35V
Total track resistance | 2kOhm
Power rating | 250mW
Mechanical life | >5 million operations
Operating temperature | 20°C to +70°C

- H = 47.5, W = 47.5, D = 27

<table>
<thead>
<tr>
<th>Mfrs. List No.</th>
<th>Order Code</th>
<th>Price Each</th>
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<tbody>
<tr>
<td>JC030-R-STD-BLK</td>
<td>119-1286</td>
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</tbody>
</table>
**Single Axis (Potentiometer)**

- Potentiometric single axis control
- Compact size and easy to install
- Proportional output and independent switched output
- Sealed to IP66, suitable for outdoor use
- Internal padding resistors enable user to detect possible faults in their equipment
- Connection by 7-way connector, mating connector and data supplied

Track details:
- Track resistance 4.0kΩ ±20% + padding resistance
- Padding resistance (each end) 0.5kΩ ±20%
- Power dissipation 0.25W @ 20°C
- Wiper current 2mA max.
- Current centre tap self-centre within tap width ±2.5° nominal
- (switch wiper current) 2mA max.
- Temperature range -20°C to 70°C

**Paddle Control BF Series**

**Thmbwheel Switches**

The HFX Thumbwheel is a self-centering, single-axis device developed for thumb-actuated applications requiring proportional output control. Utilizing non-contact Hall effect technology, it features a maintenance free, single-axis joystick and a dedicated control. It combines the features of a potentiometer with its innovative mechanism and ergonomic styling is specifically designed for robustness, strength and performance.

**Dual Axis (Potentiometer)**

- PCB mount with both self centering and absolute (put and stay) options
- Sprung to Centre and +/- 12.5° & 25° Detents
- Mechanical life 50 million operations
- Potentiometer resistance 2kΩ, ±2% total 20%
- Operating life 300000 ops

**Switches**

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<thead>
<tr>
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<th>With Tab</th>
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</thead>
<tbody>
<tr>
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<td>HFX-02-RED</td>
</tr>
<tr>
<td>HTW-12-RED</td>
<td>HTW-02-RED</td>
</tr>
<tr>
<td>HTW-12-RED</td>
<td>HTW-02-RED</td>
</tr>
<tr>
<td>HTW-12-RED</td>
<td>HTW-02-RED</td>
</tr>
<tr>
<td>HTW-12-RED</td>
<td>HTW-02-RED</td>
</tr>
</tbody>
</table>

**Thmbwheel Switches**

- Miniature size uses 26 x 26 panel area (excluding potentiometer)
- PCB mount with both self centering and absolute (put and stay) options
- Sprung to Centre and +/- 12.5° & 25° Detents
- Mechanical life 50 million operations
- Potentiometer resistance 2kΩ, ±2% total 20%
- Operating life 300000 ops

**Dual Axis (Potentiometer)**

- PCB mount with both self centering and absolute (put and stay) options
- Sprung to Centre and +/- 12.5° & 25° Detents
- Mechanical life 50 million operations
- Potentiometer resistance 2kΩ, ±2% total 20%
- Operating life 300000 ops
Joystick / Direction Controllers - continued

Dual Axis (Potentiometer) - continued

<table>
<thead>
<tr>
<th>Mfrs. List No.</th>
<th>Order Code</th>
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<tbody>
<tr>
<td>M41L0H1P</td>
<td>112-4084</td>
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</tbody>
</table>

Potentiometric dual axis control
Self centering to zero position
Precision ground stainless steel ball pivot and shaft

Joystick travel
% from centre in all directions
Potentiometer
Return to centre repeatability ±0.1%
Set at centre of resistance
Panel thickness
1.25mm to 4.75mm
Operating temperature
-10°C to +65°C

Three Axis (Potentiometer)

Potentiometric three axis control rotational movement of the joystick knob gives control in the Z axis
Supplied with a two piece bezel consisting of a textured ring and rubber boot for sealing

FOR TECHNICAL SPECIFICATION SEE www.farnell.com

<table>
<thead>
<tr>
<th>Mfrs List No.</th>
<th>Order Code</th>
<th>Price Each</th>
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Resistive Miniature Joysticks

Dual & Triple Axis

<table>
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<th>Order Code</th>
<th>Price Each</th>
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<tbody>
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<tr>
<td>M41L0H1P</td>
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</table>

The Resistive Joystick is a low profile, potentiometric controller providing unwavering, multi-axis finger-positioning control. Miniature Resistive Joysticks are ideal for applications requiring a compact and reliable, low operating force controller. Featuring two ergonomically designed handles and available in dual or triple axis configurations, typical applications include CCTV equipment, robotic controllers, electric wheelchairs and electron microscopes.

Potentiometer Joystick

Low Profile

<table>
<thead>
<tr>
<th>Mfrs List No.</th>
<th>Order Code</th>
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<tbody>
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<tr>
<td>M41L0H1P</td>
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Multi-Function Joystick

60C Series

The 60C is an effective replacement of a stationary mouse or trackball with improved control over cursor movement. An integral Schmitt Trigger is used to stabilize against noise and vibration. As a compact cursor control device, this product is ideally suited for automotive and aviation dashboards, where use of separate joysticks, encoders and pushbuttons might be impractical. It provides all the functionality of a stationary mouse or trackball in a single-shaft design with a 1”x1”x 3/4” deep housing. The joystick manipulates a cursor left, right, up and down; the rotary encoder facilitates sequential scrolling through menu options; and the pushbutton performs on-screen menu selects.

<table>
<thead>
<tr>
<th>Mfrs List No.</th>
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<tr>
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Control Knob

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Potentiometer Joystick

Low Profile

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<tr>
<td>3 / Third Axis</td>
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Miniature Joysticks

NEW

The TS Series Thumbstick is a proportional two axes joystick in a miniature package. Featuring non-contacting Hall effect technology for long life performance, the TS Series Thumbstick is available with multiple linear output options including single and dual (redundant) outputs. It is similar in size and operation to “gamepad” controls, but in a rugged industrial package. Typical applications include pendant and remote controls as well as joystick handle and armrest integration.

<table>
<thead>
<tr>
<th>Mfrs List Code</th>
<th>Order Code</th>
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<tbody>
<tr>
<td>TS-101U02A02</td>
<td>185-7131</td>
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</tbody>
</table>

Drop in mounted

1 or 2 axes
Non-contact hall effect technology
Submersible to 1m at IP68
Pressure washable to IP69K

Specified for automotive and aviation dashboards, where use of separate joysticks, encoders and pushbuttons might be impractical. It provides all the functionality of a stationary mouse or trackball in a single-shaft design with a 1”x1”x 3/4” deep housing. The joystick manipulates a cursor left, right, up and down; the rotary encoder facilitates sequential scrolling through menu options; and the pushbutton performs on-screen menu selects.

<table>
<thead>
<tr>
<th>Mfrs List Code</th>
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<tr>
<td>TS-101U02012</td>
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</table>

Standard quadrature 2-bit code
152.4mm cable length
Application: Avionics, Medical Equipment and Automotive Navigation, Information & Entertainment Equipment

New NEW

The TS Series Thumbstick is a proportional two axes joystick in a miniature package. Featuring non-contacting Hall effect technology for long life performance, the TS Series Thumbstick is available with multiple linear output options including single and dual (redundant) outputs. It is similar in size and operation to “gamepad” controls, but in a rugged industrial package. Typical applications include pendant and remote controls as well as joystick handle and armrest integration.
Robust Potentiometer Joystick

IP 65 Sealed

- Highly robust metal mechanism
- High-quality industrial 5kΩ full range potentiometers
- Hermetic immunity to RFI
- Robust, closed frame construction
- Conical, black nylon handle
- Supplied with an all round handle
- IP 65 above panel

Lever Travel
Power rating 1W @ 70°C, derate to 0W @ 125°C
Operating temperature -20 to 55°C

Potentiometers
Skohm - 55kΩ
Preferred load >100kΩ @ 70°C, derate to 0kΩ @ 125°C
Lever travel ±27.5°

<table>
<thead>
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<th>Number of Axes</th>
<th>List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
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<td>2</td>
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USB Joystick Interface

Windows or MacOS

- Designed to connect any joystick with up to 3 axes and 8 buttons to a USB port
- USB interface controlled by "JoyWarrior" chip
- Fully USB V1/2/0 and HID 1.1 compliant
- 3 analog inputs for X, Y and Z axes
- 10bit resolution and connections for up to 8 push buttons
- Supplied USB cable 1.5m long

<table>
<thead>
<tr>
<th>Handle Type</th>
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<th>Price Each</th>
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<tbody>
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<td>Round - Phenolic</td>
<td>9SY40SC-65-124</td>
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<tr>
<td>Third Axis - Aluminium</td>
<td>9SY40SR-65-125</td>
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</table>

Robust Contactless Joystick

IP 65 Sealed

- Ultra low profile
- High EMC immunity
- Dual decode - Combined fault and centre detect
- Robust, contactless for proportional control
- Supplied with a round, diamond, slot and cross limiter set
- IP 65 above panel

Supply voltage 75 to 15V
Supply current 10mA
Lever Travel ±18°
Operating life >10000000 operations
Signal swing ±50% of VCC or ±50% of VCC
Operating temperature >20 to 55°C

<table>
<thead>
<tr>
<th>Number of Axes</th>
<th>List No.</th>
<th>Order Code</th>
<th>Price Each</th>
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<td>112-4094</td>
<td>479414</td>
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</tbody>
</table>

Dual Axis (Non-Contacting)

- EMC protected
- Sealed to IP65
- Inductive joystick with non-contacting sensor system
- Excellent proportional dual axis control
- Internal dual amplifier circuit for additional operational safety

<table>
<thead>
<tr>
<th>Mtr. No.</th>
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<th>Price Each</th>
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<tbody>
<tr>
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Contactless Hall Effect Joysticks

3000 Series

The 3000 Series is the very latest generation in high precision contactless joysticks. With a small installed depth of <18mm, it is available in two or three axis formats. Long trouble-free life is assured with the latest hall effect technology providing a reliable output. The 3000 Series also delivers a radically improved mechanism construction, that is specifically designed for increased robustness, strength and performance.

