



## Position switch, 2N/O, rounded plunger

Part no. **LS-S20/F**  
 Article no. **106809**  
 Catalog No. **LS-S20-F**

### Delivery program

|   |  |    |                              |
|---|--|----|------------------------------|
| Basic function  |  |    | Position switches            |
| Part group reference  |  |    | LS(M)-...                    |
| Product range   |  |    | Rounded plunger              |
| Degree of Protection  |  |    | IP66, IP67                   |
| Features  |  |    | Basic device, not expandable |
| Ambient temperature   |  | °C | -25 - +70                    |
| <b>Contacts</b>   |  |    |                              |
| N/O = Normally open   |  |    | 2 N/O                        |
| Contact sequence  |  |    |                              |
| Contact travel <input checked="" type="checkbox"/> = Contact closed <input type="checkbox"/> = Contact open |  |    |                              |
| <b>Colour</b>   |  |    |                              |
| Enclosure covers  |  |    | Yellow                       |
| Enclosure covers  |  |    |                              |
| Housing   |  |    | Insulated material           |
| Connection type   |  |    | Screw terminal               |

### 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)  |

### 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 <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 | < 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  |
| Repetition accuracy                      |                | mm                | 0.15   |
| 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                             |
| <b>Notes</b>                               |  |     | 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 6.0

Sensors (EG000026) / End switch (EC000030)

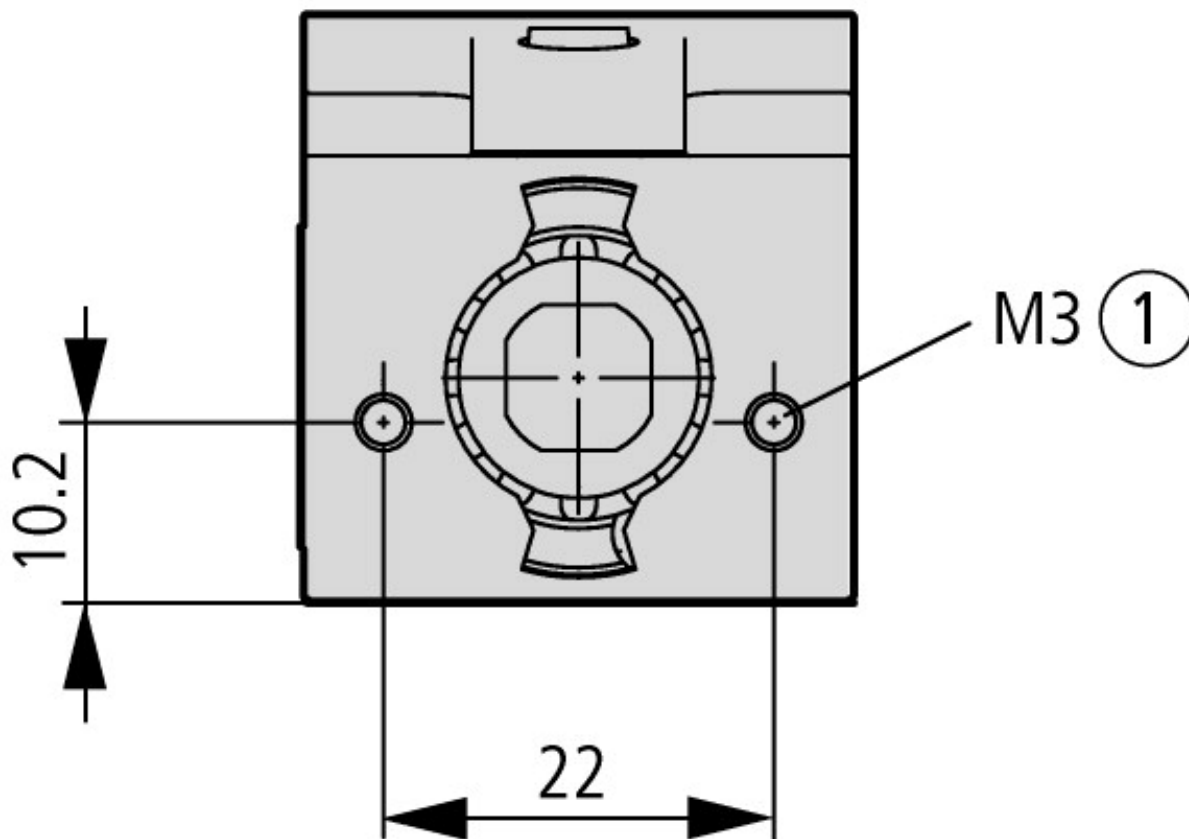
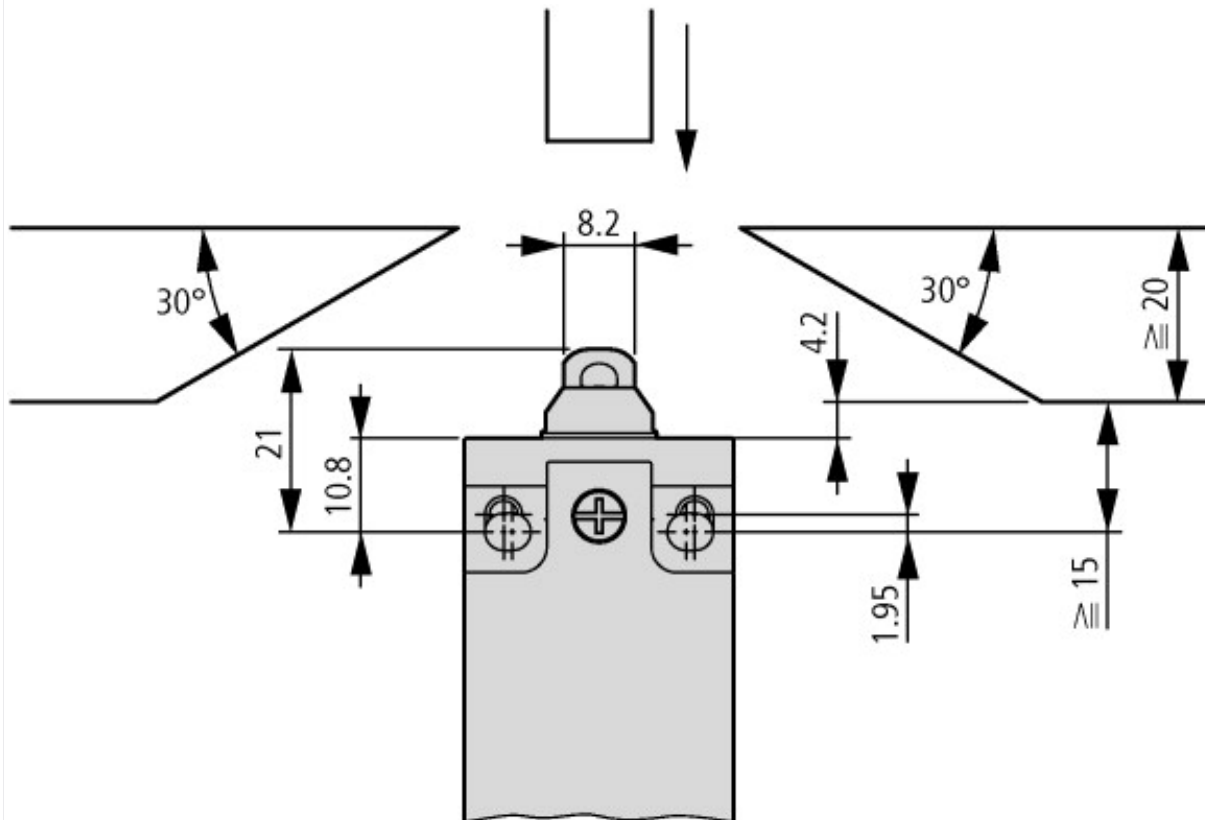
Electric engineering, automation, process control engineering / Binary sensor technology, safety-related sensor technology / Position switch / Position switch (Type 1) (ecl@ss8.1-27-27-06-01 [AGZ382012])

