



**Position switch, Rounded plunger, Basic device, expandable, 2 NC, Cage Clamp, Yellow, Insulated material, -25 - +70 °C, EN 50047 Form B**



**Part no.** LS-02A  
**Catalog No.** 116702  
**Alternate Catalog No.** LS-02A  
**EL-Nummer (Norway)** 4315225

### Delivery program

|   |  |    |   |
|---|--|----|---|
| Basic function  |  |    | Position switches<br>Safety position switches   |
| Part group reference  |  |    | LS(M)-...   |
| Product range   |  |    | Rounded plunger   |
| Degree of Protection  |  |    | IP66, IP67  |
| Features  |  |    | Basic device, expandable  |
| Ambient temperature   |  | °C | -25 - +70   |
| Design  |  |    | EN 50047 Form B   |
| <b>Contacts</b>   |  |    |   |
| N/C = Normally closed   |  |    | 2 NC  |
| Notes   |  |    | = safety function, by positive opening to IEC/EN 60947-5-1  |
| Contact sequence  |  |    |   |
| Contact travel <input checked="" type="checkbox"/> = Contact closed <input type="checkbox"/> = Contact open |  |    | <br>0 2.0 6.1<br>11-12 NC<br>21-22 NC<br>4.0<br>Zw (11-12) = 3.3 mm<br>Zw (21-22) = 5.3 mm  |
| Positive opening (ZW)   |  |    | yes   |
| <b>Colour</b>   |  |    |   |
| Enclosure covers  |  |    | Yellow  |
| Enclosure covers  |  |    |   |
| Housing   |  |    | Insulated material  |
| Connection type   |  |    | Cage Clamp  |
| Notes   |  |    | Cage-Clamp is a registered trademark of Wago Kontakttechnik, 32432 Minden, Germany.<br>Accessories for the Cage-Clamp terminals from Wago: power comb, gray, Wago Article No. 264-402 |

### Technical data

|                      |  |                 |  |
|----------------------|--|-----------------|--|
| <b>General</b>       |  |                 |  |
| Standards            |  |                 | IEC/EN 60947   |
| Climatic proofing    |  |                 | Damp heat, constant, to IEC 60068-2-78; damp heat, cyclical, to IEC 60068-2-30 |
| Ambient temperature  |  | °C              | -25 - +70  |
| Mounting position    |  |                 | As required  |
| Degree of Protection |  |                 | IP66, IP67   |
| Terminal capacities  |  | mm <sup>2</sup> |  |
| Solid                |  | mm <sup>2</sup> | 1 x (0.5 - 2.5)  |

|  |                  |                   |  |
|--|------------------|-------------------|--|
| Flexible with ferrule                    |                  | mm <sup>2</sup>   | 1 x (0.5 - 1.5)  |
| Repetition accuracy                      |                  | mm                | 0.15   |
| <b>Contacts/switching capacity</b>       |                  |                   |  |
| Rated impulse withstand voltage          | U <sub>imp</sub> | V AC              | 4000   |
| Rated insulation voltage                 | U <sub>i</sub>   | V                 | 400  |
| Overvoltage category/pollution degree    |                  |                   | III/3  |
| Rated operational current                | I <sub>e</sub>   | A                 |  |
| <b>AC-15</b>                             |                  |                   |  |
| 24 V                                     | I <sub>e</sub>   | A                 | 6  |
| 220 V 230 V 240 V                        | I <sub>e</sub>   | A                 | 6  |
| 380 V 400 V 415 V                        | I <sub>e</sub>   | A                 | 4  |
| <b>DC-13</b>                             |                  |                   |  |
| 24 V                                     | I <sub>e</sub>   | A                 | 3  |
| 110 V                                    | I <sub>e</sub>   | A                 | 0.6  |
| 220 V                                    | I <sub>e</sub>   | A                 | 0.3  |
| Control circuit reliability              |                  |                   |  |
| at 24 V DC/5 mA                          | H <sub>F</sub>   | Fault probability | < 10 <sup>-7</sup> , < 1 fault in 10 <sup>7</sup> operations           |
| at 5 V DC/1 mA                           | H <sub>F</sub>   | Fault probability | < 5 x 10 <sup>-6</sup> , < 1 failure at 5 x 10 <sup>6</sup> operations |
| Supply frequency                         |                  | Hz                | max. 400   |
| Short-circuit rating to IEC/EN 60947-5-1 |                  |                   |  |
| max. fuse                                |                  | A gG/gL           | 6  |
| Rated conditional short-circuit current  |                  | kA                | 1  |