Performance details:

- Input voltage 5.14V to 12V
- Output impedance, signal 1kΩ
- Output impedance, centre tap 0.34kΩ
- Life in normal use 15 million cycles

Characteristics with 10V dc supply:

- Current drain 15mA max.
- Ripple 10% max.
- Centre tap voltage (V centre) 5V ± 30mV
- Self centre within V centre ± 20mV
- Voltage swing ±1V ± 10%
- Output voltage, normal range 4 to 6V ±0.1V
- Operating voltage on detected failure ±3.5V, ±6.5V
- Operating temperature range -25°C to +70°C

<table>
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</table>

Single, Dual and Three Axis (Non-Contacting)

<table>
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<tr>
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<th>Axis</th>
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<th>Bezel</th>
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The first online technical portal for design engineers
Log on, research, refine and design
Microswitch Joysticks

- Modern “stubby” design
- 22mm bush or screw mounting
- Construction based on V4 micro-switches with change over contacts
- Gold flash terminals for reliable low current switching
- Black Conical handle made from Nylon
- Supplied with adhesive sealing gasket

Microswitches

- The smallest sealed Snap-Action switch in the industry with a very long stroke for reliable On/Off action
- The case dimensions are 78% of conventional models, contributing to down-sizing of mechanical modules
- Extra-long stroke even without levers (0.1, 4mm)
- Made of environment-friendly materials
- All models are lead-free

IP Desktop / Direction Controllers - continued

The IP Desktop features a two button three axes Hall effect joystick, 10 tactile pushbuttons switches and USB 1.1 interface. Recommended and used by the most innovative compa-

Voltage Rating 5Vdc Current Rating 32mA max. Operating Travel 3°/ 18° from center Contacting Single spring, omni-directional Breakaway Force 0.196Nm Contact Life Expectancy 1000000 operations Panel/Surface Mount Sealed Joysticks

- Sealing to panel against dust and moisture provided by PVC gaiter at joystick base
- Supplied with adhesive sealing gasket
- Construction based on V4 micro-switches with change over contacts
- Modern “stubby” design
- 22mm bush or screw mounting
- Gold flash terminals for reliable low current switching
- Black Conical handle made from Nylon
- Supplied with adhesive sealing gasket

Operating Speed 1mm to 500mm/s (for pin plunger models)
Operating Frequency 50 operations/minute
Insulation Resistance MΩ min. (at 500VDC)
Contact Resistance 100μΩ max.
Dielectric Strength 600VAC, 50/60Hz for 1 min between terminals of same polarity 1500VAC, 50/60Hz for 1 min between current-carrying metal parts and ground, and between each terminal and non-current-carrying metal parts
Vibration Resistance Multifunction: 10 to 50Hz, 1.5mm double amplitude
Shock Resistance Multifunction: 300m/s²
Life Expectancy Mechanical: 1,000,000 operations min. (30 operations/min) Electrical: 100,000 operations min. (20 operations/min)
Degree of Protection IP65
Degree of Protection Against Electric Shock Class I
Proving Tracking Index 175
Operating Temperature -40 to 85°C (with no icing)
Ambient Operating Humidity 95% max. (in temperature range 5 to 35°C)
Weight Approx. 0.7g (for pin plunger models)

Panel or Surface Mount Joystick

- Modern “stubby” design
- 22mm bush or screw mounting
- Construction based on V4 micro-switches with change over contacts
- Gold flash terminals for reliable low current switching
- Black Conical handle made from Nylon
- Supplied with adhesive sealing gasket

Operating Speed 1mm to 500mm/s (for pin plunger models)
Operating Frequency 50 operations/minute
Insulation Resistance MΩ min. (at 500VDC)
Contact Resistance 100μΩ max.
Dielectric Strength 600VAC, 50/60Hz for 1 min between terminals of same polarity 1500VAC, 50/60Hz for 1 min between current-carrying metal parts and ground, and between each terminal and non-current-carrying metal parts
Vibration Resistance Multifunction: 10 to 50Hz, 1.5mm double amplitude
Shock Resistance Multifunction: 300m/s²
Life Expectancy Mechanical: 1,000,000 operations min. (30 operations/min) Electrical: 100,000 operations min. (20 operations/min)
Degree of Protection IP65
Degree of Protection Against Electric Shock Class I
Proving Tracking Index 175
Operating Temperature -40 to 85°C (with no icing)
Ambient Operating Humidity 95% max. (in temperature range 5 to 35°C)
Weight Approx. 0.7g (for pin plunger models)
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<th>Actuator</th>
<th>Mfrs. No.</th>
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</table>
Microswitches - continued

Ultra-miniature Turquoise Series ABJ

- Ultra-miniature (12.6mm x 6.5mm x 6mm)
- Resistant to most environmental influences
- Watertight housing sealed to IP67
- Able to withstand frost
- UL recognised and CSA approved

Switches
Electromechanical

<table>
<thead>
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<th>1A @ 124Vac/30V dc</th>
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<tr>
<td>Contacts SPDT</td>
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<tr>
<td>Contact resistance 50mR (solder)</td>
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<tr>
<td>Contact rating 1A @ 30V dc, 124V ac</td>
</tr>
<tr>
<td>Operating temperature -20°C to 70°C</td>
</tr>
<tr>
<td>Release force, min. 25gf</td>
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<td>Pre-travel, max. 0.6mm</td>
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<td>Mfrs. ABJ Series</td>
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<td>ABJ61040</td>
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<td>ABJ61240</td>
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<tr>
<td>PCB Mount</td>
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<td>Pin plunger ABJ351281J</td>
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Contact rating 100mA @ 30V dc

- Operating temperature -25°C to +60°C
- Contact resistance 100mohm

Mfrs. Silver Contacts

- Hinge Lever Solder Lug AV402461J 209-5703P
- Hinge Lever Through Hole AV402461J 209-5706P

Gold Contacts

- Simulated Roller Lever Solder Lug AV4044J 209-5705P

Microswitches - D2FD Series

- Sealing by using rubber packing means the switch can be used in dust-proof environments (IEC IP65)
- Switch rating of 2 A at 125 VAC possible with a single-leaf movable spring. Models for micro loads are also available

Dust Proof Ultra Subminiature

- Size: H 12.8 x W 6 x D 12.2

Contacts

- Contact current 100mA @ 30DC / 125VAC
- Operating temperature -20°C to 70°C
- Insulation resistance 100MΩ min
- Contact resistance 100mohm
- Mechanical life 100000 ops min
- Mechanical life 100000 ops min

Order Code

- D2FD-01
- D2FD-2

Mfrs. | List No. | Order Code | 1+ | 10+ | 25+ | 50+ |
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D2FD-01 - PCB Pins

- Pin Plunger D2FD-01L1-1T | 213-4430P |
| Hinge Lever D2FD-01L1-1T | 213-4432P |
| Simulated Roller Lever D2FD-01L30-1T | 213-4435P |

Miniature M140T01 Series

- 5A @ 125V ac, 3A @ 250V ac

Contacts

- SPOT |
- Insulation Resistance 50mR (solder) |
- Contact resistance 50mR |
- Operating temperature -25°C to +60°C |

Order Code |

- M140T01-AD0500A |
- M140T01-AD0504A |

- M140T01-AE0501A |
- M140T01-AE0502A |
- M140T01-AE0505A |
- M140T01-AE0509A |

Miniature M141T02 Series

- 10A @ 125V ac, 10A @ 250V ac

Contacts

- SPOT |
- Insulation Resistance |
- Contact resistance |
- Operating temperature |

Order Code |

- M141T02-AD0301D |
- M141T02-AD0302D |
- M141T02-AD0303D |
- M141T02-AD0304D |
- M141T02-AD0305D |

Ultraminiature Microswitch - AV Series

- Superminiature type, light-weight snap action switch
- Switches can be mounted close together in any directions
- For compact equipment

Contacts

- SPOT |
- Insulation Resistance |
- Contact resistance |
- Operating temperature |

Order Code |

- M140T01-AE0500A |
- M140T01-AE0504A |
- M140T01-AE0501A |
- M140T01-AE0502A |
- M140T01-AE0505A |
- M140T01-AE0509A |

Choice of actuator types
- Round mounting hole fixing
- Quick connect terminals

Body: H=10.6, W=19.8, D=6.4mm
Subminiature DM Series
1A @ 125V ac, 30mA @ 5V dc
- PBT housing
- Choice of actuator types
- Round mounting hole fixing
- PCB Mounting Contacts
  - SPDT
  - Contact rating: 1A @ 125V ac, 30mA @ 5V dc
  - Resistance: 1000m ohm
  - Insulation resistance: 1000000
  - Mechanical life: 1000000
  - Operating temperature: -50°C to 65°C