|  |    |                    |
|--|----|--------------------|
| 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 |
| Output electronic                                      |    | No                 |
| Forced opening   |    | No                 |
| Number of safety auxiliary contacts                    |    | 0                  |
| Number of contacts as normally closed contact          |    | 0                  |
| Number of contacts as normally open contact            |    | 2                  |
| Number of contacts as change-over contact              |    | 0                  |
| Type of interface                                      |    | None               |
| Type of interface for safety communication             |    | None               |
| Housing according to norm                              |    | -                  |
| Construction type housing                              |    | Cuboid             |
| Material housing                                       |    | Plastic            |
| Coating housing  |    | -                  |
| Type of control element                                |    | Plunger            |
| Alignment of the control element                       |    | -                  |
| Type of electric connection                            |    | -                  |
| With status indication                                 |    | No                 |
| Suitable for safety functions                          |    | No                 |
| Explosion safety category for gas                      |    | None               |
| Explosion safety category for dust                     |    | None               |
| Ambient temperature during operating                   | °C | -25 - 70           |
| Degree of protection (IP)                              |    | IP67               |

## 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                             |

## Dimensions



① screw-in depth max. 12 mm

## Additional product information (links)

IL053001ZU LS-Titan position switch: basic device

IL053001ZU LS-Titan position switch: basic device

[ftp://ftp.moeller.net/DOCUMENTATION/AWA\\_INSTRUCTIONS/IL053001ZU2013\\_08.pdf](ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL053001ZU2013_08.pdf)

