PLASTIC LIMIT SWITCHES KB-KC TYPES
- Dimensions to EN 50047 standards for KB type
- Dimensions compatible to EN 50047 for KC type
- Self-extinguishing polymer thermoplastic housing
- Removable and interchangeable auxiliary contact blocks
- Bi-directional versions
- Unique fixing mechanism of operating head
- IEC degree of protection IP65
- M20 cable entry; PG13.5 entry on request.

METAL LIMIT SWITCHES KM-KN TYPES
- Dimensions to EN 50047 standards for KM type
- Dimensions compatible to EN 50047 for KN type
- Aluminium-zinc alloy housing
- Removable and interchangeable auxiliary contact blocks
- Bi-directional versions
- Unique fixing mechanism of operating head
- IEC degree of protection IP65
- M20 cable entry; PG13.5 entry on request.

PLASTIC LIMIT SWITCHES T SERIES
- Dimensions to EN 50041 standards
- Self-extinguishing polymer thermoplastic housing
- Heads rotatable in 4 different 90° angle positions
- IEC degree of protection IP66
- PG13.5 cable entry.

METAL LIMIT SWITCHES PL SERIES
- Aluminium-zinc alloy housing
- Maximum of 2 auxiliary contacts
- IEC degree of protection IP40 and IP65
- PG11 cable entry.

ROPE-PULL LEVER LIMIT SWITCHES FOR EMERGENCY STOPPING
- Compliant to ISO 13850 standards
- Self-extinguishing polymer thermoplastic housing
- IEC degree of protection IP65 and IP66
- PG11 and PG13.5 cable entry.

PLASTIC MICRO SWITCHES KS TYPE
- Polymer thermoplastic housing
- Changeover contact switch
- IEC degree of protection IP00 or IP20.

FOOT SWITCHES
- Versions with or without protection cover
- Self-extinguishing polymer thermoplastic housing
- Aluminium-zinc alloy housing
- IEC degree of protection IP54 and IP65
- M20 cable entry; PG13.5 entry on request.
Metal and plastic limit switches, K series
(dimensions to/compatible to EN 50047)

- Top push rod plunger ................................................................. 9 - 2
- Top roller push plunger ............................................................ 9 - 3
- Roller centre push lever ........................................................... 9 - 4
- Roller side push lever ............................................................... 9 - 5
- Roller lever ................................................................................ 9 - 6
- Adjustable roller lever .............................................................. 9 - 8
- Ceramic rod lever ...................................................................... 9 - 10
- Adjustable rod lever .................................................................. 9 - 11
- Wobble stick, omnidirectional .................................................. 9 - 12
- Hinge operating ........................................................................ 9 - 13
- Slotted lever ................................................................................ 9 - 14
- Key operated ........................................................................... 9 - 15
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Plastic limit switches T series (dimensions to EN 50041)

- Top push rod plunger and roller lever ........................................ 9 - 19
- Wobble stick, omnidirectional and key operated ........................ 9 - 20

Metal limit switches, PL series

- Top push rod plunger, top roller push plunger, roller centre push lever ................................................................. 9 - 21
- Latch and manual release ........................................................... 9 - 22
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Rope-pull lever limit switches for emergency stopping, ISO 13850 compliant .............................................................. 9 - 25

Plastic micro switches, K series ...................................................... 9 - 26

Foot switches, K series .................................................................. 9 - 27

Dimensions .................................................................................. 9 - 28

Wiring diagrams ........................................................................... 9 - 35
Top push rod plunger

Limit switches, K series. One bottom cable entry. Dimensions to EN 50047
Two side cable entries. Dimensions compatible to EN 50047

Order code Metal body Contacts Plunger material Qty per pkg Wt

<table>
<thead>
<tr>
<th>Order code</th>
<th>Metal body</th>
<th>Contacts</th>
<th>Plunger material</th>
<th>Qty per pkg</th>
<th>Wt</th>
</tr>
</thead>
<tbody>
<tr>
<td>KB A1 S11</td>
<td>KM A1 S11</td>
<td>1NO+1NC Snap action</td>
<td>Metal</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>KB A1 S02</td>
<td>KM A1 S02</td>
<td>2NC Slow break</td>
<td>Metal</td>
<td>5</td>
<td></td>
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<tr>
<td>KB A1 A11</td>
<td>KM A1 A11</td>
<td>1NO+1NC Slow break</td>
<td>Metal</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>KB A1 L11</td>
<td>KM A1 L11</td>
<td>1NO+1NC Slow break</td>
<td>Metal</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>KB A1 L02</td>
<td>KM A1 L02</td>
<td>2NC Slow break</td>
<td>Metal</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>KB A1 L20</td>
<td>KM A1 L20</td>
<td>2NO Slow break</td>
<td>Metal</td>
<td>5</td>
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<tr>
<td>KB A1 L12</td>
<td>KM A1 L12</td>
<td>1NO+2NC Slow break</td>
<td>Metal</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>KB A1 L21</td>
<td>KM A1 L21</td>
<td>2NO+1NC Slow break</td>
<td>Metal</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>KB A1 L03</td>
<td>KM A1 L03</td>
<td>3NC Slow break</td>
<td>Metal</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Two side cable entries. Dimensions compatible to EN 50047.

KC A1 S11  | KN A1 S11  | 1NO+1NC Snap action | Metal | 5 |   |
| KC A1 S02  | KN A1 S02  | 2NC Snap action | Metal | 5 |   |
| KC A1 A11  | KN A1 A11  | 1NO+1NC Snap action | Metal | 5 |   |
| KC A1 L11  | KN A1 L11  | 1NO+1NC Slow break | Metal | 5 |   |
| KC A1 L02  | KN A1 L02  | 2NC Slow break | Metal | 5 |   |
| KC A1 L20  | KN A1 L20  | 2NO Slow break | Metal | 5 |   |

For types with PG13.5 cable entry, add the letter P at the end of the order code while for 1/2 NPT, add N. E.g. KB A1 S11P - KB A1 S11N.

General characteristics
The LOVATOELECTRIC limit switches have been designed to satisfy requirements comprising quick installation, wiring ease, simple setup, modularity, sturdiness and constant reliability. The body cover is hinged at the bottom and removable. The innovative locking bayonet mechanism consents to remove and reposition the operating head in the required configuration with no tools. The auxiliary contact blocks are removable assuring remarkable wiring simplicity.

Operational characteristics
- Maximum operating rate: 3600 cycles/h
- Switching speed: 0.5 - 1.5 m/s
- Mechanical life: >10 million cycles
- IEC conventional thermal current l.t.: 10A
- UL/CSA and IEC/EN 60947-5-1 designation:
  - A600 Q300 for KB-KC types
  - A300 Q300 for KM-KN types
- IEC rated impulse withstand voltage Uimp:
  - 6kV for KB-KC types
  - 4kV for KM-KN types
- Class II insulation for KB-KC only
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A gG/SC quick fuse
- Operators of aluminium-zinc alloy
- HB: KB-KC types - Self-extinguishing double-insulation polymer thermoplastic
- KM-KN types - Aluminium-zinc alloy
- Cable entry: M20 standard supplied; PG13.5 and 1/2 NPT available (see the side note for details)
- Operating head fixing: Locking bayonet insert
- Operating force: 5N / 1.1lb
- Cable connection: Self-releasing screw terminal
- Tightening torque:
  - 2.5Nm / 22.1bin
  - Contact terminals: 0.8Nm / 7bin
  - Body lid screw fixing: 0.9Nm / 7bin
- Conductor section: 1 or 2 2.5mm² max / 16-14 AWG
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40 ... +70°C
  - Suitable for ambient pollution degree 3.
  - IEC degree of protection:
    - IP20 for terminals
    - IP65 for body housing.

Certifications and compliance
Certifications obtained: GOST, UL Listed, for USA and Canada (File E59691), as Auxiliary Devices - Limit switches.
**Top roller push plunger**

<table>
<thead>
<tr>
<th>Order code</th>
<th>Plastic body</th>
<th>Metal body</th>
<th>Contacts</th>
<th>Roller material</th>
<th>Qty per pkg</th>
<th>Wt (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KB B1 S11</td>
<td>KM B1 S11</td>
<td>Plastic</td>
<td>1NO+1NC</td>
<td>Plastic</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>KB B2 S11</td>
<td>KM B2 S11</td>
<td>Metal</td>
<td>1NO+1NC</td>
<td>Metal</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>KB B1 S02</td>
<td>KM B1 S02</td>
<td>Plastic</td>
<td>2NC</td>
<td>Plastic</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>KB B2 S02</td>
<td>KM B2 S02</td>
<td>Metal</td>
<td>2NC</td>
<td>Metal</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>KB B1 A11</td>
<td>KM B1 A11</td>
<td>Plastic</td>
<td>1NO+1NC</td>
<td>Plastic</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>KB B2 A11</td>
<td>KM B2 A11</td>
<td>Metal</td>
<td>1NO+1NC</td>
<td>Metal</td>
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One bottom cable entry. Dimensions to EN 50047.

<table>
<thead>
<tr>
<th>One bottom cable entry. Dimensions to EN 50047.</th>
</tr>
</thead>
<tbody>
<tr>
<td>KB B1 L11 KM B1 L11 1NO+1NC Slow break, make before break</td>
</tr>
<tr>
<td>KB B2 L11 KM B2 L11 1NO+1NC Slow break, make before break</td>
</tr>
<tr>
<td>KB B1 L02 KM B1 L02 2NO Slow break</td>
</tr>
<tr>
<td>KB B2 L02 KM B2 L02 2NO Slow break</td>
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<tr>
<td>KB B1 L20 KM B1 L20 2NO Slow break</td>
</tr>
<tr>
<td>KB B2 L20 KM B2 L20 2NO Slow break</td>
</tr>
<tr>
<td>KB B1 L12 KM B1 L12 2NO+2NC Slow break</td>
</tr>
<tr>
<td>KB B2 L12 KM B2 L12 2NO+2NC Slow break</td>
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<tr>
<td>KB B1 L21 KM B1 L21 2NO+1NC Slow break</td>
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<tr>
<td>KB B2 L21 KM B2 L21 2NO+1NC Slow break</td>
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<tr>
<td>KB B1 L03 KM B1 L03 3NC Slow break</td>
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<tr>
<td>KB B2 L03 KM B2 L03 3NC Slow break</td>
</tr>
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</table>

Two side cable entries. Dimensions to EN 50047.

<table>
<thead>
<tr>
<th>Two side cable entries. Dimensions to EN 50047.</th>
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</thead>
<tbody>
<tr>
<td>KC B1 S11 KN B1 S11 1NO+1NC Snap action</td>
</tr>
<tr>
<td>KC B2 S11 KN B2 S11 Slow break</td>
</tr>
<tr>
<td>KC B1 S02 KN B1 S02 2NC Snap action</td>
</tr>
<tr>
<td>KC B2 S02 KN B2 S02 Slow break</td>
</tr>
<tr>
<td>KC B1 A11 KN B1 A11 1NO+1NC Snap action</td>
</tr>
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<table>
<thead>
<tr>
<th>Direct opening operation</th>
<th>safety function according to IEC/EN 60947-5-1.</th>
</tr>
</thead>
<tbody>
<tr>
<td>KB B1 L11 KM B1 L11 1NO+1NC Slow break, make before break</td>
<td>Plastic</td>
</tr>
<tr>
<td>KB B2 L11 KM B2 L11 1NO+1NC Slow break, make before break</td>
<td>Plastic</td>
</tr>
<tr>
<td>KB B1 L02 KM B1 L02 2NO Slow break</td>
<td>Plastic</td>
</tr>
<tr>
<td>KB B2 L02 KM B2 L02 2NO Slow break</td>
<td>Plastic</td>
</tr>
<tr>
<td>KB B1 L20 KM B1 L20 2NO Slow break</td>
<td>Plastic</td>
</tr>
<tr>
<td>KB B2 L20 KM B2 L20 2NO Slow break</td>
<td>Plastic</td>
</tr>
<tr>
<td>KB B1 L12 KM B1 L12 1NO+2NC Slow break</td>
<td>Plastic</td>
</tr>
<tr>
<td>KB B2 L12 KM B2 L12 1NO+2NC Slow break</td>
<td>Plastic</td>
</tr>
<tr>
<td>KB B1 L21 KM B1 L21 2NO+1NC Slow break</td>
<td>Plastic</td>
</tr>
<tr>
<td>KB B2 L21 KM B2 L21 2NO+1NC Slow break</td>
<td>Plastic</td>
</tr>
<tr>
<td>KB B1 L03 KM B1 L03 3NC Slow break</td>
<td>Plastic</td>
</tr>
<tr>
<td>KB B2 L03 KM B2 L03 3NC Slow break</td>
<td>Plastic</td>
</tr>
</tbody>
</table>

**General characteristics**

The LOVATO ELECTRIC limit switchs have been designed to satisfy requirements comprising quick installation, wiring ease, simple setup, modularity, sturdiness and constant reliability. The body cover is hinged at the bottom and removable. The innovative locking bayonet mechanism consents to remove and reposition the operating head in the required configuration with no tools. The heads have axial rotation of 45° angles. The auxiliary contact blocks are removable assuring remarkable wiring simplicity.

**Operational characteristics**

- Maximum operating rate: 3600 cycles/h
- Switching speed: 0.5-1.5m/s
- Mechanical life: >10 million cycles
- IEC conventional thermal current ith: 10A
- UL/CSA and IEC/EN 60947-5-1 designation:
  - A600 Q300 for KB-KC types
  - A300 Q300 for KM-KN types
- IEC rated insulation voltage Ui:
  - 690VAC for KB-KC types
  - 440VAC for KM-KN types
- IEC rated impulse withstand voltage Uimp:
  - 6kV for KB-KC types
  - 4kV for KM-KN types
- Class II insulation for KB-KC only
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A g6/SC quick fuse
- Operators of aluminium-zinc alloy
- Housing:
  - KB-KC types - Self-extinguishing double-insulation polymer thermoplastic
  - KM-KN types - Aluminium-zinc alloy
- Cable entry: M20 standard supplied; PG13.5 and 1/2 NPT available (see the side note for details)
- Operating head fixing: Locking bayonet insert
- Operating force: 5N / 1.1lb
- Cable connection: Self-releasing screw terminal
- Tightening torque:
  - Switch fixing: 2.5Nm / 22.1lbin
  - Contact terminals: 0.8Nm / 7lbin
  - Body lid screw fixing: 0.8Nm / 7lbin
- Conductor section: 1 or 2 2.5mm² max / 16-14 AWG
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40 ... +70°C
  - Suitable for ambient pollution degree 3
- IEC degree of protection:
  - IP20 for terminals
  - IP65 for body housing.