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<tr>
<th>Mfrs.</th>
<th>Actuator Type</th>
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<td>Long Lever</td>
<td>30gf</td>
<td>173-5365</td>
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</table>

Microminiature SSM Series
500mA @ 30V dc
- PBT housing
- Choice of lever types
- PCB terminals
- Contact resistance: 1000m ohm
- Insulation resistance: 1000000
- Operating force: 50gf
- Operating temperature: -15°C to 70°C

<table>
<thead>
<tr>
<th>Mfrs.</th>
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<td>SSM-003 Metal</td>
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<tr>
<td>SSM-004 Stainless Steel</td>
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</table>

Superminiature Series AV4
0.1A @ 30V dc (resistive load)
- Superminiature size (7.5 x 4.5 x 2.5 mm)
- Light weight with snap action
- Long life expectancy of 300,000 operations

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Lever Type</th>
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<td>AV4-02</td>
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Microminiature PCB Mount - D2MQ Series
500mA @ 30V dc
- Super miniature design
- Ideal for applications where size and weight restrictions are crucial
- Operating temperature: -70°C to 70°C
- Contact resistance: 1000m ohm
- Insulation resistance: 1000000
- Operating force: 0.25N
- Operating life: 300000

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Microminiature - D2F
Series3A @ 125V ac, 2A @ 30V dc Microlow 0.1A @ 30V dc
- Microload types have gold plated contacts for low level switching
- Standard load types have silver contacts for general purpose applications
- CSA approved, UL recognised
- Body: H=6.5, W=5.8, D=2.3
- Insulation resistance: 1000000
- Operating force: 50gf
- Operating life: 100000
- Contact resistance: 100m ohm
- Movement differential: 0.25mm

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<td>196-1057</td>
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<td>D2F01RL</td>
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Microswitches - continued

Series 3A @ 125V ac, 2A @ 30V dc Microload 0.1A @ 30V dc - continued

<table>
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<tbody>
<tr>
<td>Pin Plunger</td>
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<td>196-1110</td>
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<td>90-012</td>
<td>196-1109</td>
<td>1+</td>
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<td>90-013</td>
<td>196-1108</td>
<td>1+</td>
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<td>Hinge Lever</td>
<td>90-014</td>
<td>196-1107</td>
<td>1+</td>
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<td>Roller Lever</td>
<td>90-015</td>
<td>196-1106</td>
<td>1+</td>
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<td>90-016</td>
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<td>1+</td>
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<tr>
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<td>90-017</td>
<td>196-1104</td>
<td>1+</td>
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</table>
| Subminiature PCB Mount - DG Series

125V ac or 30V dc Switching

- SPDT
- Degree of protection IP40
- Electrical life 6000 operations
- Operating temperature -25°C to 85°C
- UL Recognised

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<tbody>
<tr>
<td>0.05A @ 30V</td>
<td>Short Lever</td>
<td>Through Hole</td>
<td>0.44</td>
<td>DG23-81LA</td>
<td>196-9072</td>
<td>1+</td>
</tr>
<tr>
<td>0.05A @ 30V</td>
<td>Short Lever</td>
<td>Through Hole</td>
<td>0.44</td>
<td>DG13-81LA</td>
<td>196-9076</td>
<td>1+</td>
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</tbody>
</table>

<table>
<thead>
<tr>
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<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
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<td>25+</td>
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<tr>
<td>DG13-81LA</td>
<td>196-9076</td>
<td>100+</td>
</tr>
</tbody>
</table>

Subminiature Turquoise Series ABS

2A @ 250Vac/124Vac/30V dc, 0.4A @ 125V dc (resistive load)

- Subminiature (19.8 x 11.1 x 6.4 mm)
- Highly resistant to environmental influences
- Watertight housing sealed to IP67
- UL recognised

<table>
<thead>
<tr>
<th>Contacts</th>
<th>Mfrs. List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
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<tbody>
<tr>
<td>SPDT</td>
<td>ASB161240</td>
<td>372-6976</td>
<td>1+</td>
</tr>
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<td>Roller Lever</td>
<td>ASB161640</td>
<td>372-6986</td>
<td>1+</td>
</tr>
<tr>
<td>Plunger</td>
<td>ASB1105183</td>
<td>209-5687</td>
<td>10+</td>
</tr>
</tbody>
</table>

Subminiature, IP67 Sealed - D2JW Series

0.1A @ 30V dc

- Subminiature watertight housing sealed to IP67
- Gold crossbar contact and coil spring offer long life expectancy and high contact reliability
- Available with either solder terminals or 300mm moulded leads

<table>
<thead>
<tr>
<th>Contacts</th>
<th>Mfrs. List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPDT</td>
<td>ASB161240</td>
<td>372-6976</td>
<td>1+</td>
</tr>
<tr>
<td>Roller Lever</td>
<td>ASB161640</td>
<td>372-6986</td>
<td>1+</td>
</tr>
<tr>
<td>Plunger</td>
<td>ASB1105183</td>
<td>209-5687</td>
<td>10+</td>
</tr>
</tbody>
</table>

Subminiature - D2F - continued

Microswitches - D2MQ Series

Sealed Subminiature

- Reliable ON/OFF action even in severe environmental conditions
- Extra-long stroke even without levers
- Clip contacts with highly reliable slide contact mechanism.
- High temperature resistance up to 85°C
- Drip-proof structure for wide range of applications

<table>
<thead>
<tr>
<th>Contacts</th>
<th>Mfrs. List No.</th>
<th>Order Code</th>
<th>Price Each</th>
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<tbody>
<tr>
<td>SPST-NO</td>
<td>D2QW-C003</td>
<td>196-9072</td>
<td>1+</td>
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<tr>
<td>Contact current</td>
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<td></td>
<td>25+</td>
</tr>
<tr>
<td>Operating temperature</td>
<td>-40°C to 85°C</td>
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<td>100+</td>
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</table>

Microswitches - ASQ1 Series

- Ultra long stroke
- Since contact pressure does not depend on the operation stroke, the range of possible use over the entire stroke is greatly increased
- High contact reliability to support low level switching loads
- Highly effective sealing for resistance against adverse environments
- Silent operation

<table>
<thead>
<tr>
<th>Contacts</th>
<th>Mfrs. List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
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<td>1+</td>
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<tr>
<td>Contact resistance</td>
<td></td>
<td></td>
<td>25+</td>
</tr>
<tr>
<td>Operating Force</td>
<td></td>
<td></td>
<td>100+</td>
</tr>
</tbody>
</table>

Price Each

1+ 25+ 50+ 100+

Solder Terminals

- Pin Plunger D2QW-C003 | 211-3271
- Simulated Roller D2QW-C003 | 211-3273

PCB Terminals

- Pin Plunger D2QW-C003 | 211-3274

FREE GLOBAL LEGISLATION SUPPORT
RoHS, REACH, WEEE, ErP, Batteries Directive - latest updates, free white papers and live online Q&A at element14.com/legislation

Panasonic

NEW

Ultra long stroke
Since contact pressure does not depend on the operation stroke, the range of possible use over the entire stroke is greatly increased
High contact reliability to support low level switching loads
Highly effective sealing for resistance against adverse environments
Silent operation
Direct operation possible from lateral direction with pin plunger

<table>
<thead>
<tr>
<th>Contacts</th>
<th>Mfrs. List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPST-AC</td>
<td>ASQ161240</td>
<td>372-6976</td>
<td>1+</td>
</tr>
<tr>
<td>Contact resistance</td>
<td></td>
<td></td>
<td>25+</td>
</tr>
<tr>
<td>Operating Force</td>
<td></td>
<td></td>
<td>100+</td>
</tr>
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</table>
**Sub Miniature - SM Series**

**5A @ 30V dc**

**SM Series**

The SM Series Sub miniature Switches are used for simple or precision on/off application needs. These switches combine small size and light weight with ample electrical capacity, precision operation and long life.

- Choice of solder termination
- SM3-T = Single length Solder Terminal, SM3-T2 = Double length Solder Terminal
- Longaged mounting hole for easier, more accurate mounting
- Choice of auxiliary actuators
- Auxiliary Actuators complete with Pad, Mounting Screws, Nuts and Washers
- CSA Approved and UL Recognised

**Switch type**

- SPDT
- Switch type
- SPDT
- Operating force (max.)
- 0.3N
- Differential travel (max.)
- 0.1mm
- Return force (min.)
- 0.28N
- Operating temperature
- -53 to 131C
- Pre travel (max.)
- 0.5mm

**Actuator**

<table>
<thead>
<tr>
<th>Mfrs.</th>
<th>Price Each</th>
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<tbody>
<tr>
<td>Button Plunger</td>
<td>15/50</td>
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<tr>
<td>Auxiliary Actuators</td>
<td>3/32</td>
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<tr>
<td>Roller Lever</td>
<td>J55</td>
</tr>
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</table>

