



**Position switch, Rounded plunger, Basic device, expandable, 1 N/O, 1 NC, Cage Clamp, Yellow, Insulated material, -25 - +70 °C**



**Part no.** LS-11  
**Catalog No.** 266109  
**Alternate Catalog No.** LS-11  
**EL-Nummer (Norway)** 4356035

## 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                                                                                                                                                                             |
| <b>Contacts</b>                                  |  |    |                                                                                                                                                                                       |
| N/O = Normally open                              |  |    | 1 N/O                                                                                                                                                                                 |
| N/C = Normally closed                            |  |    | 1 NC                                                                                                                                                                                  |
| Notes                                            |  |    | = safety function, by positive opening to IEC/EN 60947-5-1                                                                                                                            |
| Contact sequence                                 |  |    |                                                                                                                                                                                       |
| Contact travel  = Contact closed  = Contact open |  |    |                                                                                                                                                                                       |
| 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            |

### Contacts/switching capacity

|                                          |                  |                   |                                                                        |
|------------------------------------------|------------------|-------------------|------------------------------------------------------------------------|
| 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                 |                                                                        |
| AC-15                                    |                  |                   |                                                                        |
| 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                                                                      |
| DC-13                                    |                  |                   |                                                                        |
| 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

|                                            |  |     |                                   |
|--------------------------------------------|--|-----|-----------------------------------|
| Mechanical                                 |  |     |                                   |
| 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                             |
| Notes                                      |  |     | for angle of actuation α = 0°/30° |

## Design verification as per IEC/EN 61439

|                                                                                                                        |                   |    |                                                                    |
|------------------------------------------------------------------------------------------------------------------------|-------------------|----|--------------------------------------------------------------------|
| Technical data for design verification                                                                                 |                   |    |                                                                    |
| 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                                                                 |
| IEC/EN 61439 design verification                                                                                       |                   |    |                                                                    |
| 10.2 Strength of materials and parts                                                                                   |                   |    |                                                                    |
| 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.                         |

