Compact Die-Cast Limit Switches with Positive Opening Mechanism

LJM-D Series

EN-compliant switches, meeting global standards. Switches certified to meet EN, UL and CSA standards

- With UL/CSA/CE marking (excluding some models)
- Positive opening mechanism (N.C. contact only)
- Compact size
- Superior IP67 seal
- Preloaded
- Cabling both lengthwise and crosswise from the switch is possible, allowing reduced stress on the cable.

**ORDER GUIDE**

<table>
<thead>
<tr>
<th>Actuator type</th>
<th>Cable length</th>
<th>Catalog listing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metal roller plunger</td>
<td>1 m</td>
<td>LJM-D2502L1</td>
</tr>
<tr>
<td></td>
<td>3 m</td>
<td>LJM-D2502L3</td>
</tr>
<tr>
<td>Resin roller lever</td>
<td>1 m</td>
<td>LJM-D2515L1</td>
</tr>
<tr>
<td></td>
<td>3 m</td>
<td>LJM-D2515L3</td>
</tr>
</tbody>
</table>

**INTERNAL SWITCH**

Internal switches in the LJM-D Series have an N.C./N.O. electrically independent contact (Zb) structure.

The positive opening mechanism is used to forcibly open the contacts (N.C. contacts only) even if they are fused accidentally.
## SPECIFICATIONS

### Standards
- Compliance: Product related: IEC 60947-5-1, EN 60947-5-1, Machine related: IEC 60204-1, EN 60204-1
- Certification: UL 508, CSA C22.2 No.14

### Structure
- Ingress protection: IP66, IP67 (IEC 60529, JIS C 0920)
- Electrical shock protection: class I (IEC 61140)
- Pollution degree: 3
- Internal switch: Slow action: 1N.C.+1N.O.(BBM)

### Electrical performance
- **Electrical rating**: AC-15; B300 (Ue=240V, le=1.5A), DC-13; R300 (Ue=250V, le=0.1A)
- **Insulation resistance**: Between same-polarity terminals: 100 MΩ or more
  - Between each terminal and non-live metal part: 100 MΩ or more
- **Rated thermal current (Ith)**: 6A
- **Short-circuit protection**: 6A breaking fuse, type gG (gl)
- **Rated insulation voltage (Ui)**: 400V IEC 60947-5-1, 300V UL508
- **Conditional rated short-circuit current**: 1,000A
- **Rated impulse withstand voltage (Uimp)**: 4,000V

### Mechanical performance
- **Impact resistance**: 250 m/s² (18 ms) IEC 60068-2-27
- **Vibration resistance**: 250 m/s² (10 to 200 Hz) IEC 60068-2-6
- **Allowable operating speed (with 30° dog)**: Minimum operating speed: LJM-D2502L: 0.1 m/s, LJM-D2515L: 0.3 m/s
  - Maximum operating speed: LJM-D2502L: 0.5 m/s, LJM-D2515L: 1.5 m/s

### Product life
- Mechanical: 10 million operations or more
- Electrical: 2 million operations (at up to 3,000 operations/hour)

### Ambient conditions
- Operating temperature: 25 to +70°C (without freezing)
- Operating humidity: Max. 85% RH
- Storage temperature: -40 to +70°C

### Tightening torque
- Switch body: 1.2 to 1.5 N·m (M4 hexagon socket head cap bolt)

| O.F. (max. operating force needed for N.C. operation) | Vertical operation | Dog (30°) operation | LJM-D2515L
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>8.5 N</td>
<td>7.0 N</td>
<td>0.1 N·m</td>
<td></td>
</tr>
<tr>
<td>P.O. (min. travel to positive opening position)</td>
<td>3.1 mm</td>
<td>5.6 mm</td>
<td>45°</td>
</tr>
<tr>
<td>P.O.F. (minimum force for positive opening)</td>
<td>42.5 N</td>
<td>35 N</td>
<td>0.5 N·m</td>
</tr>
<tr>
<td>PT1 (pretravel for N.C. operation)</td>
<td>(1.8 mm)</td>
<td>(3.1 mm)</td>
<td>(25°)</td>
</tr>
<tr>
<td>PT2 (pretravel for N.O. operation)</td>
<td>(2.6 mm)</td>
<td>(4.6 mm)</td>
<td>(36°)</td>
</tr>
<tr>
<td>T.T. (total travel)</td>
<td>(5 mm)</td>
<td>–</td>
<td>(90°)</td>
</tr>
</tbody>
</table>

## CONTACT FORM AND WIRING

![Diagram of contact form and wiring]
**Operating Characteristics and External Dimensions**

**Metal Roller Plunger: LJM-D2502L**

- Housing: Made of zinc alloy painted blue.
- Cable: Oil-resistant vinyl round cable, 0.75 mm², 5-core wire.
- Outside diameter: Approx. 7.5 mm.
- Sheath color: Black.
- Dimensional tolerance: ±0.4 unless otherwise specified.

**Resin Roller Lever: LJM-D2515L**

- Housing: Made of zinc alloy painted blue.
- Cable: Oil-resistant vinyl round cable, 0.75 mm², 5-core wire.
- Outside diameter: Approx. 7.5 mm.
- Sheath color: Black.
- Dimensional tolerance: ±0.4 unless otherwise specified.
### PRECAUTIONS FOR USE

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<th>1. Mounting the switch</th>
<th>3. Adjustment</th>
</tr>
</thead>
</table>
| - Always tighten each part of the safety switch to the tightening torque recommended in the product specifications. Tightening any part excessively, might damage the threads and/or other parts.  
- Mount the dog so that no force is directly applied to the actuator in the free state.  
- Do not use silicone adhesive or silicone grease. Doing so might result in faulty electrical contact. | - Do not apply excessive force (5 times larger than the O.F.) to the actuator when it is beyond the operating limit position. Doing so might break the switch.  
- Adjust the actuator motion so that it exceeds the specified P.O. (travel to positive opening position) value but not the operating limit position. |

<table>
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<tr>
<th>2. Wiring</th>
<th>4. Environment</th>
</tr>
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<tbody>
<tr>
<td>- Do not do wiring work with the power ON. Doing so might cause an electrical shock or cause the device to operate unexpectedly.</td>
<td>- Do not use the switch in an environment where strong acid or alkali is directly splashed onto it.</td>
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</tbody>
</table>

Before use, thoroughly read the “Precautions for use” and “Precautions for handling” in the Technical Guide on pages D-111 to D-122 as well as the instruction manual and product specification for this switch.