**Certifications and compliance**

Certifications obtained: GOST, UL Listed, for USA and Canada (File E93601), as Auxiliary Devices - Limit switches.

### Roller centre push lever

**Order code**
- Plastic body
- Metal body
- Contacts
- Roller material
- Qty per plug
- Wt

<table>
<thead>
<tr>
<th>Order code</th>
<th>Plastic body</th>
<th>Metal body</th>
<th>Contacts</th>
<th>Roller material</th>
<th>Qty per plug</th>
<th>Wt</th>
</tr>
</thead>
<tbody>
<tr>
<td>KB C1 S11</td>
<td>KM C1 S11</td>
<td>KM C2 S11</td>
<td>1NO+1NC</td>
<td>Plastic</td>
<td>5</td>
<td>0.34×0.5</td>
</tr>
<tr>
<td>KB C2 S11</td>
<td>KM C2 S11</td>
<td>KM C2 S11</td>
<td>1NO+1NC</td>
<td>Metal</td>
<td>5</td>
<td>0.34×0.5</td>
</tr>
<tr>
<td>KB C1 S02</td>
<td>KM C1 S02</td>
<td>KM C2 S02</td>
<td>2NC</td>
<td>Plastic</td>
<td>5</td>
<td>0.34×0.5</td>
</tr>
<tr>
<td>KB C2 S02</td>
<td>KM C2 S02</td>
<td>KM C2 S02</td>
<td>2NC</td>
<td>Metal</td>
<td>5</td>
<td>0.34×0.5</td>
</tr>
<tr>
<td>KB C1 A11</td>
<td>KM C1 A11</td>
<td>KM C2 A11</td>
<td>1NO+1NC</td>
<td>Plastic</td>
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<td>0.34×0.5</td>
</tr>
<tr>
<td>KB C2 A11</td>
<td>KM C2 A11</td>
<td>KM C2 A11</td>
<td>1NO+1NC</td>
<td>Metal</td>
<td>5</td>
<td>0.34×0.5</td>
</tr>
<tr>
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<td>KM C1 L11</td>
<td>KM C2 L11</td>
<td>1NO+1NC</td>
<td>Plastic</td>
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<td>0.34×0.5</td>
</tr>
<tr>
<td>KB C2 L11</td>
<td>KM C2 L11</td>
<td>KM C2 L11</td>
<td>1NO+1NC</td>
<td>Metal</td>
<td>5</td>
<td>0.34×0.5</td>
</tr>
<tr>
<td>KB C1 L02</td>
<td>KM C1 L02</td>
<td>KM C2 L02</td>
<td>2NC</td>
<td>Plastic</td>
<td>5</td>
<td>0.34×0.5</td>
</tr>
<tr>
<td>KB C2 L02</td>
<td>KM C2 L02</td>
<td>KM C2 L02</td>
<td>2NC</td>
<td>Metal</td>
<td>5</td>
<td>0.34×0.5</td>
</tr>
<tr>
<td>KB C1 L20</td>
<td>KM C1 L20</td>
<td>KM C2 L20</td>
<td>2NO</td>
<td>Plastic</td>
<td>5</td>
<td>0.34×0.5</td>
</tr>
<tr>
<td>KB C2 L20</td>
<td>KM C2 L20</td>
<td>KM C2 L20</td>
<td>2NO</td>
<td>Metal</td>
<td>5</td>
<td>0.34×0.5</td>
</tr>
<tr>
<td>KB C1 L12</td>
<td>KM C1 L12</td>
<td>KM C2 L12</td>
<td>1NO+2NC</td>
<td>Plastic</td>
<td>5</td>
<td>0.34×0.5</td>
</tr>
<tr>
<td>KB C2 L12</td>
<td>KM C2 L12</td>
<td>KM C2 L12</td>
<td>1NO+2NC</td>
<td>Metal</td>
<td>5</td>
<td>0.34×0.5</td>
</tr>
<tr>
<td>KB C1 L21</td>
<td>KM C1 L21</td>
<td>KM C2 L21</td>
<td>2NO</td>
<td>Plastic</td>
<td>5</td>
<td>0.34×0.5</td>
</tr>
<tr>
<td>KB C2 L21</td>
<td>KM C2 L21</td>
<td>KM C2 L21</td>
<td>2NO</td>
<td>Metal</td>
<td>5</td>
<td>0.34×0.5</td>
</tr>
<tr>
<td>KB C1 L03</td>
<td>KM C1 L03</td>
<td>KM C2 L03</td>
<td>3NC</td>
<td>Plastic</td>
<td>5</td>
<td>0.34×0.5</td>
</tr>
<tr>
<td>KB C2 L03</td>
<td>KM C2 L03</td>
<td>KM C2 L03</td>
<td>3NC</td>
<td>Metal</td>
<td>5</td>
<td>0.34×0.5</td>
</tr>
</tbody>
</table>

**Dimensions to EN 50047:**

- A060 Q300 for KB-KC types
- A300 Q300 for KM-KN types
- IEC rated insulation voltage Ue:
  - 690VAC for KB-KC types
  - 440VAC for KM-KN types
- IEC rated impulse withstand voltage Uimp:
  - 6kV for KB-KC types
  - 4kV for KM-KN types
- Class II insulation for KB-KC only
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A g6/S/SC quick fuse
- Operators of aluminium-zinc alloy
- Housing:
  - KB-KC types - Self-extinguishing double-insulation polymer thermoplastic
  - KM-KN types - Aluminium-zinc alloy
- Cable entry: M20 standard supplied, PG13.5 and 1/2 NPT available (see the side note for details)
- Operating head fixing: Locking bayonet insert
- Operating force: 6N / 1.34lb
- Cable connection: Self-releasing screw terminal
- Tightening torque:
  - Switch fixing: 2.5Nm / 22.1lbin
  - Contact terminals: 0.8Nm / 7lbin
- Body lid screw fixing: 0.8Nm / 7lb
- Conductor section: 1 or 2.2.5mm² max / 16-14 AWG
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40 ... +70°C
  - Suitable for ambient pollution degree 3
  - IEC degree of protection:
  - IP20 for terminals
  - IP65 for housing

### Wiring diagrams

- Conductor section: 1 or 2 2.5mm² max / 16-14 AWG
- Tightening torque:
  - Switch fixing: 2.5Nm / 22.1lbin
  - Contact terminals: 0.8Nm / 7lbin
- Body lid screw fixing: 0.8Nm / 7lb
- Conductor section: 1 or 2.2.5mm² max / 16-14 AWG
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40 ... +70°C
  - Suitable for ambient pollution degree 3
  - IEC degree of protection:
    - IP20 for terminals
    - IP65 for housing

### Certifications and compliance

- Certifications obtained: GOST; UL Listed, for USA and Canada (File E93601), as Auxiliary Devices - Limit switches.
Roller side push lever

<table>
<thead>
<tr>
<th>Order code</th>
<th>Plastic body</th>
<th>Metal body</th>
<th>Contacts</th>
<th>Roller material</th>
<th>Qty per pkg</th>
<th>Wt</th>
</tr>
</thead>
<tbody>
<tr>
<td>KB D1 S11</td>
<td>KM D1 S11</td>
<td>Metal</td>
<td>1NO+1NC</td>
<td>Plastic</td>
<td>5</td>
<td></td>
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<tr>
<td>KB D2 S11</td>
<td>KM D2 S11</td>
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<td>2NO</td>
<td>Plastic</td>
<td>5</td>
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<tr>
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<td>KM D1 S02</td>
<td>Metal</td>
<td>2NO</td>
<td>Plastic</td>
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<td>KB D2 S02</td>
<td>KM D2 S02</td>
<td>Metal</td>
<td>2NO</td>
<td>Plastic</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>KB D1 A11</td>
<td>KM D1 A11</td>
<td>Metal</td>
<td>1NO+1NC</td>
<td>Plastic</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>KB D2 A11</td>
<td>KM D2 A11</td>
<td>Metal</td>
<td>1NO+1NC</td>
<td>Plastic</td>
<td>5</td>
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<tr>
<td>KB D1 L11</td>
<td>KM D1 L11</td>
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<td>1NO+1NC</td>
<td>Plastic</td>
<td>5</td>
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<td>KM D2 L11</td>
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<td>1NO+1NC</td>
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<td>KM D1 L02</td>
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<td>1NO+1NC</td>
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<td>5</td>
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<tr>
<td>KB D2 L02</td>
<td>KM D2 L02</td>
<td>Metal</td>
<td>1NO+1NC</td>
<td>Plastic</td>
<td>5</td>
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<tr>
<td>KB D1 L20</td>
<td>KM D1 L20</td>
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<td>Plastic</td>
<td>5</td>
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<tr>
<td>KB D2 L20</td>
<td>KM D2 L20</td>
<td>Metal</td>
<td>1NO+1NC</td>
<td>Plastic</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>KB D1 A11</td>
<td>KM D1 A11</td>
<td>Metal</td>
<td>1NO+1NC</td>
<td>Plastic</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>KB D2 A11</td>
<td>KM D2 A11</td>
<td>Metal</td>
<td>1NO+1NC</td>
<td>Plastic</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>KB D1 L11</td>
<td>KM D1 L11</td>
<td>Metal</td>
<td>1NO+1NC</td>
<td>Plastic</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>KB D2 L11</td>
<td>KM D2 L11</td>
<td>Metal</td>
<td>1NO+1NC</td>
<td>Plastic</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>KB D1 L02</td>
<td>KM D1 L02</td>
<td>Metal</td>
<td>1NO+1NC</td>
<td>Plastic</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>KB D2 L02</td>
<td>KM D2 L02</td>
<td>Metal</td>
<td>1NO+1NC</td>
<td>Plastic</td>
<td>5</td>
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</tr>
<tr>
<td>KB D1 L20</td>
<td>KM D1 L20</td>
<td>Metal</td>
<td>1NO+1NC</td>
<td>Plastic</td>
<td>5</td>
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<tr>
<td>KB D2 L20</td>
<td>KM D2 L20</td>
<td>Metal</td>
<td>1NO+1NC</td>
<td>Plastic</td>
<td>5</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>One bottom cable entry. Dimensions to EN 50047.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>K... S11</th>
<th>21-23</th>
<th>13-14</th>
<th>13-14</th>
</tr>
</thead>
<tbody>
<tr>
<td>K... L20</td>
<td>13-14</td>
<td>23-24</td>
<td>23-24</td>
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<table>
<thead>
<tr>
<th>K... S02</th>
<th>15-21</th>
<th>21-27</th>
<th>21-27</th>
</tr>
</thead>
<tbody>
<tr>
<td>K... L12</td>
<td>21-27</td>
<td>13-14</td>
<td>13-14</td>
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</table>

<table>
<thead>
<tr>
<th>K... A11</th>
<th>31-36</th>
<th>21-21</th>
<th>21-21</th>
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<tbody>
<tr>
<td>K... L21</td>
<td>31-36</td>
<td>21-21</td>
<td>21-21</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>K... L11</th>
<th>15-21</th>
<th>21-21</th>
<th>21-21</th>
</tr>
</thead>
<tbody>
<tr>
<td>K... L03</td>
<td>15-21</td>
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<td>21-21</td>
</tr>
</tbody>
</table>

General characteristics

- The LOVATO ELECTRIC limit switches have been designed to satisfy requirements comprising quick installation, wiring ease, simple setup, modularity, sturdiness and constant reliability.
- The body cover is hinged at the bottom and removable. The innovative locking bayonet mechanism consents to remove and reposition the operating head in the required configuration with no tools. The heads have axial rotation of 45° angles.
- The auxiliary contact blocks are removable assuring remarkable wiring simplicity.

Operational characteristics

- Maximum operating rate: 3600 cycles/h
- Switching speed: 0.5-1.5m/s
- Mechanical life: >10 million cycles
- IEC conventional thermal current ith: 10A
- UL/CSA and IEC/EN 60947-5-1 designation:
  - A600 Q300 for KB-KC types
  - A300 Q300 for KM-KN types
- IEC rated insulation voltage Ui:
  - 690VAC for KB-KC types
  - 440VAC for KM-KN types
- IEC/EN 60947-5-1
- Class II insulation for KB-KC only
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A g6/SC quick fuse
- Operators of aluminium-zinc alloy
- Housings - KB-KC types - Self-extinguishing double-insulation polymer thermoplastic
- KM-KN types - Aluminium-zinc alloy
- Cable entry: M20 standard supplied; PG13.5 and 1/2 NPT available (see the side note for details)
- Operating head fixing: Locking bayonet insert
- Operating force: 6N / 1.34lb
- Cable connection: Self-releasing screw terminal
- Tightening torque:
  - Switch fixing: 2.5Nm / 22.1lbin
  - Contact terminals: 0.8Nm / 7lbin
  - Body lid screw fixing: 0.8Nm / 7lbin
- Conductor section: 1 or 2 2.5mm² max / 16-14 AWG
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40 ... +70°C
  - Suitable for ambient pollution degree 3
  - IEC degree of protection:
    - IP20 for terminals
    - IP65 for body housing.

Certifications and compliance

Certifications obtained: GOST, UL Listed, for USA and Canada (File E93601), as Auxiliary Devices - Limit switches.

