



MLP1-SMUA0AC

MLP1

SAFETY LOCKING DEVICES

SICK
Sensor Intelligence.



Ordering information

| Type | Part no. |
|--------------|----------|
| MLP1-SMUA0AC | 1117627 |

Consists of sensor (1117629) and actuator (1078199)

Other models and accessories → www.sick.com/MLP1



Detailed technical data

Features

| | |
|---|------------------|
| Sensor principle | RFID |
| Locking principle | Power to lock |
| Coding | Uniquely coded |
| Locking force F_{max} | 550 N (GS-ET-19) |
| Locking force F_{Zh} | 500 N (GS-ET-19) |
| Retaining force | 25 N |
| Offset tolerance | ≤ 5 mm |
| Safe switch off distance S_{ar} | 35 mm |
| For process protection only | ✓ |

Safety-related parameters

| | |
|---|--|
| Safety integrity level | SIL3 (IEC 61508) |
| Category | Category 4 (EN ISO 13849) |
| Performance level | PL e (EN ISO 13849) ¹⁾ |
| PFH_D (mean probability of a dangerous failure per hour) | $15 * 10^{-9}$ ²⁾ |
| T_M (mission time) | 20 years (EN ISO 13849) |
| Type | Type 4 (EN ISO 14119) |
| Actuator coding level | High coding level (EN ISO 14119) |
| Safe state in the event of a fault | At least one safety-related semiconductor output (OSSD) is in the OFF state. |

¹⁾ In a safe series connection, the performance level for the safe series connection as a whole depends on the number and type of devices in the safe series connection. PL e is only possible in safe series connections with a maximum of 6 devices.

²⁾ At 40 °C and 1000 m above sea level.

Functions

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|--|---|
| Switching behavior of the OSSDs | Actuator monitoring |
| Safe series connection | None, only individual wiring (with diagnostics) |

Interfaces

| | |
|---------------------------------------|------------------------------|
| Connection type | Cable with plug M12, 5-pin |
| Length of cable | 150 mm |
| Long connecting cable | ≤ 140 m |
| Cable diameter | 5.5 mm |
| Conductor cross section | 0.12 mm ² |
| Bend radius (with fixed installation) | > 8 x cable diameter |
| Bend radius (with moving cable) | > 12 x cable diameter |
| Cable material | PVC |
| Conductor material | Copper |
| Coupling nut material | Zinc die-cast, nickel-plated |
| Status display | ✓ |

Electrical data

| | |
|---|---|
| Protection class | III (IEC 61140) |
| Contamination rating | 3 (EN 60947-1) |
| Classification according to cULus | Class 2 |
| Usage category | DC-13 (IEC 60947-5-1) |
| Rated insulation voltage U_i | 32 V |
| Rated impulse withstand voltage U_{imp} | 1,500 V |
| Supply voltage U_v when an individual safety switch is connected | |
| Sensor | 24 V DC (19.2 V DC ... 28.8 V DC) |
| Magnet | 24 V DC (19.2 V DC ... 28.8 V DC) |
| Supply voltage U_v when a cascade is connected | |
| Sensor | 24 V DC (22.8 V DC ... 28.8 V DC) |
| Magnet | 24 V DC (21.6 V DC ... 28.8 V DC) |
| Power consumption | |
| Locking active | 350 mA |
| Locking deactivated | 50 mA |
| Switching frequency | ≤ 0.5 Hz |
| Type of output | Self-monitoring semiconductor outputs (OSSDs) |
| Output current (OSSDs) | ≤ 100 mA |
| Diagnostic output | ≤ 25 mA, short-circuit protected |
| Cable capacitance | 400 nF (for OUT A and OUT B) |
| Response time | 50 ms ¹⁾ |
| Release time | 100 ms ¹⁾ |
| Risk time | 100 ms ¹⁾ |
| Switch-on time | 2.5 s |
| Locking principle | Power to lock |

¹⁾ In a cascade, the value is multiplied by the number of safety switches in the cascade.

Mechanical data

| | | |
|-------------------------------|------------------------|----------------------------|
| Weight | Switches (spare parts) | 510 g |
| | Actuator | 210 g |
| Material | Sensor housing | Anodized aluminum |
| | Actuator housing | Fiber-glass-reinforced PVC |
| | Anchor plate | Nickel-plated steel |
| Dimensions (W x H x D) | Switches (spare parts) | 120 mm x 60 mm x 38.5 mm |
| | Actuator | 120 mm x 60 mm x 20.5 mm |
| Offset tolerance | Vertical | ≤ 5 mm |
| | Horizontal | ≤ 5 mm |
| | Aperture angle | ≤ 3° |

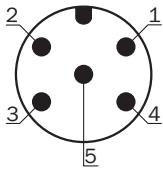
Ambient data

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|--------------------------------------|--|
| Enclosure rating | IP67 (EN 60529) |
| Ambient operating temperature | -20 °C ... +55 °C |
| Storage temperature | -25 °C ... +70 °C |
| Relative humidity | 50 %, at 70 °C (IEC 60947-5-2) |
| Vibration resistance | 10 Hz ... 55 Hz, 1 mm (IEC 60068-2-6) |
| Shock resistance | 30 g, 11 ms (EN 60068-2-27) |
| EMC | EN IEC 61326-3-1 EN IEC 60947-5-2 EN IEC 60947-5-3 |

Classifications

| | |
|-----------------------|----------|
| eCl@ss 5.0 | 27272603 |
| eCl@ss 5.1.4 | 27272603 |
| eCl@ss 6.0 | 27272603 |
| eCl@ss 6.2 | 27272603 |
| eCl@ss 7.0 | 27272603 |
| eCl@ss 8.0 | 27272603 |
| eCl@ss 8.1 | 27272603 |
| eCl@ss 9.0 | 27272603 |
| eCl@ss 10.0 | 27272603 |
| eCl@ss 11.0 | 27272603 |
| eCl@ss 12.0 | 27272603 |
| ETIM 5.0 | EC002593 |
| ETIM 6.0 | EC002593 |
| ETIM 7.0 | EC002593 |
| ETIM 8.0 | EC002593 |
| UNSPSC 16.0901 | 39122205 |

Pin assignment



| Pin | Designation | Description |
|-----|-------------|------------------------------|
| 1 | +24 V DC | Safety switch voltage supply |
| 2 | OSSD 1 | OSSD 1 output |
| 3 | 0 V | 0 V DC voltage supply |
| 4 | OSSD 2 | OSSD 2 output |
| 5 | Magnet | Magnet control 24 V DC |

For details see operating instructions

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We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

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