### Mechanical variables

|  |              |                   |        |
|--|--------------|-------------------|--------|
| Lifespan, mechanical                                       | Operations   | x 10 <sup>6</sup> | 8      |
| Contact temperature of roller head                         |              | °C                | ≤ 100  |
| Mechanical shock resistance (half-sinusoidal shock, 20 ms) |              |                   |        |
| Standard-action contact                                    |              | g                 | 25     |
| Operating frequency  | Operations/h |                   | ≤ 6000 |

### Actuation

|  |  |     |                                   |
|--|--|-----|-----------------------------------|
| <b>Mechanical</b>                          |  |     |                                   |
| Actuating force at beginning/end of stroke |  | N   | 1.0/8.0                           |
| Actuating torque of rotary drives          |  | Nm  | 0.2                               |
| Max. operating speed with DIN cam          |  | m/s | 1/0.5                             |
| <b>Notes</b>                               |  |     | for angle of actuation α = 0°/30° |

## Design verification as per IEC/EN 61439

|  |                   |    |  |
|--|-------------------|----|--|
| <b>Technical data for design verification</b>  |                   |    |  |
| Rated operational current for specified heat dissipation   | I <sub>n</sub>    | A  | 6  |
| Heat dissipation per pole, current-dependent   | P <sub>vid</sub>  | W  | 0.17   |
| Equipment heat dissipation, current-dependent  | P <sub>vid</sub>  | W  | 0  |
| Static heat dissipation, non-current-dependent   | P <sub>vs</sub>   | W  | 0  |
| Heat dissipation capacity  | P <sub>diss</sub> | W  | 0  |
| Operating ambient temperature min.   |                   | °C | -25  |
| Operating ambient temperature max.   |                   | °C | 70   |
| <b>IEC/EN 61439 design verification</b>  |                   |    |  |
| <b>10.2 Strength of materials and parts</b>  |                   |    |  |
| 10.2.2 Corrosion resistance  |                   |    | Meets the product standard's requirements.                         |
| 10.2.3.1 Verification of thermal stability of enclosures   |                   |    | Meets the product standard's requirements.                         |
| 10.2.3.2 Verification of resistance of insulating materials to normal heat   |                   |    | Meets the product standard's requirements.                         |
| 10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects |                   |    | Meets the product standard's requirements.                         |
| 10.2.4 Resistance to ultra-violet (UV) radiation   |                   |    | Meets the product standard's requirements.                         |
| 10.2.5 Lifting   |                   |    | Does not apply, since the entire switchgear needs to be evaluated. |
| 10.2.6 Mechanical impact   |                   |    | Does not apply, since the entire switchgear needs to be evaluated. |

|  |  |  |
|--|--|--|
| 10.2.7 Inscriptions                                      |  | Meets the product standard's requirements.   |
| 10.3 Degree of protection of ASSEMBLIES                  |  | Does not apply, since the entire switchgear needs to be evaluated.   |
| 10.4 Clearances and creepage distances                   |  | Meets the product standard's requirements.   |
| 10.5 Protection against electric shock                   |  | Does not apply, since the entire switchgear needs to be evaluated.   |
| 10.6 Incorporation of switching devices and components   |  | Does not apply, since the entire switchgear needs to be evaluated.   |
| 10.7 Internal electrical circuits and connections        |  | Is the panel builder's responsibility.   |
| 10.8 Connections for external conductors                 |  | Is the panel builder's responsibility.   |
| 10.9 Insulation properties                               |  |  |
| 10.9.2 Power-frequency electric strength                 |  | Is the panel builder's responsibility.   |
| 10.9.3 Impulse withstand voltage                         |  | Is the panel builder's responsibility.   |
| 10.9.4 Testing of enclosures made of insulating material |  | Is the panel builder's responsibility.   |
| 10.10 Temperature rise                                   |  | The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices. |
| 10.11 Short-circuit rating                               |  | Is the panel builder's responsibility. The specifications for the switchgear must be observed.                                   |
| 10.12 Electromagnetic compatibility                      |  | Is the panel builder's responsibility. The specifications for the switchgear must be observed.                                   |
| 10.13 Mechanical function                                |  | The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.                         |

## Technical data ETIM 7.0

Sensors (EG000026) / End switch (EC000030)