## General characteristics

The LOVATO ELECTRIC limit switches have been designed to satisfy requirements comprising quick installation, wiring ease, simple setup, modularity, sturdiness and constant reliability. The body cover is hinged at the bottom and removable. The innovative locking bayonet mechanism consents to remove and reposition the operating head in the required configuration with no tools. The heads have axial rotation of 45° angles. The auxiliary contact blocks are removable assuring remarkable wiring simplicity.

## Operational characteristics

- Maximum operating rate: 3600 cycles/h
- Switching speed: 0.5-1.5 m/s
- Mechanical life: >10 million cycles
- IEC conventional thermal current Ith: 10 A
- UL/CSA and IEC/EN 60947-5-1 designation:
  - A600 Q300 for KB types
  - A300 Q300 for KM types
- IEC rated insulation voltage Ui:
  - 690 V for KB types
  - 440 V for KM types
- IEC rated impulse withstand voltage Ulmp:
  - 6 kVAC for KB types
  - 4 kVAC for KM types
- Class II insulation for KB only
- Contact resistance: <10 mΩ
- Short-circuit backup protection: 10 A gG/SC quick fuse
- Operators of aluminum-zinc alloy
- Housing:
  - KB types - Self-extinguishing double-insulation polymer thermoplastic
  - KM types - Aluminum-zinc alloy
- Cable entry: M20 standard supplied; PG13.5 and 1/2 NPT available (see the side note for details)
- Operating head fixing: Locking bayonet insert
- Operating torque: 3Ncm / 4.25 ozin
- Switching speed: 0.5-1.5 m/s
- Maximum operating rate: 3600 cycles/h
- Mechanical life: >10 million cycles

## Certifications and compliance

Certifications obtained: GOST, UL Listed, for USA and Canada (File E93601), as Auxiliary Devices - Limit switches.


### One bottom cable entry. Dimensions to EN 50047.

#### Roller lever plunger

<table>
<thead>
<tr>
<th>Order code</th>
<th>Metal body</th>
<th>Contacts</th>
<th>Roller material</th>
<th>Qty per pkg</th>
<th>Wt [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>KB E1 S11</td>
<td>KM E1 S11</td>
<td>1NO+1NC</td>
<td>Plastic+Metal</td>
<td>5</td>
<td>0.6</td>
</tr>
<tr>
<td>KB E2 S11</td>
<td>KM E2 S11</td>
<td>1NO+1NC</td>
<td>Plastic+Metal</td>
<td>5</td>
<td>0.6</td>
</tr>
<tr>
<td>KB E3 S11</td>
<td>KM E3 S11</td>
<td>1NO+1NC</td>
<td>Plastic+Metal</td>
<td>5</td>
<td>0.6</td>
</tr>
<tr>
<td>KB E1 S02</td>
<td>KM E1 S02</td>
<td>2NO</td>
<td>Plastic+Rubber</td>
<td>5</td>
<td>0.6</td>
</tr>
<tr>
<td>KB E2 S02</td>
<td>KM E2 S02</td>
<td>2NO</td>
<td>Plastic+Rubber</td>
<td>5</td>
<td>0.6</td>
</tr>
<tr>
<td>KB E3 S02</td>
<td>KM E3 S02</td>
<td>2NO</td>
<td>Plastic+Rubber</td>
<td>5</td>
<td>0.6</td>
</tr>
<tr>
<td>KB E1 A11</td>
<td>KM E1 A11</td>
<td>Slow break</td>
<td>Plastic+Metal</td>
<td>5</td>
<td>0.6</td>
</tr>
<tr>
<td>KB E2 A11</td>
<td>KM E2 A11</td>
<td>Slow break</td>
<td>Plastic+Metal</td>
<td>5</td>
<td>0.6</td>
</tr>
<tr>
<td>KB E3 A11</td>
<td>KM E3 A11</td>
<td>Slow break</td>
<td>Plastic+Metal</td>
<td>5</td>
<td>0.6</td>
</tr>
</tbody>
</table>

### BI-DIRECTIONAL

<table>
<thead>
<tr>
<th>Order code</th>
<th>Metal body</th>
<th>Contacts</th>
<th>Roller material</th>
<th>Qty per pkg</th>
<th>Wt [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>KB E1 D02</td>
<td>KM E1 D02</td>
<td>2NO independent</td>
<td>Plastic</td>
<td>5</td>
<td>0.6</td>
</tr>
</tbody>
</table>

For types with PG13.5 cable entry, add the letter P at the end of the order code while for 1/2 NPT, add N. E.g. KB E1 S02P - KB E1 S02N

- M20 Cable entry
  - For types with PG13.5 cable entry: add the letter P at the end of the order code while for 1/2 NPT, add N. E.g.: KB E1 S02P - KB E1 S02N
  - BI-DIRECTIONAL
    - For types with PG13.5 cable entry: add the letter P at the end of the order code while for 1/2 NPT, add N. E.g.: KB E1 D02P - KB E1 D02N

- Forward travel of snap action contacts
- Return travel of snap action contacts

### Certifications and compliance

Certifications obtained: GOST, UL Listed, for USA and Canada (File E93601), as Auxiliary Devices - Limit switches.

General characteristics
The LOVATO ELECTRIC limit switches have been designed to satisfy requirements comprising quick installation, wiring ease, simple setup, modularity, sturdiness and constant reliability.
The body cover is hinged at the bottom and removable. The innovative locking bayonet mechanism consents to remove and reposition the operating head in the required configuration with no tools. The heads have axial rotation of 90° angles. The auxiliary contact blocks are removable assuring remarkable wiring simplicity.

Operational characteristics
- Maximum operating rate: 3600 cycles/h
- Switching speed: 0.5-1.5ms
- Mechanical life: >10 million cycles
- IEC conventional thermal current ith: 10A
- UL/CSA and IEC/EN 60947-5-1 designation:
  - A600 Q300 for KC types
  - A300 Q300 for KN types
- IEC rated insulation voltage Ui:
  - 690VAC for KC types
  - 440VAC for KN types
- IEC rated impulse withstand voltage Uimp:
  - 6kV for KC types
  - 4kV for KN types
- Class II insulation for KC only
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A g6/SC quick fuse
- Operators of aluminum-zinc alloy
- Housing:
  - KC types - Self-extinguishing double-insulation polymer thermoplastic
  - KN types - Aluminum-zinc alloy

Certifications and compliance
Certifications obtained: GOST; UL Listed, for USA and Canada (File E93601), as Auxiliary Devices - Limit switches.

<table>
<thead>
<tr>
<th>Order code</th>
<th>Contacts</th>
<th>Roller material</th>
<th>Qty per pkg</th>
<th>Wt [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>KC E1 S11</td>
<td>1NO+1NC</td>
<td>Plastic</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>KC E2 S11</td>
<td>1NO+1NC</td>
<td>Plastic</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>KC E3 S11</td>
<td>1NO+1NC</td>
<td>Plastic</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>KC E1 S02</td>
<td>2NC</td>
<td>Plastic</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>KC E2 S02</td>
<td>2NC</td>
<td>Plastic</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>KC E3 S02</td>
<td>2NC</td>
<td>Plastic</td>
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<td>8</td>
</tr>
<tr>
<td>KC E1 A11</td>
<td>2NO</td>
<td>Plastic</td>
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<td>8</td>
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<tr>
<td>KC E2 A11</td>
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<td>8</td>
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<td>KC E1 L11</td>
<td>2NO</td>
<td>Plastic</td>
<td>5</td>
<td>8</td>
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<tr>
<td>KC E2 L11</td>
<td>2NO</td>
<td>Plastic</td>
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<td>8</td>
</tr>
<tr>
<td>KC E3 L11</td>
<td>2NO</td>
<td>Plastic</td>
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<td>8</td>
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<tr>
<td>KC E1 L02</td>
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<td>8</td>
</tr>
<tr>
<td>KC E2 L02</td>
<td>2NO</td>
<td>Plastic</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>KC E3 L02</td>
<td>2NO</td>
<td>Plastic</td>
<td>5</td>
<td>8</td>
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<tr>
<td>KC E1 L20</td>
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<td>KC E2 L20</td>
<td>2NO</td>
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<tr>
<td>KC E3 L20</td>
<td>2NO</td>
<td>Plastic</td>
<td>5</td>
<td>8</td>
</tr>
</tbody>
</table>

KC E3… - KN E3...

Roller lever plunger

Two side cable entries. Dimensions compatible to EN 50047.

<table>
<thead>
<tr>
<th>Plunger size</th>
<th>Number of cable entries</th>
<th>Cable connecti on</th>
<th>Operating head fixing</th>
<th>Conductor section</th>
<th>Tightening torque</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Self-releasing screw terminal</td>
<td>Locking bayonet insert</td>
<td>1 or 2 2.5mm² max / 16-14 AWG</td>
<td>2.5Nm / 22.1lbin</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Plunger size</th>
<th>Number of cable entries</th>
<th>Operator type</th>
<th>CLASSIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>0.8Nm / 7lbin</td>
<td>Self-extinguishing double-insulation polymer thermoplastic</td>
</tr>
</tbody>
</table>

Wiring diagrams

Certifications obtained: GOST; UL Listed, for USA and Canada (File E93601), as Auxiliary Devices - Limit switches.
### Adjustable roller lever

<table>
<thead>
<tr>
<th>Order code</th>
<th>Contacts</th>
<th>Roller material</th>
<th>Qty</th>
<th>Wt (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>KB F1 S11</td>
<td>1NO+1NC</td>
<td>Plastic</td>
<td>5</td>
<td>0.8</td>
</tr>
<tr>
<td>KB F2 S11</td>
<td>1NO+1NC</td>
<td>Metal</td>
<td>5</td>
<td>0.8</td>
</tr>
<tr>
<td>KB F3 S11</td>
<td>1NO+1NC</td>
<td>Rubber</td>
<td>5</td>
<td>0.8</td>
</tr>
<tr>
<td>KB F4 S11</td>
<td>1NO+1NC</td>
<td>Rubber</td>
<td>5</td>
<td>0.8</td>
</tr>
<tr>
<td>KB F1 S02</td>
<td>2NC</td>
<td>Plastic</td>
<td>5</td>
<td>0.8</td>
</tr>
<tr>
<td>KB F2 S02</td>
<td>2NC</td>
<td>Metal</td>
<td>5</td>
<td>0.8</td>
</tr>
<tr>
<td>KB F3 S02</td>
<td>2NC</td>
<td>Rubber</td>
<td>5</td>
<td>0.8</td>
</tr>
<tr>
<td>KB F4 S02</td>
<td>2NC</td>
<td>Rubber</td>
<td>5</td>
<td>0.8</td>
</tr>
<tr>
<td>KB F1 A11</td>
<td>1NO+1NC</td>
<td>Plastic</td>
<td>5</td>
<td>0.8</td>
</tr>
<tr>
<td>KB F2 A11</td>
<td>1NO+1NC</td>
<td>Metal</td>
<td>5</td>
<td>0.8</td>
</tr>
<tr>
<td>KB F3 A11</td>
<td>1NO+1NC</td>
<td>Rubber</td>
<td>5</td>
<td>0.8</td>
</tr>
<tr>
<td>KB F4 A11</td>
<td>1NO+1NC</td>
<td>Rubber</td>
<td>5</td>
<td>0.8</td>
</tr>
<tr>
<td>KB F1 L11</td>
<td>1NO+1NC</td>
<td>Plastic</td>
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<td>0.8</td>
</tr>
<tr>
<td>KB F2 L11</td>
<td>1NO+1NC</td>
<td>Metal</td>
<td>5</td>
<td>0.8</td>
</tr>
<tr>
<td>KB F3 L11</td>
<td>1NO+1NC</td>
<td>Rubber</td>
<td>5</td>
<td>0.8</td>
</tr>
<tr>
<td>KB F4 L11</td>
<td>1NO+1NC</td>
<td>Rubber</td>
<td>5</td>
<td>0.8</td>
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<tr>
<td>KB F1 L02</td>
<td>2NC</td>
<td>Plastic</td>
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<td>0.8</td>
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<tr>
<td>KB F2 L02</td>
<td>2NC</td>
<td>Metal</td>
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</tr>
<tr>
<td>KB F3 L02</td>
<td>2NC</td>
<td>Rubber</td>
<td>5</td>
<td>0.8</td>
</tr>
<tr>
<td>KB F4 L02</td>
<td>2NC</td>
<td>Rubber</td>
<td>5</td>
<td>0.8</td>
</tr>
<tr>
<td>KB F1 L20</td>
<td>2NO</td>
<td>Plastic</td>
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</tr>
<tr>
<td>KB F2 L20</td>
<td>2NO</td>
<td>Metal</td>
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</tr>
<tr>
<td>KB F3 L20</td>
<td>2NO</td>
<td>Rubber</td>
<td>5</td>
<td>0.8</td>
</tr>
<tr>
<td>KB F4 L20</td>
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<td>Rubber</td>
<td>5</td>
<td>0.8</td>
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<tr>
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<td>Plastic</td>
<td>5</td>
<td>0.8</td>
</tr>
<tr>
<td>KB F2 L21</td>
<td>2NO+1NC</td>
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<td>KB F3 L21</td>
<td>2NO+1NC</td>
<td>Rubber</td>
<td>5</td>
<td>0.8</td>
</tr>
<tr>
<td>KB F4 L21</td>
<td>2NO+1NC</td>
<td>Rubber</td>
<td>5</td>
<td>0.8</td>
</tr>
<tr>
<td>KB F1 L03</td>
<td>3NC</td>
<td>Plastic</td>
<td>5</td>
<td>0.8</td>
</tr>
<tr>
<td>KB F2 L03</td>
<td>3NC</td>
<td>Metal</td>
<td>5</td>
<td>0.8</td>
</tr>
<tr>
<td>KB F3 L03</td>
<td>3NC</td>
<td>Rubber</td>
<td>5</td>
<td>0.8</td>
</tr>
<tr>
<td>KB F4 L03</td>
<td>3NC</td>
<td>Rubber</td>
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<td>0.8</td>
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<tr>
<td>KB F1 A02</td>
<td>2NC</td>
<td>Plastic</td>
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<td>0.8</td>
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**BI-DIRECTIONAL.**

<table>
<thead>
<tr>
<th>Order code</th>
<th>Contacts</th>
<th>Roller material</th>
<th>Qty</th>
<th>Wt (kg)</th>
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<tr>
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<td>Plastic</td>
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<td>0.8</td>
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### General characteristics

The LOVATO ELECTRIC limit switches have been designed to satisfy requirements comprising quick installation, wiring ease, simple setup, modularity, sturdiness and constant reliability. The body cover is hinged at the bottom and removable. The innovative locking bayonet mechanism consents to remove and reposition the operating head in the required configuration with no tools. The heads have axial rotation of 180° angles. The auxiliary contact blocks are removable assuring remarkable wiring simplicity.