**Body Size** H = 12.4, W = 19.9, D = 6.35mm

**Subminiature V4 Style - SS Series**

**5A & 10A @ 125V ac, 0.1A @ 30V dc**

**Electrical life**

1000000 ops

**Mechanical life**

30000000 ops

**Operating temperature**

-15°C to 85°C

**Actuator**

<table>
<thead>
<tr>
<th>Operating Force</th>
<th>Contact Current</th>
<th>Mfrs.</th>
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</tr>
<tr>
<td>Lever</td>
<td>0.25N</td>
<td>100mA</td>
<td>SPDT</td>
</tr>
<tr>
<td>Lever</td>
<td>0.49N</td>
<td>100mA</td>
<td>SPDT</td>
</tr>
<tr>
<td>Pin Plunger</td>
<td>0.25N</td>
<td>100mA</td>
<td>SPDT</td>
</tr>
<tr>
<td>Hinge Roller Lever</td>
<td>0.147N</td>
<td>100mA</td>
<td>SPDT</td>
</tr>
<tr>
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<td>0.49N</td>
<td>100mA</td>
<td>SPDT</td>
</tr>
<tr>
<td>Hinge Roller Lever</td>
<td>1.47N</td>
<td>100mA</td>
<td>SPDT</td>
</tr>
<tr>
<td>Simulated Roller Lever</td>
<td>0.25N</td>
<td>100mA</td>
<td>SPDT</td>
</tr>
<tr>
<td>Simulated Roller Lever</td>
<td>0.49N</td>
<td>100mA</td>
<td>SPDT</td>
</tr>
<tr>
<td>Simulated Roller Lever</td>
<td>1.47N</td>
<td>100mA</td>
<td>SPDT</td>
</tr>
<tr>
<td>Lever</td>
<td>0.49N</td>
<td>5A</td>
<td>SPDT</td>
</tr>
<tr>
<td>Pin Plunger</td>
<td>0.49N</td>
<td>5A</td>
<td>SPDT</td>
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<tr>
<td>Pin Plunger</td>
<td>0.49N</td>
<td>5A</td>
<td>SPDT</td>
</tr>
<tr>
<td>Lever</td>
<td>0.147N</td>
<td>5A</td>
<td>SPDT</td>
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<tr>
<td>Hinge Roller Lever</td>
<td>0.49N</td>
<td>5A</td>
<td>SPDT</td>
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<tr>
<td>Pin Plunger</td>
<td>0.25N</td>
<td>100mA</td>
<td>SPDT</td>
</tr>
<tr>
<td>Simulated Roller Lever</td>
<td>0.49N</td>
<td>5A</td>
<td>SPDT</td>
</tr>
<tr>
<td>Simulated Roller Lever</td>
<td>1.47N</td>
<td>5A</td>
<td>SPDT</td>
</tr>
<tr>
<td>Lever</td>
<td>1.47N</td>
<td>5A</td>
<td>SPDT</td>
</tr>
<tr>
<td>Pin Plunger</td>
<td>0.147N</td>
<td>5A</td>
<td>SPDT</td>
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<tr>
<td>Simulated Roller Lever</td>
<td>0.147N</td>
<td>5A</td>
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**Solder Terminals**

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<tr>
<td>Lever</td>
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<td>SS-01GL-E</td>
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<tr>
<td>Simulated Roller Lever</td>
<td>SS-01GL-ED</td>
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<tr>
<td>Simulated Roller Lever</td>
<td>SS-01GL-FD</td>
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<tr>
<td>Lever</td>
<td>SS-01GL-D</td>
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<tr>
<td>Pin Plunger</td>
<td>SS-01-ED</td>
</tr>
<tr>
<td>Pin Plunger</td>
<td>SS-01-ED</td>
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<tr>
<td>Simulated Roller Lever</td>
<td>SS-01GL-E</td>
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<tr>
<td>Lever</td>
<td>SS-01GL-D</td>
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<tr>
<td>Pin Plunger</td>
<td>SS-01-ED</td>
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<tr>
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<td>SS-01-ED</td>
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<tr>
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<td>SS-01GL-E</td>
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<tr>
<td>Pin Plunger</td>
<td>SS-01-ED</td>
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**PCB Terminals**

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<tr>
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<td>SS-01-ED</td>
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<tr>
<td>Pin Plunger</td>
<td>SS-01-ED</td>
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<tr>
<td>Hinge Roller Lever</td>
<td>SS-01GL-ED</td>
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<tr>
<td>Simulated Roller Lever</td>
<td>SS-01GL-ED</td>
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<tr>
<td>Simulated Roller Lever</td>
<td>SS-01GL-ED</td>
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<tr>
<td>Lever</td>
<td>SS-01GL-D</td>
</tr>
<tr>
<td>Pin Plunger</td>
<td>SS-01-ED</td>
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<tr>
<td>Pin Plunger</td>
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<tr>
<td>Pin Plunger</td>
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<tr>
<td>Simulated Roller Lever</td>
<td>SS-01GL-E</td>
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<td>Pin Plunger</td>
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</tr>
<tr>
<td>Simulated Roller Lever</td>
<td>SS-01GL-E</td>
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</tbody>
</table>

**Electromechanical**

**33**

**Stitches**
Subminiature 'V4' Style - SSG Series

Wide Temperature Range, 3A @ 250V ac

<table>
<thead>
<tr>
<th>Actuator</th>
<th>Mfrs. No.</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plunger</td>
<td>221-0004</td>
<td>1.77N</td>
</tr>
<tr>
<td>Lever</td>
<td>221-0005</td>
<td>0.59N</td>
</tr>
</tbody>
</table>

- Body H=7.7, W=19.8, D=6.4. Fixing centres 8.5
- Wide operating temperature range: -25°C to +125°C
- Solder, quick connect PCB terminals
- PCB terminal pin spacing conforms to DIN 41635 Form B
- Flux resistant SSS type terminals
- Conforms to EN61058-1 (IEC61058-1) and CSA C22.2:UL recognised

Mechanical life: 10000000 ops.
Electrical life: 2000000 ops.
Operating temperature: 25°C to 125°C

Operating Force: Current Rating @ 125VA/Actuator

Quick Connect Terminals

<table>
<thead>
<tr>
<th>Mfrs. No.</th>
<th>Price Each</th>
</tr>
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<td>221-0001</td>
<td>1.59N</td>
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<tr>
<td>221-0002</td>
<td>1.77N</td>
</tr>
<tr>
<td>221-0003</td>
<td>1.8N</td>
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PCB Terminals

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<td>2.7N</td>
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<tr>
<td>221-0007</td>
<td>2.75N</td>
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<tr>
<td>221-0008</td>
<td>2.8N</td>
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</table>

Subminiature 'V4' Style - D2SW Series

- Monoblock construction ensures high sealing capability
- Molded lead type sealed to IP67, Solder type type IP50
- CSA and VDE/EN61058-1 approved. UL recognised

D2SW-3
D2SW-01

<table>
<thead>
<tr>
<th>Rated Voltage</th>
<th>125V AC</th>
<th>250V AC</th>
<th>30V DC</th>
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</thead>
<tbody>
<tr>
<td>2A</td>
<td>100mA</td>
<td>100mA</td>
<td>3A</td>
</tr>
</tbody>
</table>

Operating Speed: 0.1 mm/s (pin plunger models)

Insulation Resistance: 100 MΩ at 500 VDC

<table>
<thead>
<tr>
<th>Mfrs. No.</th>
<th>Actuator</th>
<th>Rating</th>
<th>Force</th>
</tr>
</thead>
<tbody>
<tr>
<td>221-0009</td>
<td>Lever</td>
<td>0.59N</td>
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- UL
- RoHS

Switches

Electromechnical

RoHS ▲ Compliant ▼ Non-compliant
Subminiature - Quick Connect Terminals

- D2SW-P01L1T Spot Pin Plunger 2A 1.8N
- D2SW-P01L1T Spot Roller Lever 100mA 0.6N
- D2SW-P01L2 T Pin Plunger 100mA 1.8N
- D2SW-P01L2 T Roller Lever 2A 0.6N
- D2SW-P01L3D Spot Simulated Roller Lever 100mA 0.6N
- D2SW-P01L3D Spot Simulated Roller Lever 2A 0.6N
- D2SW-P01L3D Spot Simulated Roller Lever 100mA 0.6N

Subminiature - Molded Leads

- D2SW-P01L1D Lever 100mA 0.6N
- D2SW-P01L1D Lever 2A 0.6N
- D2SW-P01L1D Lever 2A 1.8N
- D2SW-P01L1D Lever 2A 0.6N
- D2SW-P01L1D Lever 100mA 0.6N
- D2SW-P01L1D Lever 100mA 0.6N

Subminiature - Quick Connect Terminals

- D2SW-P01L1T Spot Pin Plunger 100mA 1.8N
- D2SW-P01L1T Spot Roller Lever 2A 0.6N
- D2SW-P01L1T Spot Roller Lever 2A 1.8N
- D2SW-P01L1T Spot Roller Lever 2A 0.6N

Price Each

- Mfrs. List No.
- Actuator
- Order Code
- 1+ 25+ 50+ 100+

Molded Leads

- D2SW-P01L1M Lever 2A 0.6N
- D2SW-P01L1M Lever 2A 0.6N
- D2SW-P01L1M Lever 2A 1.8N
- D2SW-P01L1M Lever 2A 0.6N
- D2SW-P01L1M Lever 100mA 0.6N

Subminiature - Molded Leads

- D2SW-P01L1T Spot Pin Plunger 2A 1.8N
- D2SW-P01L1T Spot Roller Lever 100mA 0.6N
- D2SW-P01L1T Spot Roller Lever 2A 0.6N
- D2SW-P01L1T Spot Roller Lever 2A 1.8N
- D2SW-P01L1T Spot Roller Lever 2A 0.6N

Features

- SPCO contacts
- Choice of actuating and mounting styles
- Wiping action mechanism for high reliability and life
- Omittance of mounting holes on PCB versions gives significantly reduced mounting height
- CSA approved, UL recognised

