Enclosed Limit Switches

User's Manual

Read this User's Manual and Specifications, and use within the ranges indicated in the specifications to ensure safe and correct use of this product.

RESTRICTIONS ON USE

This product has been designed, developed and manufactured for general-purpose application in machinery and equipment. Accordingly, when used in applications outlined below, special care should be taken to implement a fail-safe and/or redundant design concept as well as a periodic maintenance program.

- Safety devices for plant worker protection
- Start/stop control devices for transportation and material handling machines
- Aeronautical/aerospace machines
- Control devices for nuclear reactors

Never use this product in applications where human safety may be put at risk.

WARNING

- Be sure to turn the power supply of the equipment OFF before wiring the limit switch. Failure to do so might result in electrical shock depending on power supply voltage or involved in unsafe condition such as unintentional machine start.

CAUTION

- Take sufficient safety measures such as the provision of an interlock circuit in the control circuit to prevent mechanical damage or injury in the event that the limit switch malfunctions.
- If the cover or the outer housing of the limit switch becomes depressed or cracked, replace the limit switch immediately. Failure to do so might result in loss of seal performance or operating characteristics.
- Firmly tighten the cover and conduit. Insufficient tightening not only impairs the sealing performance and insulation, but also switching performance.
- Never use or leave the limit switch unattended with the cover or conduit open. Doing so might allow ingress of water or dust, resulting in defective operation.
- Do not apply excessive force to the actuator beyond the operating limits. Doing so might damage the switch.

1. Wiring

CAUTION

- Wire the limit switch using crimp terminals with insulation sleeve so as not to contact the cover and housing. If the crimped terminals contact the cover, the cover sometimes can no longer be attached, or a short-circuit might result.
- When assemble the cover with indicator, pay special attention not to bend the contact springs excessively. Otherwise, this may result in short-circuit or ground fault.
- Tighten the compression nut so that the cable sheath protrude 2 to 3mm from the edge of connector or inner surface of housing as shown below.
- Do not use silicon rubber cable, silicon adhesive or grease that contains silicon. Using such items might impair electrical continuity.
- Wire the switch as shown in the figure below. (This figure is for the LS series.)
2. Installation

<table>
<thead>
<tr>
<th>Item</th>
<th>LS</th>
<th>14CE</th>
<th>SL1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing (front mounting screw)</td>
<td>M5</td>
<td>5-6</td>
<td>5-6</td>
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<tr>
<td></td>
<td>M5</td>
<td>5-6</td>
<td>1.3-1.7</td>
</tr>
<tr>
<td>Housing (rear mounting screw)</td>
<td>M4</td>
<td>1.3-1.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>M4nut</td>
<td>4-6</td>
<td>**</td>
</tr>
<tr>
<td>Cover</td>
<td>M3.5</td>
<td>0.8-1.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>M3.5</td>
<td>0.8-1.2</td>
<td></td>
</tr>
<tr>
<td>Switch terminal</td>
<td>M4</td>
<td>1.0-1.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>M3</td>
<td>0.4-0.6</td>
<td></td>
</tr>
<tr>
<td>Lever (roller lever)</td>
<td>M5</td>
<td>4-5.2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>M5</td>
<td>4-5.2</td>
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</tbody>
</table>

* Applicable only to 14CE.  ** Attachment of nut on SL1 plunger type - None

3. Adjustment, Maintenance & Inspection

<table>
<thead>
<tr>
<th>Item</th>
<th>LS</th>
<th>14CE</th>
<th>SL1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treating Cunuits</td>
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</tbody>
</table>

CAUTION

4. Treating Cunuits (Switches Not Provided With Cable)

CAUTION

Specifications are subject to change without notice.

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