#### Operational characteristics

- **Maximum operating rate:** 3600 cycles/h
- **Switching speed:** 0.5-1.5m/s
- **Mechanical life:** >10 million cycles
- **IEC conventional thermal current Ith:** 10A
- UL/CSA and IEC/EN 60947-5-1 designation:
  - KM types:
    - **A600** Q300 for KB types
    - **A300** Q300 for KM types
  - **IEC rated insulation voltage UI:**
    - **690V** for KB types
    - **440V** for KM types
  - **IEC rated impulse withstand voltage Uimp:**
    - **6kVAC** for KB types
    - **4kVAC** for KM types
  - **Class II insulation for KB only**
  - **Contact resistance:** <10Ω·m²
  - **Short-circuit backup protection:** 10A gG/SC quick fuse
  - **Operators of aluminum-zinc alloy**
  - **Housing:**
    - KB types - Self-extinguishing double-insulation polymer thermoplastic
    - KM types - Aluminum-zinc alloy
  - **Cable entry:** M20 standard supplied; PG13.5 and 1/2 NPT available (see the side note for details)
  - **Operating head fixing:** Locking bayonet insert
  - **Operating force:** 3Ncm/4.25ozin
  - **Cable connection:** Self-releasing screw terminal
  - **Tightening torque:**
    - Switch fixing: 2.5Nm / 22.1bin
    - Contact terminals: 0.8Nm / 7bin
    - Body lid screw fixing: 0.8Nm / 7bin
  - **Conductor section:** 1 or 2.2.5mm² max / 16-14 AWG
  - **Ambient conditions:**
    - **Operating temperature:** -25...+70°C
    - **Storage temperature:** -40...+70°C
    - **Suitable for ambient pollution degree 3**
    - **IEC degree of protection:**
      - IP20 for terminals
      - IP65 for body housing.

#### Certifications and compliance

Certifications obtained: GOST; UL Listed, for USA and Canada (File E93601), as Auxiliary Devices - Limit switches. Compliant with standards: EN 50047, IEC/EN 60947-1, IEC/EN 60947-5-1, IEC/EN 60204-1, UL508, CSA C22.2 n° 14.

---

**Certifications:**
- **IEC/EN 60947-5-1**
- **IEC/EN 60947-5-1**
- **IEC/EN 60947-5-1**
- **UL508**
- **CSA C22.2 n° 14**

**Dimensions:**
- **Binder:**
  - Width: 28mm
  - Depth: 13mm
  - Height: 9mm
- **Operational characteristics:**
  - **Switching speed:** 0.5-1.5m/s
  - **Mechanical life:** >10 million cycles
  - **IEC conventional thermal current Ith:** 10A
- **UL/CSA and IEC/EN 60947-5-1 designation:**
  - **A600** Q300 for KB types
  - **A300** Q300 for KM types
- **IEC rated insulation voltage UI:**
  - **690V** for KB types
  - **440V** for KM types
- **IEC rated impulse withstand voltage Uimp:**
  - **6kVAC** for KB types
  - **4kVAC** for KM types
- **Class II insulation for KB only**
- **Contact resistance:** <10Ω·m²
- **Short-circuit backup protection:** 10A gG/SC quick fuse
- **Operators of aluminum-zinc alloy**
- **Housing:**
  - KB types - Self-extinguishing double-insulation polymer thermoplastic
  - KM types - Aluminum-zinc alloy
- **Cable entry:** M20 standard supplied; PG13.5 and 1/2 NPT available (see the side note for details)
- **Operating head fixing:** Locking bayonet insert
- **Operating force:** 3Ncm/4.25ozin
- **Cable connection:** Self-releasing screw terminal
- **Tightening torque:**
  - Switch fixing: 2.5Nm / 22.1bin
  - Contact terminals: 0.8Nm / 7bin
  - Body lid screw fixing: 0.8Nm / 7bin
- **Conductor section:** 1 or 2.2.5mm² max / 16-14 AWG
- **Ambient conditions:**
  - **Operating temperature:** -25...+70°C
  - **Storage temperature:** -40...+70°C
  - **Suitable for ambient pollution degree 3**
  - **IEC degree of protection:**
    - IP20 for terminals
    - IP65 for body housing.

**Accessories and spare parts:**
- **pages 9-16 and 17**
- **dimensions page 9-28**
- **wiring diagrams page 9-33**
Adjustable roller lever

<table>
<thead>
<tr>
<th>Order code</th>
<th>Plastic body</th>
<th>Metal body</th>
<th>Contacts</th>
<th>Roller material</th>
<th>Qty per pkg</th>
<th>Wt [kg]</th>
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</thead>
<tbody>
<tr>
<td>KC F1 S11</td>
<td>KN F1 S11</td>
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</tr>
<tr>
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</tr>
<tr>
<td>KC F3 S11</td>
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<td>Slow break</td>
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<td>KC F4 S11</td>
<td>KN F4 S11</td>
<td>Slow break</td>
<td>Rubber</td>
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<td></td>
<td></td>
</tr>
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</table>

Two side cable entries. Dimensions compatible to EN 50047.

Adjustable roller lever

Forward travel of snap action contacts

Return travel of snap action contacts

Certifications and compliance


General characteristics

The LOVATO ELECTRIC limit switches have been designed to satisfy requirements comprising quick installation, wiring ease, simple setup, modularity, sturdiness and constant reliability.

The body cover is hinged at the bottom and removable. The innovative locking bayonet mechanism consents to remove and reposition the operating head in the required configuration with no tools. The heads have axial rotation of 180° angles.

The auxiliary contact blocks are removable assuring remarkable wiring simplicity.

Operational characteristics

- Maximum operating rate: 3600 cycles/h
- Switching speed: 0.5-1.5m/s
- Mechanical life: >10 million cycles
- IEC conventional thermal current lith: 10A
- UL/CSA and IEC/EN 60947-5-1 designation:
  - A600 Q300 for KC types
  - A300 Q300 for KN types
- IEC rated insulation voltage Ui:
  - 900VAC for KC types
  - 440VAC for KN types
- IEC rated impulse withstand voltage Uimp:
  - 6kV for KC types
  - 4kV for KN types
- Class II insulation for KC only
- Contact resistance: <10Ω
- Short-circuit backup protection: 10A g6/SC quick fuse
- Operators of aluminium-zinc alloy
- Housing:
  - KC types - Self-extinguishing double-insulation polymer thermoplastic
  - KN types - Aluminium-zinc alloy
- Cable entry: M20 standard supplied; PG13.5 and 1/2 NPT available (see the side note for details)
- Operating head fixing: Locking bayonet insert
- Operating force: 3Ncm/4.25ozin
- Cable connection: Self-releasing screw terminal
- Tightening torque:
  - Switch fixing: 2.5Nm / 22.1bin
  - Contact terminals: 0.8Nm / 7bin
  - Body lid screw fixing: 0.8Nm / 7bin
- Conductor section: 1 or 2 2.5mm² / 16-14 AWG
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40 ... +70°C
  - Suitable for ambient pollution degree 3
  - IEC degree of protection:
    - IP20 for terminals
    - IP65 for body housing.

Certifications and compliance

Limit, micro and foot switches

Limit switches, K series. One bottom cable entry. Dimensions to EN 50047

Two side cable entries. Dimensions compatible to EN 50047

Ceramic rod lever

<table>
<thead>
<tr>
<th>Order code</th>
<th>Plastic body</th>
<th>Metal body</th>
<th>Contacts</th>
<th>Rod material</th>
<th>Qty per pkg</th>
<th>Wt [n]</th>
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<tbody>
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<tr>
<td>KB H1 S02</td>
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<td>Ceramic</td>
<td>5</td>
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</tr>
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<td>KB H1 A11</td>
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<td>KB H1 L02</td>
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<td>KM H1 L21</td>
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<td>Ceramic</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>KB H1 L03</td>
<td>KM H1 L03</td>
<td>3NC</td>
<td>Ceramic</td>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For types with PG13.5 cable entry, add the letter P at the end of the order code while for 1/2 NPT, add N.

- E.g. KBL1S11P - KBL1S11N

General characteristics

The LOVATO ELECTRIC limit switches have been designed to satisfy requirements comprising quick installation, wiring ease, simple setup, modularity, sturdiness and constant reliability.

The body cover is hinged at the bottom and removable. The innovative locking bayonet mechanism consents to remove and reposition the operating head in the required configuration with no tools. The heads have axial rotation of 45° angles.

The auxiliary contact blocks are removable assuring remarkable wiring simplicity.

Operational characteristics

- Maximum operating rate: 3600 cycles/h
- Switching speed: 0.5-1.5m/s
- Mechanical life: >10 million cycles
- IEC conventional thermal current Ith: 10A
- UL/CSA and IEC/EN 60947-5-1 designation:
  - A600 Q300 for KB-KC types
  - A300 Q300 for KM-KN types
- IEC rated impulse withstand voltage Uimp:
  - 6kV for KB-KC types
  - 4kV for KM-KN types
- Class II insulation for KB-KC only
- Contact resistance: <10Ωm²
- Short-circuit backup protection: 10A gG/SC quick fuse
- Operators of aluminium-zinc alloy
- Housing:
  - KB-KC types - Self-extinguishing double-insulation polymer thermoplastic
  - KM-KN types - Aluminium-zinc alloy
- Cable entry: M20 standard supplied; PG13.5 and 1/2 NPT available (see the side note for details)
- Operating head fixing: Locking bayonet insert
- Operating torque: 2.5Nm/22.1lbin
- Cable connection: Self-releasing screw terminal
- Tightening torque:
  - Switch fixing: 2.5Nm / 22.1lbin
  - Contact terminals: 0.8Nm / 7lbin
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40 ... +70°C
  - Suitable for ambient pollution degree 3
  - IEC degree of protection:
    - IP20 for terminals
    - IP65 for body housing.

Certifications and compliance

Certifications obtained: GOST, UL Listed, for USA and Canada (File E93601), as Auxiliary Devices - Limit switches.

Adjustable rod lever

General characteristics
The LOVATO ELECTRIC limit switches have been designed to satisfy requirements comprising quick installation, wiring ease, simple setup, modularity, sturdiness and constant reliability. The body cover is hinged at the bottom and removable. The innovative locking bayonet mechanism consents to remove and reposition the operating head in the required configuration with no tools. The heads have axial rotation of 90° angles (180° for KC and KN types). The auxiliary contact blocks are removable assurening remarkable wiring simplicity.

Operational characteristics
- Maximum operating rate: 3600 cycles/h
- Switching speed: 0.5-1.5m/s
- Mechanical life: >10 million cycles
- IEC conventional thermal current: 10A
- UL/CSA and IEC/EN 60947-5-1 designation:
  - A600 Q300 for KB-KC types
  - A300 Q300 for KM-KN types
- IEC rated insulation voltage Ui:
  - 690VAC for KB-KC types
  - 440VAC for KM-KN types
- IEC rated impulse withstand voltage Uimp:
  - 6kV for KB-KC types
  - 4kV for KM-KN types
- Class II insulation for KB-KC only
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A g6/SC quick fuse
- Operators of aluminium-zinc alloy
- Housing:
  - KB-KC types - Self-extinguishing double-insulation polymer thermoplastic
  - KM-KN types - Aluminium-zinc alloy
- Cable entry: M20 standard supplied, PG13.5 and 1/2 NPT available
- Operating head fixing: Locking bayonet inser
- Operating force: 3Nm/4.25ozin
- Cable connection: Self-releasing screw terminal
- Tightening torque:
  - Switch fixing: 2.5Nm / 22.1lbin
  - Contact terminals: 0.8Nm / 7lbsin
  - Body lid screw fixing: 0.8Nm / 7lbsin
- Conductor section: 1 or 2 2.5mm² max / 16-14 AWG
- Ambient conditions:
  - Operating temperature: -25...+70°C
  - Storage temperature: -40...+70°C
  - Suitable for ambient pollution degree 3
  - IEC degree of protection:
    - IP20 for terminals
    - IP65 for body housing.

Certifications and compliance
Certifications obtained: GOST, UL Listed, for USA and Canada (File E93601), as Auxiliary Devices - Limit switches.

Accessories and spare parts
Pages 9-16 and 17

Dimensions
Page 9-28

Wiring diagrams
Page 8-35

Refer to the side note for details.
The LOVATO ELECTRIC limit switches have been designed to satisfy requirements comprising quick installation, wiring ease, simple setup, modularity, sturdiness and constant reliability. The body cover is hinged at the bottom and removable. The innovative locking bayonet mechanism consents to remove and reposition the operating head in the required configuration with no tools. The auxiliary contact blocks are removable assuring remarkable wiring simplicity.