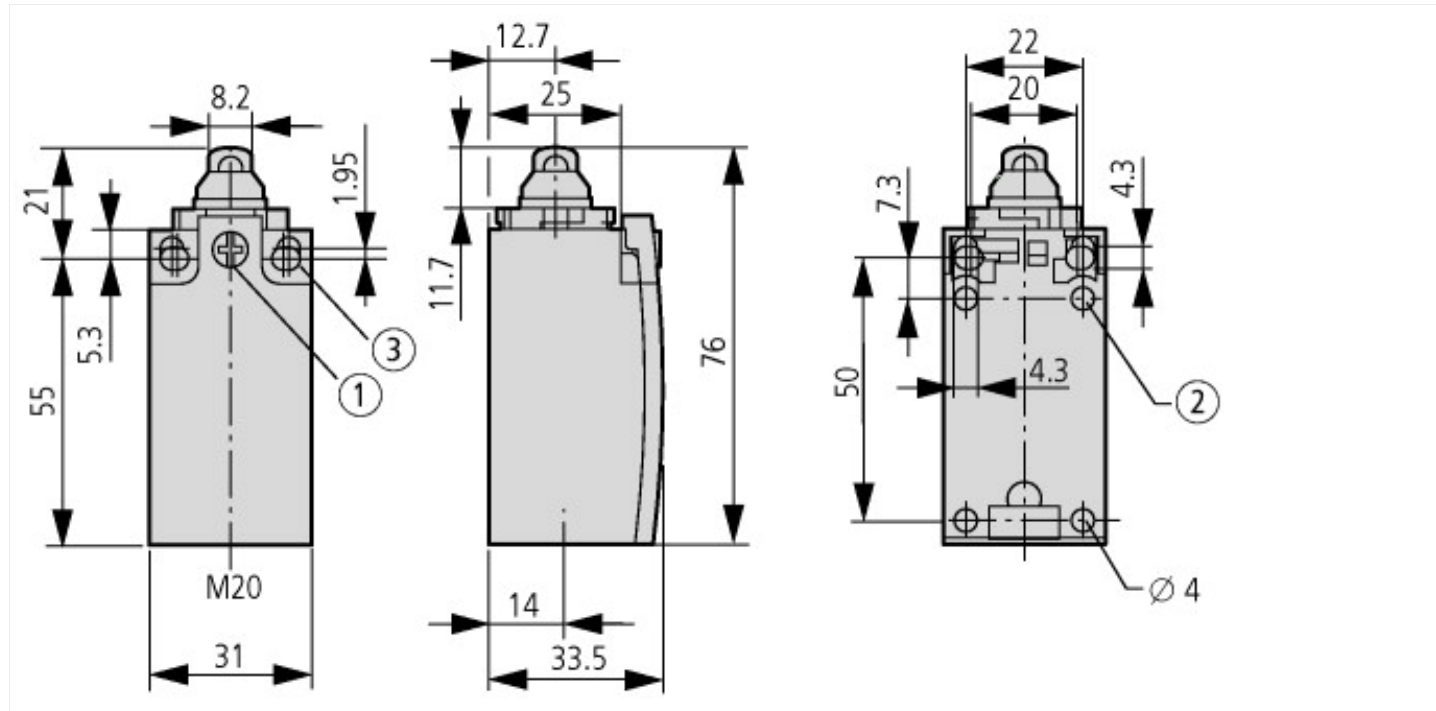
## Technical data ETIM 7.0

|                                                                                                                                                                                                                   |    |  |                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--|--------------------|
| Sensors (EG000026) / End switch (EC000030)                                                                                                                                                                        |    |  |                    |
| Electric engineering, automation, process control engineering / Binary sensor technology, safety-related sensor technology / Position switch / Position switch (Type 1)<br>(ecI@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                                                                                                                                                                               |    |  | 1                  |
| Number of contacts as normally closed contact                                                                                                                                                                     |    |  | 1                  |
| Number of contacts as normally open contact                                                                                                                                                                       |    |  | 1                  |
| 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                 |

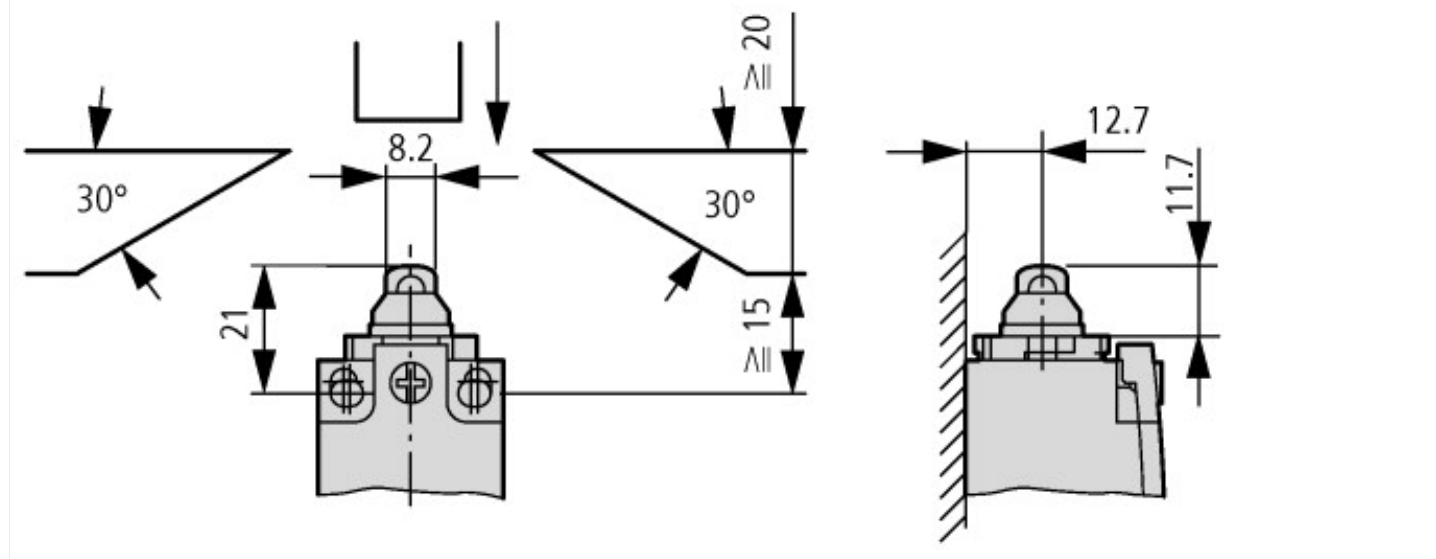
## Approvals

|                             |  |  |                                                             |
|-----------------------------|--|--|-------------------------------------------------------------|
| 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:  $0.8 \text{ Nm} \pm 0.2 \text{ Nm}$
  - ② only with LS (insulated version)
  - ③ Fixing screws  $2 \times \text{M4} \geq 30$
- $M_A = 1.5 \text{ Nm}$



### Additional product information (links)

**IL053001ZU LS-Titan position switch: basic device**

IL053001ZU LS-Titan position switch: basic device

[https://es-assets.eaton.com/DOCUMENTATION/AWA\\_INSTRUCTIONS/IL053001ZU2018\\_06.pdf](https://es-assets.eaton.com/DOCUMENTATION/AWA_INSTRUCTIONS/IL053001ZU2018_06.pdf)