Switch type

- Standard Plunger 417
- Standard Lever FST8
- Standard Roller FST8Y1

PCB Type

- FST8
- FST8Y1

Price Each

- Mfrs. List No.
- Order Code
- 1+ 25+ 50+ 100+

Solder Type

- Plunger 417
- Lever FST8Y1

Price Each

- Mfrs. List No.
- Order Code
- 1+ 25+ 50+ 100+

PCB Terminals

- D2SW-P01L1H Lever 100mA 0.6N
- D2SW-P01L1H Lever 2A 0.6N
- D2SW-P01L1H Lever 2A 1.8N
- D2SW-P01L1H Lever 2A 0.6N
- D2SW-P01L1H Lever 100mA 0.6N

Quick Connect Terminals

- D2SW-P01L1T Spot Pin Plunger 2A 1.8N
- D2SW-P01L1T Spot Roller Lever 100mA 0.6N
- D2SW-P01L1T Spot Roller Lever 2A 0.6N
- D2SW-P01L1T Spot Roller Lever 2A 1.8N
- D2SW-P01L1T Spot Roller Lever 2A 0.6N

Solder Terminals

- D2SW-P01L1H Lever 2A 0.6N
- D2SW-P01L1H Lever 2A 0.6N
- D2SW-P01L1H Lever 2A 1.8N
- D2SW-P01L1H Lever 2A 0.6N
- D2SW-P01L1H Lever 100mA 0.6N

Price Each

- Mfrs. List No.
- Order Code
- 1+ 25+ 50+ 100+

Subminiature - Molded Leads

- D2SW-P01L1T Spot Pin Plunger 2A 1.8N
- D2SW-P01L1T Spot Roller Lever 100mA 0.6N
- D2SW-P01L1T Spot Roller Lever 2A 0.6N
- D2SW-P01L1T Spot Roller Lever 2A 1.8N
- D2SW-P01L1T Spot Roller Lever 2A 0.6N

Subminiature - Molded Leads

- D2SW-P01L1D Lever 100mA 0.6N
- D2SW-P01L1D Lever 2A 0.6N
- D2SW-P01L1D Lever 2A 1.8N
- D2SW-P01L1D Lever 2A 0.6N
- D2SW-P01L1D Lever 100mA 0.6N

Electromechanical Switches

- D2SW-P01L1T Spot Pin Plunger 2A 1.8N
- D2SW-P01L1T Spot Roller Lever 100mA 0.6N
- D2SW-P01L1T Spot Roller Lever 2A 0.6N
- D2SW-P01L1T Spot Roller Lever 2A 1.8N
- D2SW-P01L1T Spot Roller Lever 2A 0.6N

Price Each

- Mfrs. List No.
- Order Code
- 1+ 25+ 50+ 100+

Subminiature - Molded Leads

- D2SW-P01L1D Lever 2A 0.6N
- D2SW-P01L1D Lever 2A 0.6N
- D2SW-P01L1D Lever 2A 1.8N
- D2SW-P01L1D Lever 2A 0.6N
- D2SW-P01L1D Lever 100mA 0.6N

Subminiature - Molded Leads

- D2SW-P01L1D Lever 2A 0.6N
- D2SW-P01L1D Lever 2A 0.6N
- D2SW-P01L1D Lever 2A 1.8N
- D2SW-P01L1D Lever 2A 0.6N
- D2SW-P01L1D Lever 100mA 0.6N
Subminiature Snap Action Micro Switches

**Z Series**

The switches combine small size and light weight with ample electrical capacity and enhanced life. These reliable and rugged switches offer a variety of actuators, terminations, circuitry configurations, electrical ratings, operating characteristics, and sealing allows them to be utilized in numerous potential applications. Carefully manufactured and thoroughly inspected, these switches are a great value for applications requiring sensing presence or absence of an object.

- Small size and light weight switches lend themselves to numerous potential applications
- Broad range of amp ratings (from 0.1 A to 5 A)
- Watertight IP67 sealing available on some listings allows the switch to be used where sealing and presence/absence detection is required
- Application: Industrial, transportation and medical

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<td>Wire Leads</td>
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**Watertight Miniature Micro Switches**

**V15W Series**

- Degree of protection: IP67
- Wide current range: 0.1 A, 5 A, 10 A
- Pre-wired leads for easy installation
- Wide temperature range
- Long mechanical/electrical service life

V15W is a miniature sized basic switch designed for harsh duty, wash down areas. Rugged yet precise, the Series gives highly accurate machine control for turning circuits on and off. The V15W can be used in a wide range of challenging environments, including food packaging plants, forklifts, ATVs, golf carts, lawn mowers, garbage trucks, sale trucks, commercial buses, and wheelchair lifts for conversion vans. By utilizing an epoxy resin, the V15W Series switches deliver high sealing capability with an IP67 rating (pre-sealed) and presence or absence detection is required. Numerous potential applications.

- Ideal for machine applications such as end of travel detection
- 5mA over travel allows use in high tolerance applications
- Single round hole fixing
- Simple assembly

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**Sub-miniature 'V4' Style, IP67 Sealed - Long Overtravel**

- SPDT contacts
- Sealed to IP67
- Minimum over travel of 2.2mm compared to 0.4/0.9 available from standard switches
- Ideal for applications where the movement of the actuating medium cannot be precisely controlled

Microswitch: H=10.2 (unsealed), 16.05 (sealed), W=6.45, D=20 Fixing centres = 9.53
Long over travel kit H=23.95 (from fixing centres) Thread=M6 fine. Lead length (318-9650)=0.5m.
- Pushbutton actuator system based on the popular V4 microswitch
- Long over travel kit has a spring loaded, stainless steel plunger that converts the assembly into a miniature limit switch and simply clips to the microswitch body
- Ideal for machine applications such as end of travel detection
- 5mm over travel allows use in high tolerance applications

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**Panel Mount Actuator**

- 5A @ 250V ac
- PCB with long overtravel fitted

Microswitch: H=10.2 (unsealed), 16.05 (sealed), W=6.45, D=20 Fixing centres = 9.53
Long over travel kit H=23.95 (from fixing centres) Thread=M6 fine. Lead length (318-9650)=0.5m.
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**The first online technical portal for design engineers**

Log on, research, refine and design
Environment Proof Sealed Subminiature Switches

- Pre-wired with 300mm of PTFE cable
- Stainless steel roller lever auxiliary actuators available separately
- BASEFA approved No 4028U, rating Ex n d II
- 5A resistive 250V ac, SPDT
- Mechanical life to 10 million operations
- Temperature range -62°C to 150°C

Pre-wired with 500mm long 0.75mm² PVC leads
- SPDT silver contacts
- Fully sealed version to IP67
- Nylon 64 housing UL recognised
- Approved to VDE and BEAB

Pre travel (Max.)
Potential travel (Max.)
Differential travel (Max.)
Actuator length

Unsealed Switches

Order Code

Micro Switch 719-0384

Roller lever actuator 719-0396

SE sub-miniature switch combines small size with environment-proof sealing and precision operation
- Conforms to BS4683 Part 3 type ‘N’ protection - enclosed break
- High-quality basic switch is sealed in epoxy resin within a corrosion-resistant aluminium housing
- Pin plunger stainless steel with silicone rubber seal

Motorised Switches

UL
Approved, ENEC Approved, UL Recognised

- Body - H = 15.85, W = 6.5, D = 19.9, Rating centres = 9.5

Polyester housing UL recognised and sealed to IP67
- SPDT silver contacts
- Pre-wired with 500mm long 0.75mm² PVC leads
- Wire colour code: Blue = NO, Grey = NC, Black = Common

Mechanical life 1000000 ops
- Operating temperature
- -40°C to 123°C

Electrical life 10000 ops
- Operating temperature
- 40°C to 100°C

- Pin Plunger
- With Lever

- Operating force
- Pre-travel
- Over-travel
- Differential travel
- Operating position from mounting centres
- Free position

- Pre-travel (Max.)
- Release force (Min.)
- Operating force (Max.)
- Differential travel (Max.)
- Actuator length

- Mechanical operating life min. 1,000,000 actuations
- Wide variety of terminal types available
- Sealed switch IP6K7
- Operating temperature up to 120°C (105°C Leaded version)
- Wide variety of terminal types available
- Sealed versions with 500mm leads
- RMA, ENEC Approved, UL Recognised

Body - H = 9.25 (15.25 Leaded Version), W = 20, D = 6.5mm

- Pin Plunger
- With Lever

- Operating force
- Pre-travel
- Over-travel
- Differential travel
- Operating position from mounting centres
- Free position

- Operating temperature
- 40°C to 100°C

- Body - H = 10, W = 20, D = 6.5mm

- SPDT
- High precision switch with high repeat accuracy
- Operating temperature up to 120°C
- Wide variety of terminal types available
- RMA, ENEC Approved, UL Recognised
Subminiature PCB Mount- DB Series - continued

250V ac Switching - continued

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Subminiature Snap-Action Switch

4A@12Vdc/2A@24Vdc

Contact resistance < 50mΩ
Insulation resistance > 100MΩ
Operating force ≤ 1.3N
Difference travel max. 0.4mm
Temperature -40°C to +85°C
Contact material Silver plated
Material POM (Actuator)
Connection type Solder terminals