**General characteristics**
- Maximum operating rate: 3600 cycles/h
- Switching speed: 0.5-1.5 m/s
- Mechanical life: >10 million cycles
- IEC conventional thermal current lift: 10A
- UL/CSA and IEC/EN 60947-5-1 designation:
  - A600 Q300 for KB-KC types
  - A300 Q300 for KM-KN types
- IEC rated insulation voltage Ui:
  - 690VAC for KB-KC types
  - 440VAC for KM-KN types
- IEC rated impulse withstand voltage Uimp:
  - 6kV for KB-KC types
  - 4kV for KM-KN types
- Class II insulation for KB-KC only
- Contact resistance:
  - <10mΩ
- Short-circuit backup protection: 10A gG/SC quick fuse
- Operators of aluminium-zinc alloy
- Housing:
  - KB-KC types - Self-extinguishing double-insulation polymer thermoplastic
  - KM-KN types - Aluminium-zinc alloy
- Cable entry:
  - M20 standard supplied; PG13.5 and 1/2 NPT available (see the side note for details)
- Operators of aluminium-zinc alloy
- Short-circuit backup protection:
  - 10A gG/SC quick fuse
- Operators of aluminium-zinc alloy
- Housing:
  - KB-KC types - Self-extinguishing double-insulation polymer thermoplastic
  - KM-KN types - Aluminium-zinc alloy
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40 ... +70°C
  - Suitable for ambient pollution degree 3
  - IEC degree of protection:
    - IP20 for terminals
    - IP65 for body housing.

**Certifications and compliance**
Certifications obtained: GOST; UL Listed, for USA and Canada (File E99601), as Auxiliary Devices - Limit switches.
## Hinge operating

<table>
<thead>
<tr>
<th>Order code</th>
<th>Plastic body</th>
<th>Metal body</th>
<th>Contacts</th>
<th>Shaft features</th>
<th>Qty per pkg</th>
<th>Wt n° [kg]</th>
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</thead>
<tbody>
<tr>
<td>KB P1 L11</td>
<td>KM P1 L11</td>
<td>1NO+1NC</td>
<td>Slow brass</td>
<td>Short cylinder</td>
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<td>5</td>
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<tr>
<td>KB P2 L11</td>
<td>KM P2 L11</td>
<td>1NO+1NC</td>
<td>Slow brass</td>
<td>Short cylinder</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>KB P3 L11</td>
<td>KM P3 L11</td>
<td>1NO+1NC</td>
<td>Slow brass</td>
<td>Long solid</td>
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</tr>
<tr>
<td>KB P1 L02</td>
<td>KM P1 L02</td>
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<td>Slow brass</td>
<td>Short cylinder</td>
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<td>5</td>
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<td>KM P2 L02</td>
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<td>5</td>
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<td>5</td>
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<tr>
<td>KB P1 L12</td>
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<td>Slow brass</td>
<td>Short cylinder</td>
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<tr>
<td>KB P2 L12</td>
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<tr>
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<td>KB P3 L21</td>
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<td>Slow brass</td>
<td>Long solid/ reduction</td>
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</tr>
<tr>
<td>KB P1 L03</td>
<td>KM P1 L03</td>
<td>3NC</td>
<td>Slow brass</td>
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<tr>
<td>KB P2 L03</td>
<td>KM P2 L03</td>
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<td>Slow brass</td>
<td>Long solid/ reduction</td>
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<td>5</td>
</tr>
</tbody>
</table>

### General characteristics

The LOVATO ELECTRIC limit switches have been designed to satisfy requirements comprising quick installation, wiring ease, simple setup, modularity, sturdiness and constant reliability.

- **Body cover** is hinged at the bottom and removable.
- The innovative locking bayonet mechanism consents to remove and reposition the operating head in the required configuration with no tools.
- The auxiliary contact blocks are removable assuring remarkable wiring simplicity.

### Operational characteristics

- Maximum operating rate: 3600 cycles/h
- Switching speed: 0.5 - 1.5 m/s
- Mechanical life: >10 million cycles
- IEC conventional thermal current: 110 A
- UL/CSA and IEC/EN 60947-5-1 designation:
  - A600 0300 for KB-KC types
  - A300 Q300 for KM-KN types
- IEC rated insulation voltage U_i:
  - 690VAC for KB-KC types
  - 440VAC for KM-KN types
- IEC rated impulse withstand voltage U_imp:
  - 6kV for KB-KC types
  - 4kV for KM-KN types
- Class II insulation for KB-KC only
- Contact resistance: < 10mΩ
- Short-circuit protection: 10A gG/SC quick fuse
- Operators of aluminium-zinc alloy
- Housing: KB-KC types - Self-extinguishing double-insulation polymer thermoplastic
  - KM-KN types - Aluminium-zinc alloy
- Cable entry: M20 standard supplied; PG13.5 and \NPT available (see the side note for details)
- Operating head fixing: Locking bayonet insert
- Operating torque: 15Nm/21.2ozin
- Cable connection: Self-releasing screw terminal
- Tightening torque:
  - Switch fixing: 2.5Nm / 22.1lbin
  - Terminal contacts: 0.8Nm / 7lbin
  - Body lid screw fixing: 0.8Nm / 7lbin
- Conductor section: 1 or 2.25mm² max / 16-14 AWG
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40 ... +70°C
  - Suitable for ambient pollution degree 3
- IEC degree of protection:
  - IP20 for terminals
  - IP65 for body housing.

### Certifications and compliance

Certifications obtained: GOST, UL Listed, for USA and Canada (File E95901), as Auxiliary Devices - Limit switches.

Limit, micro and foot switches

Limit switches, K series. One bottom cable entry. Dimensions to EN 50047
Two side cable entries. Dimensions compatible to EN 50047

Slotted lever

<table>
<thead>
<tr>
<th>Order code</th>
<th>Plastic body</th>
<th>Metal body</th>
<th>Contacts</th>
<th>Qty per pkg</th>
<th>Wt [kg]</th>
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</thead>
<tbody>
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<td>KB Q1 L11</td>
<td>KB Q1 L11</td>
<td>1NO+1NC</td>
<td>5</td>
<td></td>
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</tr>
<tr>
<td>KB Q1 L02</td>
<td>KB Q1 L02</td>
<td>2NC</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KB Q1 L12</td>
<td>KB Q1 L12</td>
<td>1NO+2NC</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KB Q1 L21</td>
<td>KB Q1 L21</td>
<td>2NO+1NC</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KB Q1 L03</td>
<td>KB Q1 L03</td>
<td>3NC</td>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

One bottom cable entry. Dimensions to EN 50047.

<table>
<thead>
<tr>
<th>Order code</th>
<th>Plastic body</th>
<th>Metal body</th>
<th>Contacts</th>
<th>Qty per pkg</th>
<th>Wt [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>KC Q1 L11</td>
<td>KC Q1 L11</td>
<td>1NO+1NC</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KC Q1 L02</td>
<td>KC Q1 L02</td>
<td>2NC</td>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Two side cable entries. Dimensions compatible to EN 50047.

General characteristics

The LOVATO ELECTRIC limit switches have been designed to satisfy requirements comprising quick installation, wiring ease, simple setup, modularity, sturdiness and constant reliability.

The body cover is hinged at the bottom and removable.

The innovative locking bayonet mechanism consents to remove and reposition the operating head in the required configuration with no tools.

The auxiliary contact blocks are removable assuring remarkable wiring simplicity.

Operational characteristics

– Maximum operating rate: 3600 cycles/h
– Switching speed: 0.5–1.5m/s
– Mechanical life: >10 million cycles
– IEC conventional thermal current Ith: 10A
– UL/CSA and IEC/EN 60947-5-1 designation:
  • A600 Q300 for KB-KC types
  • A300 Q300 for KM-KN types
– IEC rated insulation voltage Ui:
  • 690VAC for KB-KC types
  • 440VAC for KM-KN types
– IEC rated impulse withstand voltage Uimp:
  • 6kV for KB-KC types
  • 4kV for KM-KN types
– Class II insulation for KB-KC only
– Contact resistance: <10mΩ
– Short-circuit backup protection: 10A gG/SC quick fuse
– Operators of aluminium-zinc alloy
– Housing:
  • KB-KC types - Self-extinguishing double-insulation polymer thermoplastic
  • KM-KN types - Aluminium-zinc alloy
– Cable entry: M20 standard supplied; PG13.5 and 1/2 NPT available (see the side note for details)
– Operating head fixing: Locking bayonet insert
– Operating torque: 15Ncm/21.2ozin
– Cable connection: Self-releasing screw terminal
– Tightening torque:
  • Switch fixing: 2.5Nm / 22.1lbin
  • Contact terminals: 0.8Nm / 7lbin
  • Body lid screw fixing: 0.8Nm / 7lbin
– Conductor section: 1 or 2 2.5mm² max / 16-14 AWG
– Ambient conditions:
  • Operating temperature: -25 ... +70°C
  • Storage temperature: -40 ... +70°C
  • Suitable for ambient pollution degree 3
– IEC degree of protection:
  • IP20 for terminals
  • IP65 for body housing.

Certifications and compliance

Certifications obtained: GOST; UL Listed, for USA and Canada (File E93601), as Auxiliary Devices - Limit switches.


Direct opening operation ; safety function according to IEC/EN 60947-5-1.

Consult Customer Service for information; see contact details on inside front cover.
## General characteristics

The LOVATO ELECTRIC limit switches have been designed to satisfy requirements comprising quick installation, wiring ease, simple setup, modularity, sturdiness and constant reliability. The body cover is hinged at the bottom and removable. The heads have axial rotation in any of 4 positions at 90° angles. The auxiliary contact blocks are removable assuring remarkable wiring simplicity.

### Operational characteristics

- Maximum operating rate: 3600 cycles/h
- Switching speed: 0.5-1.5m/s
- Mechanical life: >10 million cycles
- IEC conventional thermal current Ith: 10A
- UL/Csa and IEC/EN 60947-5-1 designation: A600 Q600
- IEC rated insulation voltage Ui: 690V
- IEC rated impulse withstand voltage Uimp: 6kV
- Class II insulation
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A gG/SC quick fuse
- Housing and operators in self-extinguishing double-insulation polymer thermoplastic
- Cable entry: M20 standard supplied; PG13.5 and 1/2 NPT available (see the side note for details)
- Operating head fixing: Locking bayonet insert
- Operating force: 8N/1.8lb
- Cable connection: Self-releasing screw terminal
- Tightening torque:
  - Switching: 2.5Nm / 22.1lb
  - Contact terminals: 0.8Nm / 7lb
  - Body lid screw fixing: 0.8Nm / 7lbin
- Conductor section: 1 or 2 2.5mm² max / 16-14 AWG
- Short-circuit backup protection: 10A gG/SC quick fuse
- Contact resistance: <10mΩ
- Class II insulation
- IEC degree of protection: IP54
- IEC conventional thermal current Ith: 10A
- IEC rated impulse withstand voltage Uimp: 6kV
- IEC rated insulation voltage Ui: 690V
- UL/CSA and IEC/EN 60947-5-1 designation: A600 Q600
- IEC degree of protection: IP54
- IP65 for body housing.

### Certifications and compliance

General characteristics

The KXB contact blocks can be used with the K series of limit switches. Combinations of 2 contacts with slow-break or snap action and 3 slow-break contacts, for KB and KM types only, are available. The NC contacts have direct opening operation, a specific safety principle. The particular four-point contacts warrant high conductivity in any sort of application. The removal of the contacts from the limit switch body provides remarkable wiring ease and reduces installation time as well. The K... bodies, complete with auxiliary contacts, can be used as spare parts for the K series limit switch or coupled with the K... operating heads, to obtain complete limit switches in the required configurations. The body cover is hinged at the bottom and removable to have the best access. Each body includes the innovative locking bayonet mechanism of the operating head. Plastic and metal types are available.

Operational characteristics

- Mechanical life: >10 million cycles
- IEC conventional thermal current Ith: 10 A
- UL/CSA and IEC/EN 60947-5-1 designation:
  - A600 Q300 for KX CB-KX CC types
  - A300 Q300 for KX CM-KX KN types
- IEC rated insulation voltage Ui:
  - 690VAC for KX CB-KX CC types
  - 440VAC for KX CM-KX CN types
- IEC rated impulse withstand voltage Uimp:
  - 6kV for KX CB-KX CC types
  - 4kV for KX CM-KX CN types
- Class II insulation for KX CB-KX CC types
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10 A g/S/SC quick fuse
- Housing:
  - KX CB-KX CC types - Self-extinguishing double-insulation polymer thermoplastic
  - KX CN-KX KN types - Aluminium-zinc alloy
- IEC/EN60947-5-1, IEC/EN 60204-1, UL508,
- Comply with standards: EN50047, IEC/EN 60947-1,
- KX CM-KX KN types - Aluminium-zinc alloy
- UL recognized for USA and Canada (File E93601), as Auxiliary Devices for auxiliary contacts only; products having this type of marking are intended for use as components of complete workshop-assembled equipment. Comply with standards: EN50047, IEC/EN 60947-1, IEC/EN60947-5-1, IEC/EN 60204-1, UL508, CSA C22.2 n° 14.

