# DATASHEET - LS-02-ZB



**Safety position switch, 2 N/C, insulated material, +actuator ZB, spring clamp connection**

| | |
|---|---|
| **Part no.** | **LS-02-ZB** |
| **Catalog No.** | **106817** |
| **Eaton Catalog No.** | **LS-02-ZB** |
| **EL-Nummer (Norway)** | **0004356194** |

## Delivery program

| | | | |
|---|---|---|---|
| Basic function | | | Position switches<br>Safety position switches |
| Part group reference | | | LS(4)…ZB |
| Product range | | | Safety position switches |
| Degree of Protection | | | IP66 |
| Features | | | Complete unit |
| Ambient temperature | | °C | -25 - +70 |
| Description | | | With the actuator inserted, the N/O contact is open and the NC contact is closed. |
| Approval | | | DGUV Test<br>ET 12009<br>Sicherheit geprüft<br>tested safety |
| **Contacts** | | | |
| N/C = Normally closed | | | 2 NC |
| Notes | | | = safety function, by positive opening to IEC/EN 60947-5-1 |
| Contact sequence | | | 11 21<br>12 22 |
| 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 |

**Notes** Switch must never be used as a mechanical stop!
Actuator can be repositioned for horizontal or vertical mounting.
The operating heads can be turned manually in 90° steps to suit the specified level of actuation.
With the actuator inserted, the N/O contact is open and the N/C contact is closed.
For degree of protection IP65, use V-M20 (206910) cable glands with connecting thread of max. 9 mm length.

## Technical data

### General

| | | | |
|---|---|---|---|
| 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 |
| Terminal capacities | | $mm^2$ | |
| Solid | | $mm^2$ | 1 x (0.5 - 1.5) |

| | | | |
|---|---|---|---|
| | | | 2 x (0.5 - 1.5) |
| Flexible with ferrule | | $mm^2$ | 1 x (0.5 - 1.5)<br>2 x (0.5 - 1.5) |
| Terminal screw | | | PH1 |
| Tightening torque for terminal screw | | Nm | 0.4 |

### Contacts/switching capacity

| | | | |
|---|---|---|---|
| Rated impulse withstand voltage | $U_{imp}$ | V AC | 4000 |
| Rated insulation voltage | $U_i$ | V | 400 |
| Overvoltage category/pollution degree | | | III/3 |
| Rated operational current | $I_e$ | A | |
| AC-15 | | | |
| 24 V | $I_e$ | A | 6 |
| 220 V 230 V 240 V | $I_e$ | A | 6 |
| 380 V 400 V 415 V | $I_e$ | A | 4 |
| DC-13 | | | |
| 24 V | $I_e$ | A | 3 |
| 110 V | $I_e$ | A | 0.6 |
| 220 V | $I_e$ | A | 0.3 |
| Supply frequency | | Hz | max. 400 |
| Short-circuit rating to IEC/EN 60947-5-1 | | | |
| max. fuse | | A gG/gL | 6 |
| Repetition accuracy | | mm | 0.15 |
| Rated conditional short-circuit current | | kA | 1 |

### Mechanical variables

| | | | |
|---|---|---|---|
| Lifespan, mechanical | Operations | $x\ 10^6$ | 1.5 |
| Mechanical shock resistance (half-sinusoidal shock, 20 ms) | | | |
| Standard-action contact | | g | 25 |
| Operating frequency | Operations/h | | ≦ 1800 |

### Actuation

| | | | |
|---|---|---|---|
| Mechanical | | | |
| Actuating force at beginning/end of stroke | | N | 10/5 (plug-in/pull-out) |

## Design verification as per IEC/EN 61439

| | | | |
|---|---|---|---|
| Technical data for design verification | | | |
| Rated operational current for specified heat dissipation | $I_n$ | A | 6 |
| Heat dissipation per pole, current-dependent | $P_{vid}$ | W | 0.17 |
| Equipment heat dissipation, current-dependent | $P_{vid}$ | W | 0 |
| Static heat dissipation, non-current-dependent | $P_{vs}$ | W | 0 |
| Heat dissipation capacity | $P_{diss}$ | 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