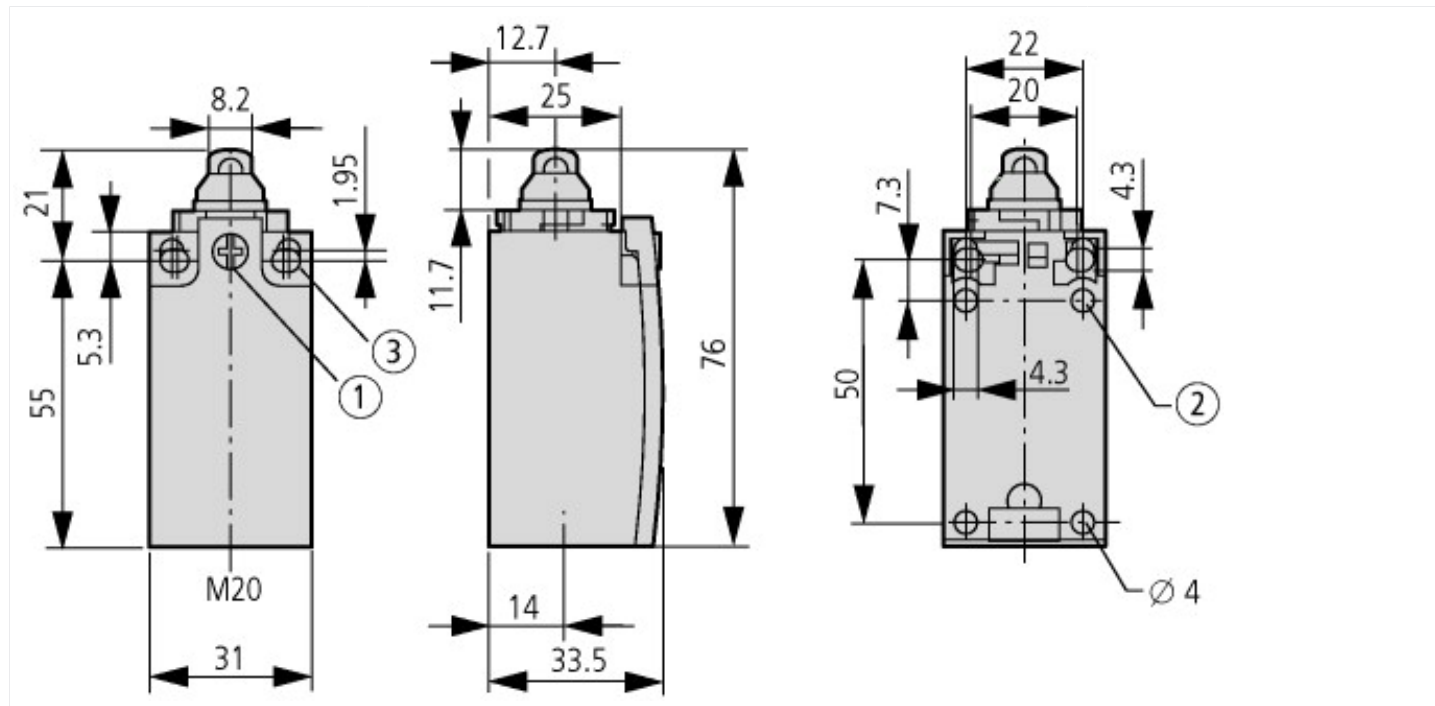
Electric engineering, automation, process control engineering / Binary sensor technology, safety-related sensor technology / Position switch / Position switch (Type 1)  
(ecl@ss10.0.1-27-27-06-01 [AGZ382015])

|  |    |                    |
|--|----|--------------------|
| Width sensor   | mm | 31                 |
| Diameter sensor  | mm | 0                  |
| Height of sensor                                       | mm | 61                 |
| Length of sensor                                       | mm | 33.5               |
| Rated operation current I <sub>e</sub> at AC-15, 24 V  | A  | 6                  |
| Rated operation current I <sub>e</sub> at AC-15, 125 V | A  | 6                  |
| Rated operation current I <sub>e</sub> at AC-15, 230 V | A  | 6                  |
| Rated operation current I <sub>e</sub> at DC-13, 24 V  | A  | 3                  |
| Rated operation current I <sub>e</sub> at DC-13, 125 V | A  | 0.8                |
| Rated operation current I <sub>e</sub> at DC-13, 230 V | A  | 0.3                |
| Switching function                                     |    | Slow-action switch |
| Switching function latching                            |    | No                 |
| Output electronic                                      |    | No                 |
| Forced opening   |    | Yes                |
| Number of safety auxiliary contacts                    |    | 2                  |
| Number of contacts as normally closed contact          |    | 2                  |
| Number of contacts as normally open contact            |    | 0                  |
| Number of contacts as change-over contact              |    | 0                  |
| Type of interface                                      |    | None               |
| Type of interface for safety communication             |    | None               |
| Construction type housing                              |    | Cuboid             |
| Material housing                                       |    | Plastic            |
| Coating housing  |    | Other              |
| Type of control element                                |    | Plunger            |
| Alignment of the control element                       |    | Other              |
| Type of electric connection                            |    | Other              |
| With status indication                                 |    | No                 |
| Suitable for safety functions                          |    | Yes                |
| Explosion safety category for gas                      |    | None               |
| Explosion safety category for dust                     |    | None               |
| Ambient temperature during operating                   | °C | 25 - 70            |
| Degree of protection (IP)                              |    | IP67               |
| Degree of protection (NEMA)                            |    | 4X                 |