Miniature Turquoise Series ABV

3A @ 250V ac

- Pin plunger, Hinge lever, Roller lever
- Miniature (33 x 15.9 x 10.3 mm)
- Long life expectancy and high contact reliability
- Watertight housing sealed to IP67
- CSA, VDE and SEMKO approved. UL recognised

Contacts
- SPDT
- Contact resistance 100mΩ (solder)
- Operating temperature 3A @ 250V ac
- Operating temperature -40°C to +85°C

Switch type
- SPDT, Wire leads(side entry)
- Release force, min. 25gf
- Pre-travel, max. 1.6mm
- Over-travel, min. 0.8mm
- Movement differential, max. 0.4mm

Order Code
- Pin plunger ABV161061
- Hinge lever ABV161061
- Roller lever ABV161061

Standard Basic Switches

15A - BZ Series

- Accepted standard “Large Basic” switch
- Single Pole Double Throw action
- 15A @ 125V ac Switching
- Low operating force and differential travel
- Long mechanical life up to 20,000,000 cycles
- Elongated mounting hole for easier, more accurate mounting
- Screw terminals
- CSA and DEMKO Approved, UL Recognised

Order
- Code
- Operating Force
- Release Force
- Pre-travel
- Over-travel
- Differential

126-2125
126-2126
126-2127
126-2128
126-2131
126-2132
126-2133
126-2135

Actuator Type
- Pin Plunger
- Button Plunger
- Roller Plunger
- Panel Plunger
- Wire Hinge Lever
- Hinge Lever
- Roller Lever
- Roller Lever

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Miniature 'V3' Style - V Series
15A @ 240V ac

- Pin Plunger
- Hinge Lever
- Long Hinge Lever
- Roller Lever
- Short Roller Lever

Body: H=15.9, W=10.3, D=27.9
Fixing centers: 22.2 x 10.3, Quick-connect terminals: 6.35 x 0.8

- Body fixing centers conform to international standards
- Switches with integral or separate actuator available

**Contacts**
- SPDT
- SPST-NC

**Mechaclique Life**
- 500000 ops

**Rated Voltage**
- 250V ac
- 8V DC

**Rated Current**
- 15A @ 240V ac
- 990-1647

**Rated Insulation Resistance**
- 100 MΩ min. (at 500 VDC)

**Miniature D3V Series**

- Reliable basic switch with external lever
- Self-cleaning contacts
- Quick-Connect terminals
- Mounting hole size of 3.7mm
- Conforms to EN61058-1 and UL1054

**Specifications**

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**Specifications**

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**Miniature V3 Style - V Series**

- Body: H=15.9, W=10.3, D=27.9
- Fixing centers: 22.2 x 10.3, Quick-connect terminals: 6.35 x 0.8

- **Contacts**
  - SPDT
  - SPST-NC

- **Mechanical life**
  - 500000 ops

- **Rated Voltage**
  - 250V ac
  - 8V DC

- **Rated Current**
  - 15A @ 240V ac
  - 990-1647

- **Rated Insulation Resistance**
  - 100 MΩ min. (at 500 VDC)
Microswitches - continued

Miniature D3V Series - continued

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SPST-NC, Quick Connect Terminals

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SPST-NO, Solder Terminals

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SPST-NO, Quick Connect Terminals

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High Temperature, SPST

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<td>206-02130</td>
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<td>206-02150</td>
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<td>Roller Lever</td>
<td>206-02230</td>
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<td>206-1A5</td>
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High Temperature, SPST-NC

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High Temperature, SPST-NO

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The first online technical portal for design engineers
Log on, research, refine and design
**Moulded Leads**

<table>
<thead>
<tr>
<th>Actuator</th>
<th>Operating Force/CURRENT RATING @ 250V/AC</th>
<th>Contact Configuration</th>
<th>Mfrs. List No.</th>
<th>Order Code</th>
</tr>
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<tbody>
<tr>
<td>Pin Plunger</td>
<td>1.96N 100mA</td>
<td>SPDT</td>
<td>D2W-01-1M</td>
<td>207-6357</td>
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<tr>
<td>Pin Plunger</td>
<td>1.96N 100mA</td>
<td>SPST-N</td>
<td>D2W-01-2M</td>
<td>207-6358</td>
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<tr>
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<td>1.96N 5A</td>
<td>SPDT</td>
<td>D2W-01L1A-1M</td>
<td>207-6360</td>
</tr>
<tr>
<td>Long Lever</td>
<td>0.59N 100mA</td>
<td>SPST</td>
<td>D2W-01L1B-1M</td>
<td>207-6362</td>
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<tr>
<td>Short Roller Lever</td>
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<td>0.59N 5A</td>
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<td>D2W-S-L1A-1</td>
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<tr>
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<td>D2W-S-5</td>
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<tr>
<td>Pin Plunger</td>
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<td>D2W-S-5</td>
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<tr>
<td>Simulated Roller Lever</td>
<td>1.18N 100mA</td>
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<td>D2W-V3L3-1M</td>
<td>207-6369</td>
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<td>D2W-V3-2M</td>
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**Moulded Leads**

<table>
<thead>
<tr>
<th>Actuator</th>
<th>Mfrs. List No.</th>
<th>Order Code</th>
<th>Price Each</th>
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<tbody>
<tr>
<td>Pin Plunger</td>
<td>D2W-01-1M</td>
<td>207-6357</td>
<td>1+ 25+ 50+ 250+</td>
</tr>
<tr>
<td>Pin Plunger</td>
<td>D2W-01-2M</td>
<td>207-6358</td>
<td>1+ 25+ 50+ 250+</td>
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<tr>
<td>Long Lever</td>
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<td>207-6362</td>
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<tr>
<td>Simulated Roller Lever</td>
<td>D2W-01L3-1M</td>
<td>207-6369</td>
<td>1+ 25+ 50+ 250+</td>
</tr>
<tr>
<td>Short Lever</td>
<td>D2W-S-L1A-1</td>
<td>207-6370</td>
<td>1+ 25+ 50+ 250+</td>
</tr>
<tr>
<td>Lever</td>
<td>D2W-S-L1B-1M</td>
<td>673-602</td>
<td>1+ 25+ 50+</td>
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<tr>
<td>Pin Plunger</td>
<td>D2W-S-5</td>
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<td>Hinge Roller Lever</td>
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<td>D2W-V3L3-1M</td>
<td>207-6369</td>
<td>1+ 25+ 50+ 250+</td>
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</tbody>
</table>

**Mechanical Life**

1000000 ops

**Operating Temperature**

-10°C to +70°C

**Order Codes**

116-2602 116-2604 116-2605

**Dimensions**

42.3 x 28.1 x 16mm

**Contact Con-formication**

Solder Terminals

**V3 Series Microswitch, Miniature**

10A @ 250V ac

- Robust metal housing
- IEC IP67 sealed mechanism
- Rated 10A @ 250V ac
- Side mounting screw terminals
- Silver contacts
- CSA approved, UL recognised

<table>
<thead>
<tr>
<th>Actuator</th>
<th>Mfrs. List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel mounting cross roller plunger</td>
<td>116-1275</td>
<td>213163</td>
<td>1+ 10+ 25+ 50+ 250+</td>
</tr>
<tr>
<td>Pin plunger</td>
<td>118-1276</td>
<td>777-1770</td>
<td>1+ 10+ 25+ 50+ 100+ 250+</td>
</tr>
<tr>
<td>Panel mounting roller plunger in-line</td>
<td>118-1279</td>
<td>134-0944</td>
<td>1+ 10+ 25+ 50+ 100+ 250+</td>
</tr>
<tr>
<td>Wire hinge lever</td>
<td>118-1280</td>
<td>318-9697</td>
<td>1+ 10+ 25+ 50+ 100+ 250+</td>
</tr>
</tbody>
</table>

**Positive Break 8VM3 Series**

10A @ 250V ac

- Positive action ensures that contacts are forced open, even in the event of welding
- SPNC contacts
- Re-inforced plastic casing and transparent polycarbonate cover
- Contact gap greater than 3mm at full travel
- CSA and VDE approved, UL recognised

<table>
<thead>
<tr>
<th>Actuator</th>
<th>Mfrs. List No.</th>
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<th>Price Each</th>
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<td>8VM3FYR</td>
<td>318-9697</td>
<td>1+ 10+ 25+ 50+ 100+ 250+</td>
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</table>

**V9 Series**

10A @ 250V ac

- Positive action ensures that contacts are forced open, even in the event of welding
- SPNC contacts
- Re-inforced plastic casing and transparent polycarbonate cover
- Contact gap greater than 3mm at full travel
- CSA and VDE approved, UL recognised

<table>
<thead>
<tr>
<th>Actuator</th>
<th>Mfrs. List No.</th>
<th>Order Code</th>
<th>Price Each</th>
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<tbody>
<tr>
<td>Panel mounting cross roller plunger</td>
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<td>213163</td>
<td>1+ 10+ 25+ 50+ 250+</td>
</tr>
<tr>
<td>Pin plunger</td>
<td>118-1276</td>
<td>777-1770</td>
<td>1+ 10+ 25+ 50+ 100+ 250+</td>
</tr>
<tr>
<td>Panel mounting roller plunger in-line</td>
<td>118-1279</td>
<td>134-0944</td>
<td>1+ 10+ 25+ 50+ 100+ 250+</td>
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<tr>
<td>Wire hinge lever</td>
<td>118-1280</td>
<td>318-9697</td>
<td>1+ 10+ 25+ 50+ 100+ 250+</td>
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</tbody>
</table>