Certifications and compliance

Certifications obtained GDST for all, UL Listed, for US and Canada (File E93601), as Auxiliary Devices for auxiliary contacts only; products having this type of marking are intended for use as components of complete workshop-assembled equipment. Comply with standards: EN50047, IEC/EN 60947-1, IEC/EN60947-5-1, IEC/EN 60204-1, UL508, CSA C22.2 n° 14.
Limit, micro and foot switches
Limit switches, K series
Accessories and spare parts for KB, KC, KM and KN type limit switches

### Operating heads

<table>
<thead>
<tr>
<th>Order code</th>
<th>Description</th>
<th>Qty per pkg</th>
<th>Wt [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>KX A A1</td>
<td>Top push rod plunger</td>
<td>5</td>
<td>0.013</td>
</tr>
<tr>
<td>KX A B1</td>
<td>Plastic top roller push plunger</td>
<td>5</td>
<td>0.020</td>
</tr>
<tr>
<td>KX A B2</td>
<td>Metal top roller push plunger</td>
<td>5</td>
<td>0.020</td>
</tr>
<tr>
<td>KX A C1</td>
<td>Plastic roller centre push lever</td>
<td>5</td>
<td>0.020</td>
</tr>
<tr>
<td>KX A C2</td>
<td>Metal roller centre push lever</td>
<td>5</td>
<td>0.020</td>
</tr>
<tr>
<td>KX A D1</td>
<td>Plastic roller side push lever</td>
<td>5</td>
<td>0.023</td>
</tr>
<tr>
<td>KX A D2</td>
<td>Metal roller side push lever</td>
<td>5</td>
<td>0.023</td>
</tr>
<tr>
<td>KX A E1</td>
<td>Plastic roller lever plunger</td>
<td>5</td>
<td>0.039</td>
</tr>
<tr>
<td>KX A E2</td>
<td>Metal roller lever plunger</td>
<td>5</td>
<td>0.048</td>
</tr>
<tr>
<td>KX A E3</td>
<td>Rubber Ø50x10mm roller lever plunger</td>
<td>5</td>
<td>0.055</td>
</tr>
<tr>
<td>KX A F1</td>
<td>Adjustable plastic roller lever Ø19x5mm</td>
<td>5</td>
<td>0.055</td>
</tr>
<tr>
<td>KX A F2</td>
<td>Adjustable metal roller lever Ø19x5mm</td>
<td>5</td>
<td>0.065</td>
</tr>
<tr>
<td>KX A F3</td>
<td>Adjustable rubber Ø50x10mm roller lever</td>
<td>5</td>
<td>0.065</td>
</tr>
<tr>
<td>KX A F4</td>
<td>Adjustable offset rubber Ø50x10mm roller lever</td>
<td>5</td>
<td>0.081</td>
</tr>
<tr>
<td>KX A H1</td>
<td>Ceramic rod lever</td>
<td>5</td>
<td>0.056</td>
</tr>
<tr>
<td>KX A L1</td>
<td>Adjustable plastic rod lever</td>
<td>5</td>
<td>0.043</td>
</tr>
<tr>
<td>KX A L2</td>
<td>Adjustable stainless steel rod lever</td>
<td>5</td>
<td>0.050</td>
</tr>
<tr>
<td>KX A M1</td>
<td>Flexible wobble stick</td>
<td>5</td>
<td>0.032</td>
</tr>
<tr>
<td>KX A M2</td>
<td>Semirigid wobble stick</td>
<td>5</td>
<td>0.025</td>
</tr>
</tbody>
</table>

### General characteristics
The KX A... operating heads can be used as spare parts for the K series limit switches or coupled with the KX C... bodies to obtain complete limit switches in the required configurations. The heads are made of metal and warrant sturdiness and operating reliability in all conditions. The shape of the coupling section with the body of the K series switches consents to orient the head in any 45° angle position while the initial level and rod position can be adjusted 360° at 15° angle positions. The head fixing to the body is achieved by the innovative locking bayonet mechanism so there is no need of tools. Tightening torque for eventual operating head actuator fixing is 0.8Nm/7lb.

### Cable glands and cable conduit

<table>
<thead>
<tr>
<th>Order code</th>
<th>Description</th>
<th>Qty per pkg</th>
<th>Wt [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>KX P01</td>
<td>M20 cable gland</td>
<td>5</td>
<td>0.009</td>
</tr>
<tr>
<td>KX P02</td>
<td>PG13.5 cable gland</td>
<td>5</td>
<td>0.009</td>
</tr>
<tr>
<td>KX P03</td>
<td>M20 rubber cable conduit</td>
<td>50</td>
<td>0.004</td>
</tr>
</tbody>
</table>

### General characteristics
The cable glands are in plastic with either M20 or PG13.5 thread and provide to keep the cable in place and maintain the proper IP protection of the limit switch after installation.

#### Operational characteristics for cable gland
- Material: Self-extinguishing polyamide
- Degree of protection: IP68
- Gland seal with cable diameter: 6-12mm/0.24-0.47”

#### Certifications and compliance
Certifications obtained: GOST.
Compliant with standards: EN 50262, UL508.
Limit switches, K series
Prewired metal

**Order code | Contacts | Cable length | Qty | Wt**
--- | --- | --- | --- | ---
**TOP PUSH ROD PLUNGER.**
KP A1 S11 | 1NO+1NC Snap action | 6m | 2 | 0.286 kg
KP A1 L11 | 1NO+1NC Slow break | 6m | 2 | 0.286 kg
**Prewired metal limit switches**
KP B2 S11 | 1NO+1NC Snap action | 6m | 2 | 0.302 kg
KP B2 L11 | 1NO+1NC Slow break | 6m | 2 | 0.302 kg
*TOP ROLLER PUSH PLUNGER.*
KP B1 S11 | 1NO+1NC Snap action | 6m | 2 | 0.290 kg
KP B1 L11 | 1NO+1NC Slow break | 6m | 2 | 0.290 kg
KP B2 L11 | 1NO+1NC Slow break | 6m | 2 | 0.290 kg
**KP B3 S11** | 1NO+1NC Snap action | 6m | 2 | 0.288 kg
KP B3 L11 | 1NO+1NC Slow break | 6m | 2 | 0.288 kg
KP B4 S11 | 1NO+1NC Snap action | 6m | 2 | 0.296 kg
KP B4 L11 | 1NO+1NC Slow break | 6m | 2 | 0.296 kg
**M12 HEAD TOP ROLLER PUSH PLUNGER.**
KP B5 S11 | 1NO+1NC Snap action | 6m | 2 | 0.308 kg
KP B5 L11 | 1NO+1NC Slow break | 6m | 2 | 0.308 kg
KP B6 S11 | 1NO+1NC Slow break | 6m | 2 | 0.310 kg
KP B6 L11 | 1NO+1NC Slow break | 6m | 2 | 0.310 kg
KP B7 S11 | 1NO+1NC Snap action | 6m | 2 | 0.310 kg
KP B7 L11 | 1NO+1NC Slow break | 6m | 2 | 0.310 kg
**KP B8 S11** | 1NO+1NC Slow break | 6m | 2 | 0.310 kg
KP B8 L11 | 1NO+1NC Slow break | 6m | 2 | 0.310 kg
**ROLLER LEVER PLUNGER.**
KP E1 S11 | 1NO+1NC Snap action | 6m | 2 | 0.336 kg
KP E1 L11 | 1NO+1NC Slow break | 6m | 2 | 0.336 kg
KP E2 S11 | 1NO+1NC Snap action | 6m | 2 | 0.336 kg
KP E2 L11 | 1NO+1NC Slow break | 6m | 2 | 0.336 kg
**ADJUSTABLE ROLLER LEVER.**
KP F1 S11 | 1NO+1NC Snap action | 6m | 2 | 0.344 kg
KP F1 L11 | 1NO+1NC Slow break | 6m | 2 | 0.344 kg
**ADJUSTABLE ROD LEVER.**
KP L2 S11 | 1NO+1NC Snap action | 6m | 2 | 0.342 kg
KP L2 L11 | 1NO+1NC Slow break | 6m | 2 | 0.342 kg
**OMNIDIRECTIONAL WOBBLE STICK.**
KP M2 S11 | 1NO+1NC Snap action | 6m | 2 | 0.298 kg

- Direct opening operation safety function according to IEC/EN 60947-5-1.
- For prewired switches with 1m long wire only, add suffix 010 at the end of the order code. Example: KP A1 S11 010 for prewired switch, top push metal rod plunger with 1NO+1NC snap action contacts and 1m long wire.
- M12 head fixing.
- Roller operation perpendicular to switch body.

**Operational characteristics**
- Maximum operating rate: 3600 cycles/h
- Mechanical life: >10 million cycles
- IEC conventional thermal current Ith: 5A
- UL/CSA and IEC/EN 60947-5-1 designation B300 R300
- IEC rated insulation voltage Ue: 400VAC
- IEC rated withstand voltage Uimp: 4kV
- Class I insulation
- Contact resistance: <25mΩ
- 2 metre long cable (5 cores, each 0.75mm2/18 AWG)
- Body housing: aluminium - zinc alloy
- Operating force/torque:
  - KP A types: 15N/3.4lb
  - KP B types: 10N/2.2lb
  - KP E, KP F and KP L types: 0.08Nm/0.7lbin
  - KP M types: 0.1Nm/0.9lbin
- Tightening torque for switch fixing: 2.5Nm/22.1lbin
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40 ... +70°C
  - Suitable for ambient pollution degree 3
  - IEC degree of protection: IP67 for body housing.

**Certifications and compliance**
Certifications obtained: GOST, UL Listed, for USA and Canada (File E93601), as Auxiliary Devices - Limit switches.
Compliant with standards: IEC/EN 60947-5-1, IEC/EN 60947-6-1, UL508, CSA C22.2 n° 14.
Top push rod plunger

<table>
<thead>
<tr>
<th>Order code</th>
<th>Contacts</th>
<th>Plunger material</th>
<th>Qty per pkg</th>
<th>Wt [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without reset button.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T51 01 10</td>
<td>1NO+1NC</td>
<td>Steel</td>
<td>1</td>
<td>0.120</td>
</tr>
<tr>
<td>T51 01 10</td>
<td>1NO+1NC</td>
<td>Steel</td>
<td>1</td>
<td>0.120</td>
</tr>
<tr>
<td>With reset button on front.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T52 01 10</td>
<td>1NO+1NC</td>
<td>Steel</td>
<td>1</td>
<td>0.130</td>
</tr>
<tr>
<td>T52 01 10</td>
<td>1NO+1NC</td>
<td>Steel</td>
<td>1</td>
<td>0.130</td>
</tr>
</tbody>
</table>

General characteristics

The T5-TL series limit switches are designed and manufactured according to European standards EN 50041 for dimensions. The insulated housing of the limit switch is made of self-extinguishing thermoplastic giving excellent mechanical stability and is suitable, as a result, for assembly on machinery or installations in the general-purpose industrial field as well as saline environments (for example close by the sea). The housing sturdiness consents to the mounting of limit switches in heavy duty applications. The double-insulated housing of the limit switch warrant and protects internal circuits against shocks or impacts and industrial environments, against accidental ingress of tools and accidental contact.

The TS-TL series limit switches are designed and manufactured to comply with the following standards:

- IEC/EN 60947-1
- IEC/EN 60947-5-1
- IEC/EN 60204-1
- EN 50041
- UL508, CSA C22.2 n° 14.

Certifications and compliance

Certifications obtained: cULus, GOST.


Roller lever

<table>
<thead>
<tr>
<th>Order code</th>
<th>Contacts</th>
<th>Roller material</th>
<th>Qty per pkg</th>
<th>Wt [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without reset button.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T51 05 20 A</td>
<td>1NO+1NC</td>
<td>Plastic Ø20x5</td>
<td>1</td>
<td>0.120</td>
</tr>
<tr>
<td>T51 05 21 A</td>
<td>1NO+1NC</td>
<td>Metal Ø20x5</td>
<td>1</td>
<td>0.125</td>
</tr>
<tr>
<td>T51 05 24 A</td>
<td>1NO+1NC</td>
<td>Rubber Ø50x10</td>
<td>1</td>
<td>0.135</td>
</tr>
<tr>
<td>T51 05 20 A</td>
<td>1NO+1NC</td>
<td>Plastic Ø20x5</td>
<td>1</td>
<td>0.120</td>
</tr>
<tr>
<td>T51 05 21 A</td>
<td>1NO+1NC</td>
<td>Metal Ø20x5</td>
<td>1</td>
<td>0.125</td>
</tr>
<tr>
<td>T51 05 24 A</td>
<td>1NO+1NC</td>
<td>Rubber Ø50x10</td>
<td>1</td>
<td>0.135</td>
</tr>
<tr>
<td>With reset button.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T52 05 20 A</td>
<td>1NO+1NC</td>
<td>Plastic Ø20x5</td>
<td>1</td>
<td>0.130</td>
</tr>
<tr>
<td>T52 05 21 A</td>
<td>1NO+1NC</td>
<td>Metal Ø20x5</td>
<td>1</td>
<td>0.135</td>
</tr>
<tr>
<td>T52 05 24 A</td>
<td>1NO+1NC</td>
<td>Rubber Ø50x10</td>
<td>1</td>
<td>0.145</td>
</tr>
</tbody>
</table>

Certifications obtained: cULus, GOST.

General characteristics

The TS-TL series limit switches are designed and manufactured according to European standards EN 50041 for dimensions.

The insulated housing of the limit switch is made of self-extinguishing thermoplastic giving excellent mechanical stability and is suitable, as a result, for assembly on machinery or installations in the general-purpose industrial field as well as saline environments (for example close by the sea).

The housing sturdiness consents to the mounting of limit switches in heavy duty applications.

The double-insulated housing of the limit switch warrants and protects internal circuits against shocks or impacts and industrial environments, against accidental ingress of tools and accidental contact.

The contacts are dimensioned to ensure self cleaning of the silver-alloy contact surfaces. Contacts (NC) of the TL series have direct opening operation to prevent sticking or welding.

Operational characteristics

- Maximum operating rate: 1200 cycles/h
- Switching speed: 0.5-1.5m/s
- Mechanical life: >10 million cycles
- IEC utilisation category:
  - DC13 duty: 1.5A 24V
  - AC15 duty: 6A 250V
- IEC conventional thermal current Ith: 6A
- IEC rated insulation voltage Ui: 250VAC
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A gG/SC quick fuse
- Operating torque: 1Ncm/1.42ozin (TS1 09... and TL1 09...)
- Operating force: 8N/1.8lb (TL2 10...)
- TL2 10... has axial rotation in any of 4 positions (90°)
- TL2 10... has vertical or sideways key withdrawal
- Housing cable entry: PG13.5
- Cable connection: Self-releasing screw terminal
- Extra keys.
  - A 20746 Straight key
  - P 32753 Angled key
  - A 20748 Toggle key

Certifications and compliance

Certifications obtained: GOST; UL Listed, for USA and Canada (File E93601) as Auxiliary Devices - Limit switches.