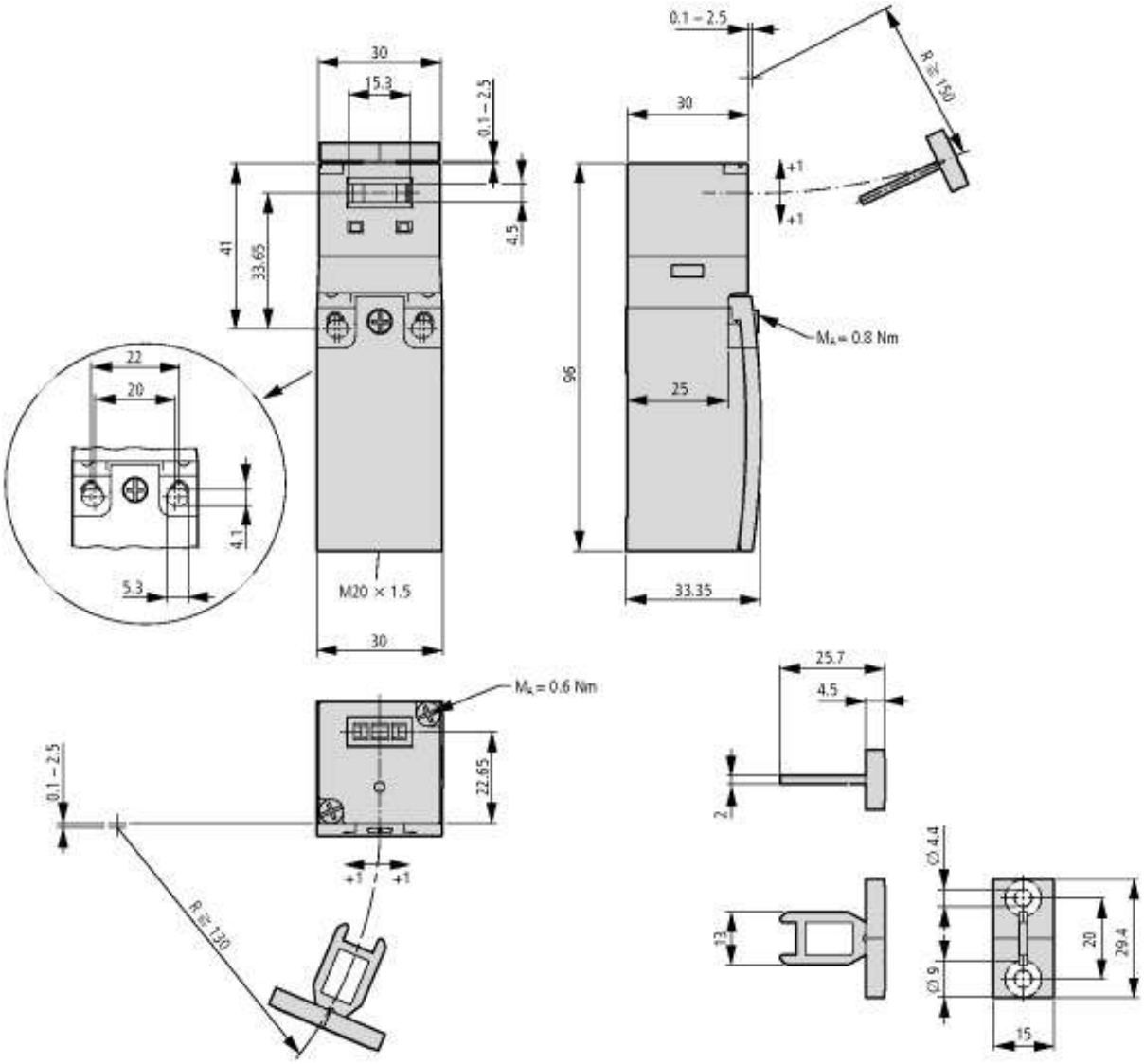
| Sensors (EG000026) / End switch (EC000030) | | |
|---|---|---|
| Electric engineering, automation, process control engineering / Binary sensor technology, safety-related sensor technology / Position switch / Position switch (Type 1) (ecl@ss10.0.1-27-27-06-01 [AGZ382015]) | | |
| Width sensor | mm | 30 |
| Diameter sensor | mm | 0 |
| Height of sensor | mm | 96 |
| Length of sensor | mm | 33.35 |
| Rated operation current Ie at AC-15, 24 V | A | 10 |
| Rated operation current Ie at AC-15, 125 V | A | 6 |
| Rated operation current Ie at AC-15, 230 V | A | 6 |
| Rated operation current Ie at DC-13, 24 V | A | 3 |
| Rated operation current Ie at DC-13, 125 V | A | 0.8 |
| Rated operation current Ie 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 | | 0 |
| 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 | | Other |
| Alignment of the control element | | Other |
| Type of electric connection | | Cable entry metrical |
| 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) | | IP65 |
| 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: IP65, UL/CSA Type 3R, 4X (indoor use only), 12, 13 |

## Dimensions




Switch must not be used as a mechanical stop
Terminal marking according to EN 50 013
Travel [mm]
= Contact closed
= Contact open
Zw = Positive opening sequence

## Additional product information (links)

| **IL05208003Z (AWA1310-2374) Safety position switch** | |
|---|---|
| IL05208003Z (AWA1310-2374) Safety position switch | ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL05208003Z2018_06.pdf |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