**General Purpose - Type ‘Z’**

15A @ 240V ac

- Positive action ensures that contacts are forced open, even in the event of welding
- SPNC contacts
- Re-inforced plastic casing and transparent polycarbonate cover
- Contact gap greater than 3mm at full travel
- CSA and VDE approved, UL recognised

<table>
<thead>
<tr>
<th>Actuator</th>
<th>Mfrs. List No.</th>
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<th>Price Each</th>
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<td>Spring plunger</td>
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<tr>
<td>Panel mounting cross roller plunger</td>
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<td>318-9697</td>
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<td>318-9697</td>
<td>1+ 10+ 25+ 50+ 100+ 250+</td>
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</tbody>
</table>

**Miniature ‘V3’ Style - Failsafe**

5A @ 250V ac/30V dc

- Positive action ensures that contacts are forced open, even in the event of welding
- SPNC contacts
- Re-inforced plastic casing and transparent polycarbonate cover
- Contact gap greater than 3mm at full travel
- CSA and VDE approved, UL recognised

<table>
<thead>
<tr>
<th>Actuator</th>
<th>Mfrs. List No.</th>
<th>Order Code</th>
<th>Price Each</th>
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<tbody>
<tr>
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<td>116-2602</td>
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<tr>
<td>Lever</td>
<td>V3SFY UL</td>
<td>116-2604</td>
<td>1+ 10+ 25+ 100+ 250+</td>
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<tr>
<td>Roller lever</td>
<td>V3SRY UL</td>
<td>116-2605</td>
<td>1+ 10+ 25+ 100+ 250+</td>
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</table>
Microswitches - continued

General Purpose - Type 'Z' - continued

15A @ 240V ac - continued

Switch body: H=24, W=17.5, D=49.2, fixing centres=25.4

● Body fixing centres conform to international standards
● Wide range of integral actuators available

Contacts
SPDT Electrical life 700000 ops
Mechanical life 10000000 ops
Operating temperature -25°C to +80°C

Plunger Types
118-1275 116-1276 118-1277 118-1278 118-1285
Operating force 250 to 350gf max 350gf 250 to 350gf 250 to 350gf
Release force, min 114gf 114gf 114gf 114gf 114gf
Pre-travel, max mm 0.4 2.4 0.4 0.4 0.4
Overtravel, min mm 1.6 3.5 5.5 3.5 1.3
Movement diff, mm 0.05 max 0.06 max 0.05 max 0.05 max

Lever Types
118-1280 118-1281 118-1283 118-1284 118-1279
Operating force, max 70gf 100gf 160gf 4gf 0.3gf
Release force, min 70gf 42gf 42gf 0.3gf 1.14gf
Pre-travel, mm 6.8 to 10 3.9 to 7.1 2.7 max 10 max 5.1 max
Overtravel, min mm 5 to 6 4 2.4 6 3.5 max
Movement diff, mm 0.18 to 1.27 0.10 to 1.02 0.5 max 0.8max 0.05 max
Actuator length, mm 63.5 48.5 26.6 110 33.4

Accessories
134-0944 Phenolic resin terminal enclosure

Table 213899

<table>
<thead>
<tr>
<th>Plunger</th>
<th>Mftrs.</th>
<th>Price Each</th>
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<tbody>
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<td>2-156G-B7 SEV</td>
<td>118-1275</td>
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<tr>
<td>Spring</td>
<td>2-156GK355-B7</td>
<td>118-1275</td>
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<tr>
<td>Panel Mounting</td>
<td>2-156GQ118-B7 SEV</td>
<td>118-1277</td>
</tr>
<tr>
<td>Panel mtg, cross roller</td>
<td>2-156GQ118-B7</td>
<td>118-1277</td>
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<tr>
<td>Panel mtg, in-line roller</td>
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<td>118-1279</td>
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<tr>
<td>Pin</td>
<td>2-156G-B7 SEV</td>
<td>118-1285</td>
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Lever Switches
Hinge | 2-15GNW-87+ | 118-1280 |
Hinge roller | 2-15GNW828 | 118-1281 |
Short hinge roller | 2-15GNW228 | 118-1283 |
Wtr | 2-15GNW78-B7 | 118-1284 |

Terminal Enclosures
Phenolic | APB | 134-0944 |

3BR Microswitch
5A @ 250 Vac

● IP54 sealed version
● Precise movements and exceptional repeat accuracy
● Robust plastic housing
● Silver contacts
● CSA approved, UL recognised

Contact rating SPCO, 3A @ 240V ac

Mftrs. List No. 6220-IP40=733-829, 6221-CABB-ZZEZ=733-830

<table>
<thead>
<tr>
<th>Mftrs.</th>
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<th>Price Each</th>
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<tbody>
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<td>777-1525</td>
<td>1+ 10+ 25+ 100+</td>
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</tbody>
</table>

Special Purpose Safety - Type D2D
16A @ 250V ac

● Direct drive positive contact opening
● Minimum contact gap of 3mm
● Screw or panel mounting versions available
● Double internal/external return spring mechanism (Pull to lock internal only)

Contacts
SPDT-NC, SPOT-1NO / 1 NC
Mechanical life 100000000 ops (min)
Operating temperature -25°C to +80°C

Screw Mounting
Switch body
H=33.6(excl Plunger)
W=30, D=12.4
Fixing centres=22

Panel Mounting
Switch body
H=33.7(excl Plunger)
W=30, D=12.4
Bezel: 40 x 31 Panel cut-out=37 x 13.5

<table>
<thead>
<tr>
<th>Mftrs.</th>
<th>List No.</th>
<th>Order Code</th>
<th>Price Each</th>
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<tbody>
<tr>
<td>6289-01</td>
<td>733-817</td>
<td>1+ 5+ 10+ 25+ +</td>
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</table>

Foot Switches

Palm/Footswitch
3A @ 240V ac

● Can be hand or foot operated
● Hinge is located at the front for improved operator comfort
● Switch is moulded in glass filled nylon for strength and rigidity
● Supplied with 2 metres of 3 core cable
● 733-830 sealed to IPx7

Contact rating SP2D, 3A @ 240V ac

Mftrs. List No. 6220-IP40=733-829, 6221-CABB-ZZEZ=733-830

<table>
<thead>
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<th>List No.</th>
<th>Order Code</th>
<th>Price Each</th>
</tr>
</thead>
<tbody>
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<td>1+ 10+ 25+</td>
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<tr>
<td>Palm/Footswitch, Px7</td>
<td>733-830</td>
<td>100+</td>
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</tr>
</tbody>
</table>

Treadle Footswitch
3/6A @ 240V ac

● Non-slip base and foot pad
● Provided with 2 metres of cable
● Incorporates two momentary SPST foot switches wired in parallel

Current rating 6A resistive, 3A inductive @ 240V ac
Industrial, Medium Duty
3/6A @ 240V ac

- Die-cast aluminium base and cover
- SPDT momentary contacts
- Non-slip base and foot pad

H=46, W=95, D=150

Current rating 6A resistive, 3A Inductive @ 240V ac

USB Footswitch

- No software required
- Self programmable
- Multi keystroke functions available
- Momentary action
- 2.5m cable

H=40, W=105, L=140

Foot Switches 6A@250Vac

- Long life endurance up to 300000 mechanical switching cycles
- Robust design
- Cable can be retrofitted by customer
- Ergonomical dimensions with different switch actuating forces
- With wall hanger
- Operating force: 31N
- Contact configuration: SPDT momentary
- Contact material: Silver plated
- Screw terminals

Heavy Duty Metal Footswitch, 1 or 2 Pedals
10A @ 500V ac

- Ultra strong die-cast aluminium construction
- Snap-action contacts 1NO/1NC (latching and two stage, slow make/break)
- Positive drive forced disconnect on NC contacts
- Dual stage pedal has two sets of 1NO/1NC contacts
- Latching type (press once - on, press again - off)
- Mounting holes allow fixing to floor or machine

Single Pedal
H=60, W=70, D=220,
Single pedal guarded H=146, W=156, D=250
Double pedal guarded H=146, W=276, D=250

Heavy Duty Footswitch with Safety Function
10A @ 500V ac

- 3 stage operation with emergency off (latched)
  - Stage 1 (rest) OFF
  - Stage 2 ON (machine running)
  - Stage 3 EMERGENCY OFF (contacts latched)
- Manual reset button to return to normal operation
- Ultra strong Die-cast aluminium construction

H=146, W=156, D=250

Isolated Switch Module

- ISOLEX™ is an alternative to air switch systems and tubing. These AC powered, miniature (60 x 30 mm) units utilize advanced ferro-magnetic technology to provide full galvanic isolation to connected electrical switches. The novel, low impedance technique, passes near zero current through the connected switch creating a safe, earthed 'electric free' circuit. The devices can be used with momentary or latching electrical switches, connected by up to 50 metres of earthed cable to the switch input. The module has an integral 10amp changeover relay to control external power loads. Inbuilt safety circuits automatically deenergise the output if the connected switch wiring is short circuited or inhibit the output if the AC power is interrupted whilst the connected switch is already on. An on board LED indicates relay active/inactive, diagnostic and fault conditions.