<table>
<thead>
<tr>
<th>Code</th>
<th>Type</th>
<th>Qty per pkg</th>
<th>Wt</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS1 09 92</td>
<td>1NO+1NC Snap action</td>
<td>1</td>
<td>0.115</td>
</tr>
<tr>
<td>TL1 09 92</td>
<td>1NO+1NC Slow break</td>
<td>1</td>
<td>0.115</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Qty per pkg</th>
<th>Wt</th>
</tr>
</thead>
<tbody>
<tr>
<td>A 20746</td>
<td>Straight key</td>
<td>10</td>
<td>0.013</td>
</tr>
<tr>
<td>A 20747</td>
<td>Angled key</td>
<td>10</td>
<td>0.013</td>
</tr>
<tr>
<td>P 32753</td>
<td>Angled “T” key</td>
<td>10</td>
<td>0.008</td>
</tr>
<tr>
<td>P 32752</td>
<td>Straight “T” key</td>
<td>10</td>
<td>0.008</td>
</tr>
<tr>
<td>A 20748</td>
<td>Toggle key</td>
<td>2</td>
<td>0.085</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Code</th>
<th>Type</th>
<th>Qty per pkg</th>
<th>Wt</th>
</tr>
</thead>
<tbody>
<tr>
<td>TL2 10 10</td>
<td>1NO+1NC</td>
<td>1</td>
<td>0.120</td>
</tr>
<tr>
<td>TL2 10 11</td>
<td>Angled</td>
<td>1</td>
<td>0.120</td>
</tr>
<tr>
<td>TL2 10 12</td>
<td>Angled “T”</td>
<td>1</td>
<td>0.120</td>
</tr>
<tr>
<td>TL2 10 13</td>
<td>Straight “T”</td>
<td>1</td>
<td>0.120</td>
</tr>
</tbody>
</table>

The key is standard supplied.

The TS1... - TL1... order codes are not included in this list. For further assistance, consult Customer Service for information; see contact details on inside front cover.
### General characteristics

The PLN types are for general purpose use. The extensive range of models with numerous of actuators and multiple contact configurations is the optimal solution to the diverse installation requirements. Overall simple design, oversized contacts and choice materials ensure durable and safe operation. The metal alloy housing and resistant thermoplastic actuators warrant reliable heavy-duty features for any sort of operating conditions.

The PLN series limit switches are available with IP40 or IP65 degree of protection; this characteristic is ensured by the use of appropriate sealing gasket. The PLN series version is easily identified by the “W” suffix of its order code and can be used in adverse conditions.

### Operational characteristics

- **Maximum operating rate**: 3600 cycles/h
- **Mechanical life**: >10 million cycles
- **IEC utilization category**:
  - DC13 duty: 10A 24V
  - AC15 duty: 5A 250V, 3A 400V
  - AC15 duty: 5A 250V, 3A 400V
  - IEC conventional thermal current Ith: 10A
  - IEC rated insulation voltage Ui: 400VAC
  - Contact resistance: <10mΩ
- **Short-circuit backup protection**: 10A g6/S/SC quick fuse
- **Housing cable entry**: PG11 (PLN...W types only, complete with cable gland)
- **Cable connection**: screw terminal with clamp suitable for cables up to 2.5mm² / AWG 14
- **Tightening torque for switch fixing**: 2.5Nm / 22.1lbin
- **Tightening torque for switch fixing**: 2.5Nm / 22.1lbin
- **Ambient conditions**:
  - Operating temperature: -25 to +70°C
  - Storage temperature: -40 to +70°C
  - Suitable for ambient pollution degree 3
  - IEC degree of protection: IP40 / IP65 (see table indications)

### Certifications and compliance

Certifications obtained: IMQ, GOST.
Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-5-1, EN 81-1.
**Latch and manual release**

<table>
<thead>
<tr>
<th>Order code</th>
<th>Contacts</th>
<th>Degree of protection</th>
<th>Qty per pkg</th>
<th>Wt [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLN A1 RAG</td>
<td>1NC</td>
<td>IP40</td>
<td>1</td>
<td>0.220</td>
</tr>
<tr>
<td>PLN A1 RAG W</td>
<td>1NC</td>
<td>IP65</td>
<td>1</td>
<td>0.230</td>
</tr>
</tbody>
</table>

Direct opening operation; safety function according to IEC 60947-5-1.

**Manual reload and magnetic release**

<table>
<thead>
<tr>
<th>Order code</th>
<th>Contacts</th>
<th>Degree of protection</th>
<th>Qty per pkg</th>
<th>Wt [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>PL A1 AM</td>
<td>1NC</td>
<td>IP40</td>
<td>1</td>
<td>0.245</td>
</tr>
<tr>
<td>PL A1 AM W</td>
<td>1NC</td>
<td>IP65</td>
<td>1</td>
<td>0.250</td>
</tr>
</tbody>
</table>

Direct opening operation; safety function according to IEC 60947-5-1.

<table>
<thead>
<tr>
<th>Order code</th>
<th>Contacts</th>
<th>Degree of protection</th>
<th>Qty per pkg</th>
<th>Wt [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>PL A1 RM</td>
<td>1NC</td>
<td>IP40</td>
<td>1</td>
<td>0.250</td>
</tr>
<tr>
<td>PL A1 RM W</td>
<td>1NC</td>
<td>IP65</td>
<td>1</td>
<td>0.260</td>
</tr>
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</table>

Direct opening operation; safety function according to IEC 60947-5-1.

**Bi-directional**

<table>
<thead>
<tr>
<th>Order code</th>
<th>Contacts</th>
<th>Degree of protection</th>
<th>Qty per pkg</th>
<th>Wt [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLN 978</td>
<td>2NC</td>
<td>IP65</td>
<td>1</td>
<td>0.265</td>
</tr>
</tbody>
</table>

Direct opening operation; safety function according to IEC 60947-5-1.

**General characteristics**

The PLN limit switches were initially made specifically for hoisting or lifting duty then used in other diverse applications. The type with latch and manual release as well as the one with manual reload and magnetic release are designed so the switch remains opened after the switching of the NC contact. In the first instance, the contact closing is made by pushing the release button. In the second case, the reloading is obtained by pushing the shaft end or else pulling from the top for the IP65 types. The limit switches with dual operation can be replaced by two standard switches, for the stop control of moving mechanisms with two directions of running (e.g. automatic doors). It is equipped with two opposed operating mechanisms and one NC contact for each mechanism (i.e. 2NC).

The simple constructive design, oversize contacts and careful material combinations warrant safe and constant operation. The metal-alloy housing and the thermoplastic mechanism material of first-rate mechanical features assure reliability and durability with any type of operating condition.

**Operational characteristics**

- Maximum operating rate: 3600 cycles/h
- Mechanical life: >10 million cycles
- IEC utilisation category:
  - DC13 duty: 10A 24V
  - AC15 duty: 5A 250V, 3A 400V
- IEC conventional thermal current Ith: 10A
- IEC rated insulation voltage: 400VAC
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A gG/SC quick fuse
- Housing cable entry: PG11 (PL...W and PLN 978 types only, complete with cable gland)
- Cable connection: screw terminal with clamp suitable for cables up to 2.5mm²/AWG 14
- Tightening torque for switch fixing: 2.5Nm/22.1lbin
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40 ... +70°C
  - Suitable for ambient pollution degree 3
  - IEC degree of protection: IP40 / IP65 (see table indications).

**Certifications and compliance**

Certifications obtained: IMQ, GOST.
Compliant with standards: IEC/EN 60947-5-1, IED/EN 60204-1, EN 81-1.
General characteristics
The RS and T series limit switches are designed and manufactured according to European standards for dimensions and operating characteristics. The double-insulated housing of the limit switch is made of glass-reinforced self-extinguishing polyamide resin to protect internal circuits against shocks or impacts and industrial environments, against accidental ingress of tools and accidental contact. The contacts are dimensioned to ensure self cleaning of the silver-alloy contact surfaces.

Operational characteristics
- Maximum operating rate: 3600 cycles/h for RS...13 10; 1200 cycles/h for T...13 10
- Switching speed: 0.5-1.5 m/s
- Mechanical life: >10 million cycles
- IEC utilisation category
  - DC13 duty: 1.5A 24V
  - AC15 duty: 6A 250V
- IEC conventional thermal current Ith: 10A
- IEC rated insulation voltage Ui: 250VAC
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A gG/SC quick fuse
- Operating force: 25N/5.6lb
- Cable entry: PG11 for RS...13 10; PG13.5 for T...13 10
- Cable connection: Self-releasing screw terminal
- Tightening torque:
  - Switch fixing: 2.5Nm / 22.1 lbin
  - Contact terminals: 0.8Nm / 7 lbin
  - Body lid screw fixing: 0.8Nm / 7 lbin
- Conductor section: 1 or 2 2.5mm² / 16-14 AWG
- Ambient conditions:
  - Operating temperature: -25...+70°C
  - Storage temperature: -40...+70°C
  - Suitable for ambient pollution degree 3
  - IEC degree of protection: IP65 for RS...13 10; IP66 for T...13 10.

Certifications and compliance
### Rope lever for normal stopping

<table>
<thead>
<tr>
<th>Order code</th>
<th>Contacts</th>
<th>Degree of protection</th>
<th>Operating force</th>
<th>Qty per pkg</th>
<th>Wt [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLN U1 AT</td>
<td>1NO+1NC</td>
<td>IP40</td>
<td>10</td>
<td>1</td>
<td>0.240</td>
</tr>
<tr>
<td>PLN U1 AT W</td>
<td>1NO+1NC</td>
<td>IP65</td>
<td>10</td>
<td>1</td>
<td>0.240</td>
</tr>
<tr>
<td>PLN U1 AT25</td>
<td>1NO+1NC</td>
<td>IP40</td>
<td>25</td>
<td>1</td>
<td>0.240</td>
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<tr>
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<td>1NO+1NC</td>
<td>IP65</td>
<td>25</td>
<td>1</td>
<td>0.240</td>
</tr>
</tbody>
</table>

- Direct opening operation
- Safety function according to IEC/EN 60947-5-1.

### General characteristics

The PLN and P2L types are limit switches for general use. The simple constructive design, oversized contacts and careful material combinations warrant safe and constant operation. The metal-alloy housing and the thermoplastic mechanism material of first-rate mechanical features assure reliability and durability with any type of operating condition.

#### Operational characteristics

- Maximum operating rate: 3600 cycles/h
- Mechanical life: >10 million cycles
- IEC utilisation category
  - DC13 duty: 10A 24V
  - AC15 duty: 5A 250V; 3A 400V
- IEC conventional thermal current Ith: 10A for PLN types; 6A for P2L types
- IEC rated insulation voltage Ui: 400VAC
- Contact resistance: <10Ω
- Short-circuit backup protection: 10A gG/SC quick fuse
- Operating force: 25N/5.6lb
- Cable entry: PG11 (PLN...W and P2L types only, complete with cable gland)
- Cable connection: Self-releasing screw terminal suitable for cables up to 2.5mm²/AWG 14
- Tightening torque for switch fixing: 2.5Nm/2.21 lbin
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40...+70°C
  - Suitable for ambient pollution degree 3
  - IEC degree of protection: IP40 / IP65 (see table indications).

### Certifications and compliance

Certifications obtained: IMQ.
Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-5-1, EN 81-1.
**Rope-pull lever limit switches for emergency stopping, ISO 13850 compliant**

**Accessories and spare parts**

<table>
<thead>
<tr>
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<th>Description</th>
<th>Qty per pkg</th>
<th>Wt</th>
</tr>
</thead>
<tbody>
<tr>
<td>P33032</td>
<td>Rope terminal clamp, Ø5mm</td>
<td>10</td>
<td>0.023</td>
</tr>
<tr>
<td>P33033</td>
<td>Rope eye, Ø5mm</td>
<td>10</td>
<td>0.007</td>
</tr>
<tr>
<td>P33034</td>
<td>Turnbuckle M6x60</td>
<td>10</td>
<td>0.061</td>
</tr>
<tr>
<td>P33035</td>
<td>Eye bolt M8</td>
<td>10</td>
<td>0.030</td>
</tr>
<tr>
<td>P33036</td>
<td>Steel rope, Ø5mm</td>
<td>100(m)</td>
<td>4.900</td>
</tr>
</tbody>
</table>

The P33036 rope is sold in 100m/109.4yd roll, Ø5mm = Ø0.2in.

**Order code**

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Qty per pkg</th>
<th>Wt</th>
</tr>
</thead>
<tbody>
<tr>
<td>RS13 13 10</td>
<td>1NO + 1NC</td>
<td>1</td>
<td>0.092</td>
</tr>
<tr>
<td>TL13 13 10</td>
<td>1NO + 1NC</td>
<td>1</td>
<td>0.125</td>
</tr>
<tr>
<td>PLN13 13 11</td>
<td>1NO + 1NC</td>
<td>1</td>
<td>0.248</td>
</tr>
<tr>
<td>P2L13 13 11</td>
<td>1NO + 1NC</td>
<td>1</td>
<td>0.459</td>
</tr>
<tr>
<td>P2L13 13 12</td>
<td>1NO + 1NC</td>
<td>1</td>
<td>0.459</td>
</tr>
<tr>
<td>P2L15 13 11</td>
<td>2NO + 2NC</td>
<td>1</td>
<td>0.459</td>
</tr>
<tr>
<td>P2L15 13 12</td>
<td>2NO + 2NC</td>
<td>1</td>
<td>0.459</td>
</tr>
</tbody>
</table>

### Example of wiring diagram

**General characteristics**

The rope-operated switches for emergency stop are mainly suitable for emergency stop or alarm systems for machinery which occupies a large space. This emergency stop can be achieved from any point when the rope is manually pulled each time.

The choice of the body, between plastic and metal, can satisfy the most diversified requirements for sturdiness and size.