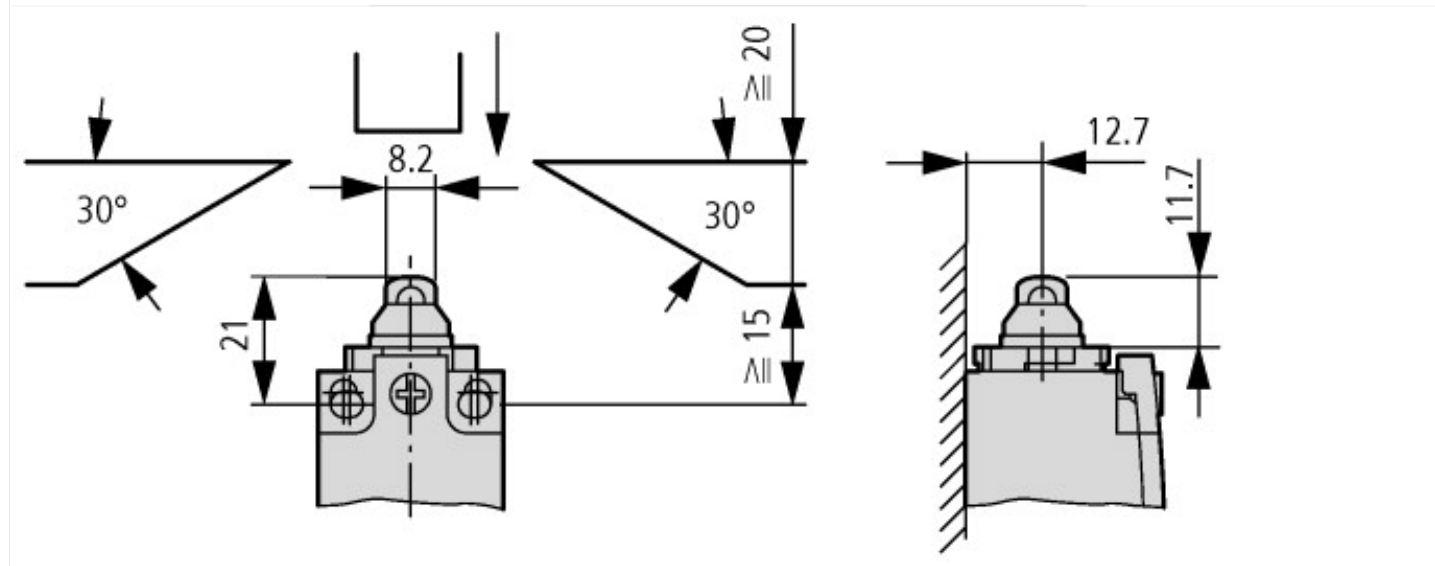
## Approvals

|                             |   |
|-----------------------------|---|
| Product Standards           | IEC/EN 60947-5; UL 508; CSA-C22.2 No. 14; CE marking        |
| UL File No.                 | E29184  |
| UL Category Control No.     | NKCR  |
| CSA File No.                | 12528   |
| CSA Class No.               | 3211-03   |
| North America Certification | UL listed, CSA certified                                    |
| Degree of Protection        | IEC: IP66, 67, UL/CSA Type 3R, 4X (indoor use only), 12, 13 |

## Dimensions



- ① Tightening torque of cover screws: 0.8 Nm  $\pm$ 0.2 Nm
  - ② only with LS (insulated version)
  - ③ Fixing screws 2 x M4  $\geq$  30
- $M_A = 1.5$  Nm



## Assets (links)

### Declaration of CE Conformity

00003068

### Instruction Leaflets

IL053001ZU2018\_06

## Additional product information (links)

IL053001ZU LS-Titan position switch: basic device