Supply voltage 230V AC ±15%, 110V AC
Supply current (nominal) Relay off: 2.5mA Relay on: 10mA
Operation Momentary operation or latch on/off action, link selectable
Switch circuit power >30mW
Relay output SPCO, 16A resistive @ 240V AC
Operating temperature -30°C to 80°C
Connection 5 off screw terminals, 3 off 6.3mm blades (relay contacts)

Air Switching System

The air operating switched system allows safe operation of electrical circuits in dangerous, dirty or difficult environments. Actuated by a simple bellows, which when compressed causes air to move down the tubing to the switch. The pressurised air then causes the bellows in the switch to operate the electrical contacts. The switch and all electrical wiring can be mounted outside the hazardous area.

Applications include hospitals, laboratories, garages, agricultural, food industry, factory production lines, etc. where explosive gases, vapours or substances exist or in areas which are wet and dirty or may need washing down.

Operating temperature -10°C to +50°C (subject to tube length limitations)

Heavy Gauge

Foot Actuator, Light Duty

- Foot operated air actuator for light duty applications
- Heavy gauge pressed steel base and cover
- Suitable for use with all air-operated switching elements
- Supplied with 2 metres of tubing (3mm bore, 6mm O.D.)

H=20, W=63, L=89
Air Switching System - continued

Foot Actuator, Light Duty - continued

<table>
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<tr>
<th>Mfrs. List No.</th>
<th>Order Code</th>
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<tbody>
<tr>
<td>0219-08</td>
<td>723-866</td>
<td>1+ 10+ 25+ 50+</td>
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</table>

Foot Actuator, Heavy Duty

- Foot operated air actuator for heavy duty applications
- Aluminum base and cover
- Non-slip base and foot pad
- Supplied with 2 metres of 8mm O.D. armoured tubing
- Suitable for use with all air operated switching elements

H=46, W=95, L=150

Air Tubing and Accessories

Bulkhead connector 107-277
Tee piece 107-278
Tubing (10m reel) 107-279

- Flexible PVC tubing enables remote switching (3mm bore, 6mm O.D.)
- In-line/bulkhead connectors and tee pieces give extra versatility to the switch system

Reed Switches & Magnets

Reed Switch - Glass SMD

Gull wing package
- G1 - Dia. = 1.8, L (body) = 5, L (overall) = 8.7mm
- G2 - Dia. = 1.8, L (body) = 5, L (overall) = 10.16mm

These SMT devices are dry reed switches hermetically sealed in a gas-filled glass envelope. They are single-pole single-throw (SPST) type, having normally open contacts and containing two magnetically actuated reeds. The switch is a double-ended type and may be actuated by an electromagnet, a permanent magnet or a combination of both. The devices are intended for use in relays, sensors, pulse counters or similar products.

- Operate range (AT) 5 - 15 Switching current ac rms(max) 250mA
- Release range (AT) 2 - 13 Switch carry current (max) 0.5A
- Switch power (max) 5W Contact resistance (max) 160ohm
- Switch voltage ac rms(max) 140VAC Insulation resistance (Min) 55 to +125°C
- Switching current dc(max) 0.5A
- Release range (AT) 2 - 13
- Switching current ac rms(max) 250mA
- Switch voltage ac rms(max) 140VAC
- Switching current dc(max) 0.5A
- Release range (AT) 2 - 13
- Switching current ac rms(max) 250mA
- Switch voltage ac rms(max) 140VAC
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- Switching current ac rms(max) 250mA
- Switch voltage ac rms(max) 140VAC
- Switching current dc(max) 0.5A
- Release range (AT) 2 - 13

Reed Switch - Moulded CT Series

Model CT05 - Gull wing package
- H = 2.31, W = 6.4, D = 2.31mm
- Available either surface mounting with air connection through the base or panel mounting with air connection through the base
- UL recognised
- Model CT10 - J-lead package
- H = 2.92, W = 11.6, D = 2.41mm

These SMT devices are moulded dry reed switches. They are single throw (SPST) type, having normally open contacts and are actuated with an electromagnet, a permanent magnet or a combination of both. The devices are intended for use in relays, sensors, pulse counters or similar products.

- Model CT05: 108-1694
- Model CT10: 108-1696

SPDT Air Switches

Air-operated SPDT switches for use with actuators 107-271 and 107-272
- Designed to operate at pressures as low as 25 inches of water to a maximum of 8psi
- Momentary (press-on, release-off) and latching (press-on, press-off) versions
- Available either surface mounting with air connection at the side, or panel mounting with air connection through the base
- UL recognised
- Switch rating = 16A resistive, 4A inductive @ 250Vac

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Push Button Actuator

- Push-button actuators with chrome plated or white finish
- Suitable for use with all air operated switch elements

Dia = 63, D (behind panel) = 43, Panel cut-out = 42 dia. Max. panel thickness = 28

Bellows

- Soft flexible PVC bellows for air switches
- Mat Finish
- Panel mount with integral thread and nut
- 4mm air connection

CT Series

Model CT05 - Gull wing package
- H = 2.31, W = 6.4, D = 2.31mm
- Available either surface mounting with air connection through the base or panel mounting with air connection through the base
- UL recognised
- Switch rating = 16A resistive, 4A inductive @ 250Vac

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<td>Side entry</td>
<td>H = 37, W = 25, Fixing centres = 20</td>
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<tr>
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**Reed Sensor - Magnetic Detection - SMD**

The special features of this series are the small dimensions and the simple internal structure. These sensors are magnetically operated Reed proximity switches for SMD mounting. The Reed Sensor and the magnet must be fixed at a fixed distance from each other.

- **Magnet Detection**
  - Cylindrical Proximity Switch
    - Power W (max): 10
    - Breakdown voltage V dc: 200
    - Contact resistance mR (max): 150
    - Switch carry current A (max): 0.5
  - Glass Reed Switches
    - Standards: IEC 60947-5-1
    - Dimensions (mm): 15.24 diameter, 2.84 height
    - Voltage: 200 Vdc
    - Contact resistance: 150 mOhm
    - Contact carry current: 0.5 A

**Glass Reed Switches**

- **Switches and Magnets**
  - Hermetically sealed contacts
  - Capable of switching European mains voltages
  - Low, stable contact resistance
  - Zero operating power required for contact change
  - UL recognised (File E47258) except DRR-DTH, MLRR-3 and MTT-1

**Reed Sensor - Magnetic Detection**

These sensors are magnetically operated Reed proximity switches for direct PCB mounting. The sensor should be mounted on a fixed surface with the actuating magnet on the moving surface. The Reed Sensor and the magnet must be fixed at a fixed distance from each other.

**Magnet Detection**

- **MK6-5x**
  - H: 3.2 W: 14.3 D: 2.8 mm
  - Contact Form: N/C
  - Switching voltage: 175 Vdc
  - Switching current: 0.25 A
- **MK6-6x**
  - H: 4.2, W: 22.3, D: 3.3 mm
  - Contact Form: SPDT
  - Switching voltage: 100 Vdc
  - Switching current: 0.25 A

**Cylindrical Proximity Switch**

The MK20 and MK20/1 sensors are magnetically actuated with an electromagnet, a permanent magnet or a combination of both. The device is dry reed switches hermetically sealed in a gas-filled glass envelope. These devices are dry reed switches hermetically sealed in a gas-filled glass envelope. They are single-pole single-throw (SPST) type, having normally open contacts and containing two magnetically actuated reeds. The switch is a double-ended type and may be actuated with an electromagnet, a permanent magnet or a combination of both. The devices are intended for use in relays, sensors, pulse counters or similar products.

**Model**

- **RI-23**
  - Dia.: 2.54 L (body): 15 L (overall): 46 mm
- **RI-27**
  - Dia.: 1.8 L (body): 13.2 L (overall): 46 mm
- **RI-46**
  - Dia.: 2.7 L (body): 28.5 L (overall): 54 mm
- **RI-70**
  - Dia.: 1.8 L (body): 7 L (overall): 46 mm

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MK21 sensors are magnetically operated reed proximity switches designed for screw mounting. The sensor should be mounted on a fixed surface with the actuating magnet on the moving surface. Introduction or removal of the magnetic field determines the closing and opening of the reed switch. The 500mm long leads are PTFE coated. Designed for extreme environments. High temperatures, 150 °C Impervious to water, fuels, oils, and most acids.

Contact ratings: 10W
Carry current: 1.25A
Switching voltage: 200V DC or 200V ac peak
Switching current: 0.5A
Operating temperature: -30 to 150°C

--- | --- | ---
10mm to 15mm | 144-7650 | 144-7650
15mm to 25mm | 144-7651 | 144-7651

Magnet: MAGNET M21P
Price: 144-7652

Sensor Magnets

M4 | NdFeB | Bar
--- | --- | ---
Price: 147081

AlNiCo bar magnets are suitable for the operation of most Reed Switches and should ideally be the moving part of the sensing application. The selection of the magnet and the sensitivity of the Reed Switch will determine the Pull-in and Drop-Out distances.

SmCo (samarium cobalt) and NdFeB (neodymium iron boron) magnets are made from rare earth materials and have especially good magnetic properties concerning stability and energy product.

Dimensions

H (mm) W (mm) D (mm) | Dimensions
--- | --- | ---
107-9492 | 22 | 5
107-9494 | 4 | 5
107-9495 | 10 | 1.9

Mftrs. List No. | Order Code | Price Each
--- | --- | ---
107-9500 | 1+ 10+ 25+ 50+ | 147081

Mk21 Series Magnet
H = 6.35, W = 28.6, D = 19mm

Reed Switches & Magnets - continued
Design with confidence...

• Huge choice, ranging from audio to signal & data
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