**Operational characteristics**

- Maximum operating rate: 1800 cycles/h
- Mechanical life: 100,000 cycles
- IEC utilization category
  - DC13 duty: 1.5A 24V (10A 24V only for PLN-P2L)
  - AC15 duty: 6A 250V (3A 400V only for PLN-P2L)
- IEC conventional thermal current Ith:
  - 10A for RS, TL and PLN; 6A for P2L
- IEC rated insulation voltage Ui:
  - 250VAC (400V for PLN-P2L)
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A gG/SC quick fuse
- Cable entry: PG11 for RS, PLN and P2L types only (PLN and P2L complete with cable gland); PG13.5 for TL13 only
- Cable connection: Self-releasing screw terminal
- Tightening torque:
  - Switch fixing: 2.5Nm / 22.1lbin
  - Contact terminals: 0.8Nm / 7lbin
- Body lid screw fixing: 0.8Nm / 7lbin
- Conductor section: 1 or 2 2.5mm² max / 16-14 AWG
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40...+70°C
- Suitable for ambient pollution degree 3
- IEC degree of protection: IP65 (T series: IP66)

**Certification and compliance**

Certifications obtained: GOST; UL Listed, for USA and Canada (File E93601), as Auxiliary Devices - Limit switches for RS13 and TL13 types only. Compliant with standards: IEC/EN 60947-1, IEC/EN 60947-5-1, IEC/EN 60204-1, ISO 13850; also UL508, CSA-C22.2 n° 14 for RS and TL types.
Limit, micro and foot switches

Plastic micro switches, K series

Accessories

### Micro switches

<table>
<thead>
<tr>
<th>Order code</th>
<th>Contacts</th>
<th>Terminal</th>
<th>Qty per pkg</th>
<th>Wt</th>
</tr>
</thead>
<tbody>
<tr>
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<td>1NO/NC</td>
<td>Solder</td>
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<td>0.031</td>
</tr>
<tr>
<td>KS A1 V</td>
<td>1NO/NC</td>
<td>Screw</td>
<td>10</td>
<td>0.031</td>
</tr>
<tr>
<td>KS A1 F</td>
<td>1NO/NC</td>
<td>Faston</td>
<td>10</td>
<td>0.032</td>
</tr>
<tr>
<td>KS A2 S</td>
<td>1NO/NC</td>
<td>Solder</td>
<td>10</td>
<td>0.033</td>
</tr>
<tr>
<td>KS A2 V</td>
<td>1NO/NC</td>
<td>Screw</td>
<td>10</td>
<td>0.033</td>
</tr>
<tr>
<td>KS A2 F</td>
<td>1NO/NC</td>
<td>Faston</td>
<td>10</td>
<td>0.034</td>
</tr>
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<td>KS A3 S</td>
<td>1NO/NC</td>
<td>Solder</td>
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<td>0.033</td>
</tr>
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<td>KS A3 V</td>
<td>1NO/NC</td>
<td>Screw</td>
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<td>KS A3 F</td>
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<td>KS A9 V</td>
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<td>Screw</td>
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<td>0.034</td>
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<td>Screw</td>
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<td>Faston</td>
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<td>KS B5 V</td>
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</tr>
<tr>
<td>KS B9 V</td>
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<td>Screw</td>
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<td>0.039</td>
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<td>Screw</td>
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<td>Faston</td>
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<td>Screw</td>
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<td>Faston</td>
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<td>0.037</td>
</tr>
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<td>Solder</td>
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<td>0.037</td>
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<tr>
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<td>Screw</td>
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<tr>
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<td>1NO/NC</td>
<td>Screw</td>
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<td>0.036</td>
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<td>Screw</td>
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<td>0.037</td>
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<tr>
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<td>1NO/NC</td>
<td>Faston</td>
<td>10</td>
<td>0.038</td>
</tr>
<tr>
<td>KS C3 S</td>
<td>1NO/NC</td>
<td>Solder</td>
<td>10</td>
<td>0.038</td>
</tr>
<tr>
<td>KS C3 V</td>
<td>1NO/NC</td>
<td>Screw</td>
<td>10</td>
<td>0.038</td>
</tr>
<tr>
<td>KS C3 F</td>
<td>1NO/NC</td>
<td>Faston</td>
<td>10</td>
<td>0.038</td>
</tr>
<tr>
<td>KS C4 S</td>
<td>1NO/NC</td>
<td>Solder</td>
<td>10</td>
<td>0.039</td>
</tr>
<tr>
<td>KS C4 V</td>
<td>1NO/NC</td>
<td>Screw</td>
<td>10</td>
<td>0.039</td>
</tr>
<tr>
<td>KS C4 F</td>
<td>1NO/NC</td>
<td>Faston</td>
<td>10</td>
<td>0.039</td>
</tr>
<tr>
<td>KS C5 S</td>
<td>1NO/NC</td>
<td>Solder</td>
<td>10</td>
<td>0.039</td>
</tr>
<tr>
<td>KS C5 V</td>
<td>1NO/NC</td>
<td>Screw</td>
<td>10</td>
<td>0.039</td>
</tr>
<tr>
<td>KS C5 F</td>
<td>1NO/NC</td>
<td>Faston</td>
<td>10</td>
<td>0.039</td>
</tr>
</tbody>
</table>

**Operational characteristics**

- Maximum operating rate: 240 cycles/min
- Switching time: 0.01-1ms
- Operating speed: 0.01mm-1m per second
- Electrical life: 500,000 cycles
- Mechanical life: 20 million cycles
- IEC conventional thermal current Ith: 15A
- UL/CSA and IEC/EN 60947-5-1 designation: A600 P300
- IEC rating: AC15 240VAC 3A
- Rated insulation voltage Ui: 250VAC
- Contact resistance: <15mΩ
- Body housing: polymer thermoplastic
- Operating force:
  - KS A1-KS A4 and KS B types: 2.5N/9oz
  - KS A9 and KS C3 types: 1.5N/5.4oz
  - KS C1 types: 1N/3.6oz
  - KS C2 and KS L2: 1.5N/4.7oz
  - KS C9 types: 1.7N/6.1oz
  - KS L1 types: 6.4N/23oz
  - KS L3 types: 0.1N/0.36oz
- Tightening torques:
  - For M12 head fixing: 4.9-6.9Nm/3.6-5.1lbft
  - For side screws: 0.6-1Nm/0.44-0.74lbft
  - For terminal screws: 0.7-1Nm/0.52-0.74lbft
- Ambient conditions:
  - Operating temperature: -25...+70°C
  - Storage temperature: -40...+70°C
  - IEC degree of protection: IP00 or IP20 with terminal shroud.

**Certifications and compliance**

Certifications obtained: GOST; UL Recognized for USA and Canada (File E172189) as Industrial Control Switches - Component; products having this type of marking are intended for use as components of complete workshop - assembled equipment. Compliance with standards: IEC/EN 60947-1, IEC/EN 60947-2, IEC/EN 60947-6-1, UL508, CSA C22.2 n° 14.
**Foot switches**

<table>
<thead>
<tr>
<th>Order code</th>
<th>Plastic body</th>
<th>Metal body</th>
<th>Model</th>
<th>Contacts</th>
<th>Qty per pkg</th>
<th>Wt [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>KG1 00 S11</td>
<td>KR1 00 S11</td>
<td>Open</td>
<td>1NO+1NC</td>
<td>Snap action</td>
<td>1</td>
<td>E</td>
</tr>
<tr>
<td>KG1 00 L11</td>
<td>KR1 00 L11</td>
<td>Open</td>
<td>1NO+1NC</td>
<td>Slow break</td>
<td>1</td>
<td>E</td>
</tr>
<tr>
<td>KG2 00 S11</td>
<td>KR0 00 S11</td>
<td>With cover</td>
<td>1NO+1NC</td>
<td>Snap action</td>
<td>1</td>
<td>E</td>
</tr>
<tr>
<td>KG2 00 L11</td>
<td>KR0 00 L11</td>
<td>With cover</td>
<td>1NO+1NC</td>
<td>Slow break</td>
<td>1</td>
<td>E</td>
</tr>
</tbody>
</table>

**Operational characteristics**
- Mechanical life: >10 million cycles
- Conventional thermal current lift: 10A
- Designation to IEC/EN 60947-5-1:
  - A600 Q600 for KG types
  - A300 Q300 for KR types
- Tightening torque for contacts: 1Nm
- Rated insulation voltage Ui:
  - 690VAC for KG types
  - 440VAC for KR types
- Rated impulse withstand voltage Uimp:
  - 4kV for KR types
  - 6kV for KG types
  - 4kV for KR types
- Class II insulation (KG types only)
- Contact resistance: <10mΩ
- Short-circuit backup protection: 10A g6 fuse
- Cable connection: self-releasing screw terminal
  - IEC degree of protection:
    - IP20 for terminals
    - IP54 for body housing
    - IP65 available on request (add the letter S at the end of the order code. E.g. KG1 00 S11 S)
- Housing:
  - KG types - Self-extinguishing double-insulation polymer thermoplastic
  - KR types - Aluminium-zinc alloy
- Cable entry: M20 standard supplied, PG13.5 available (see the side note for details)
- Ambient conditions:
  - Operating temperature: -25 ... +70°C
  - Storage temperature: -40 ... +70°C
- Certifications and compliance
  - GOST certified.
  - Compliant with standards: IEC/EN 60947-1, IEC/EN 60204-1, EN 60447.

**Cable glands and cable conduit**

<table>
<thead>
<tr>
<th>Order code</th>
<th>Description</th>
<th>Qty per pkg</th>
<th>Wt [kg]</th>
</tr>
</thead>
<tbody>
<tr>
<td>KX P01</td>
<td>M20 cable gland</td>
<td>50</td>
<td>0.009</td>
</tr>
<tr>
<td>KX P02</td>
<td>PG13.5 cable gland</td>
<td>50</td>
<td>0.009</td>
</tr>
<tr>
<td>KX P03</td>
<td>M20 rubber cable conduit</td>
<td>50</td>
<td>0.004</td>
</tr>
</tbody>
</table>
PREWIRED METAL LIMIT SWITCHES, K SERIES

PLASTIC LIMIT SWITCHES, T SERIES

Limit switches without reset button

Limit switches with reset button
METAL LIMIT SWITCHES, PL SERIES

PLN...A

PLN...AW

PLN...R

PLN...RW

PLN...H

PLN...HW

PLN...HSB

PLN...HSBW

PLN A1 RAG

PLN A1 RAG W

PLN A1 AM

PL A1 AM W

PL A1 RM

PL A1 RMW

PLN 978
Limit, micro and foot switches
Dimensions [mm (in)]

ROPE LEVER
Limit switches for normal stopping
RS1... - RS3...  
ROPE LEVER

TS1... - TL1...  

PLN...AT

PLN...ATW

ROPE-PULL SAFETY LIMIT SWITCHES, ISO 13850 COMPLIANT
Safety switches
RST3 13 10  

TL13 13 10  

PLN13 13 11  

P2L... - P2L...  

P2L...
Limit, micro and foot switches
Dimensions [mm (in)]

MICRO SWITCHES, K SERIES

KS A1...

KS A2...

KS A3...

KS A4...

KS A9...

KS B1...

KS B2...

KS C1...

KS C2...

KS C3...

KS C4...

KS L1...

KS L2...

KS L3...

KSS C01 terminal shroud

KSS C82 terminal shroud with conduit
FOOT SWITCHES, K SERIES

**KG1**

- Dimensions: 264 (10.40”)
- Dimensions: 86 (3.38”)
- Dimensions: 34 (1.34”)

**KG2**

- Dimensions: 386.6 (11.28”)
- Dimensions: 86 (3.38”)
- Dimensions: 34 (1.34”)

**KR1**

- Dimensions: 238.7 (9.40”)
- Dimensions: 57 (2.24”)
- Dimensions: 25 (0.98”)

**KR2**

- Dimensions: 250 (9.84”)
- Dimensions: 75 (2.95”)
- Dimensions: 140 (5.51”)

**KGD**

- Dimensions: 516.5 (20.33”)
- Dimensions: 301.2 (11.86”)
- Dimensions: 286.6 (11.28”)

- Dimensions: 166.5 (6.55”)
- Dimensions: 36.5 (1.44”)
- Dimensions: 88.5 (3.48”)

- Dimensions: 140 (5.51”)
- Dimensions: 25 (0.98”)
- Dimensions: 120 (4.72”)

- Dimensions: 301.2 (11.86”)

**Dimensions [mm (in)]**

- KG1: 264 (10.40”), 86 (3.38”), 34 (1.34”)
- KG2: 386.6 (11.28”), 86 (3.38”), 34 (1.34”)
- KR1: 238.7 (9.40”), 57 (2.24”), 25 (0.98”)
- KR2: 250 (9.84”), 75 (2.95”), 140 (5.51”)
- KGD: 516.5 (20.33”), 301.2 (11.86”), 286.6 (11.28”), 166.5 (6.55”), 36.5 (1.44”), 88.5 (3.48”)
- KR2: 140 (5.51”), 25 (0.98”), 120 (4.72”)
LIMIT SWITCHES, KB - KM - KC - KN TYPE

K...S11  Snap action  1NO + 1NC
K...L11  Slow break  1NO + 1NC
K...L02  Slow break  2NC
K...S02  Snap action  1NO + 1NC
K...D02  Slow break  2NC
K...L20  Slow break  2NO
K...A11  Slow break  1NO + 1NC
K...L03  Slow break  3NC
K...L12  Slow break  1NO + 2NC
K...L21  Slow break  2NO + 1NC

LIMIT SWITCHES, KP TYPE

KP...S11  Snap action  1NO + 1NC
KP...L11  Slow break  1NO + 1NC

LIMIT SWITCHES, T TYPE

TS...  Snap action  1NO + 1NC
TL...  Slow break  1NO + 1NC

LIMIT SWITCHES, PL TYPE

PLN A1...  1NO + 1NC
PLN A2...  2NO + 2NC
PLN 978  1NO + 2NC
PLN C1...  1NO + 1NC
PLN C2...  1NO + 1NC
PLN U1...  1NO + 1NC

LIMIT SWITCHES FOR NORMAL STOPPING

RS1...  Snap action  1NO + 1NC
RS2...  Slow break  1NO + 1NC
RS3...  Slow break  1NO + 1NC
PLN U1AT...  1NO + 1NC
PLN U1...  1NO + 1NC
P2L10...  2NO + 2NC

LIMIT SWITCHES FOR EMERGENCY STOPPING

RS13...  1NO + 1NC
TL13...  1NO + 1NC
PLN13...  1NO + 1NC
P2L13...  1NO + 1NC
P2L15...  1NO + 1NC
MICRO SWITCHES, KS TYPE

KS...  NC
NC
NO
COM