



FXL1-SPEMSA00

flexLock

SAFETY LOCKING DEVICES

SICK
Sensor Intelligence.



Ordering information

| Locking principle | Switching behavior of the OSSDs | Coding | Auxiliary release | Escape release | Type | Part no. |
|-------------------|---------------------------------|-------------------|-------------------|----------------|---------------|----------|
| Power to release | Locking monitoring | Universally coded | ✓ | ✓ | FXL1-SPEMSA00 | 1120828 |

The actuator has to be ordered separately. See "Accessories" for further details.

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

actuator not supplied with delivery



Detailed technical data

Features

| | |
|--|--|
| Sensor principle | RFID |
| Locking principle | Power to release |
| Coding | Universally coded |
| Locking force F_{max} | |
| Flexible actuator | 4,100 N (EN ISO 14119) |
| Rigid actuator (frontal) | 3,630 N (EN ISO 14119) |
| Rigid actuator (lateral) | 3,510 N (EN ISO 14119) |
| Locking force F_{Zh} | |
| Flexible actuator | 3,150 N (EN ISO 14119) |
| Rigid actuator (frontal) | 2,790 N (EN ISO 14119) |
| Rigid actuator (lateral) | 2,700 N (EN ISO 14119) |
| Actuation force | 20 N |
| Retaining force | 30 N |
| Force against which unlocking is possible | ≤ 25 N |
| Actuation frequency | ≤ 1 Hz |
| Approach speed | ≤ 20 m/min |
| Items supplied | Including two extension pieces (30 mm each) for the axis of the escape release |

Safety-related parameters

| | |
|-------------------------------|---|
| Safety integrity level | SIL3 (IEC 61508) |
| Category | Category 4 (EN ISO 13849) ¹⁾ |
| Performance level | PL e (EN ISO 13849) ¹⁾ |

¹⁾ Applies for monitoring of the door position (interlocking monitoring) and locking monitoring.

²⁾ At 40 °C and 0 m above sea level.

| | |
|---|--|
| PFH_D (mean probability of a dangerous failure per hour) | 6.79 x 10 ^{-9 2)} |
| T_M (mission time) | 20 years (EN ISO 13849) |
| Type | Type 4 (EN ISO 14119) |
| Actuator coding level | Low 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⁾ Applies for monitoring of the door position (interlocking monitoring) and locking monitoring.

²⁾ At 40 °C and 0 m above sea level.

Functions

| | |
|--|---|
| Auxiliary release | ✓ |
| Escape release | ✓ |
| Switching behavior of the OSSDs | Locking monitoring |
| Safe series connection | In control cabinet (with diagnostics) With Flexi Loop (with diagnostics) With T-connector (without diagnostics) |

Interfaces

| | |
|------------------------------|----------------------------|
| Connection type | Plug connector, M12, 8-pin |
| Coupling nut material | Stainless steel |
| Diagnostics indicator | ✓ |
| Status display | ✓ |

Electrical data

| | |
|--|--|
| Protection class | III (IEC 61140) |
| Contamination rating | 3 (IEC 60947-1) |
| Classification according to cULus | Class 2 |
| Usage category | DC-13 (IEC 60947-5-3) |
| Rated insulation voltage U_i | 32 V |
| Rated impulse withstand voltage U_{imp} | 1,500 V |
| Supply voltage V_s | 24 V DC (19.2 V DC ... 28.8 V DC) |
| Power consumption | |
| Locking device unlocked | 65 mA |
| Locking device locked | 65 mA |
| Peak current | 800 mA, 200 ms |
| Type of output | Self-monitoring semiconductor outputs (OSSDs) |
| Safety outputs | 2 PNP semiconductors, short-circuit protected, cross-circuit monitored |
| Output current | |
| Safety outputs | ≤ 100 mA |
| Application diagnostic outputs | ≤ 50 mA |
| Output voltage | U _V - 2 V DC ... U _V |
| Response time | ≤ 150 ms ¹⁾ |
| Release time | ≤ 350 ms ¹⁾ |

¹⁾ In safe series connection: The value increases by 70 ms with each additional switch.

| | |
|--------------------------|----------------------|
| Risk time | 150 ms ¹⁾ |
| Switch-on time | 3 s |
| Locking principle | Power to release |

¹⁾ In safe series connection: The value increases by 70 ms with each additional switch.

Mechanical data

| | |
|-----------------------------|--------------------------------------|
| Weight | 480 g |
| Material | |
| Housing | VISTAL® |
| Ball bracket | Stainless steel |
| Latch plate of the actuator | Stainless steel |
| Plug connectors | Stainless steel |
| Escape release | Aluminum |
| Mechanical life | 1 x 10 ⁶ switching cycles |

Ambient data

| | |
|--------------------------------------|---|
| Enclosure rating | IP65 (IEC 60529) IP67 (IEC 60529) IP69K (IEC 20653) |
| Ambient operating temperature | -20 °C ... +55 °C |
| Storage temperature | -25 °C ... +70 °C |
| Relative humidity | 10 % ... 95 %, at 40 °C (IEC 60068) |
| 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 EN 300330 |

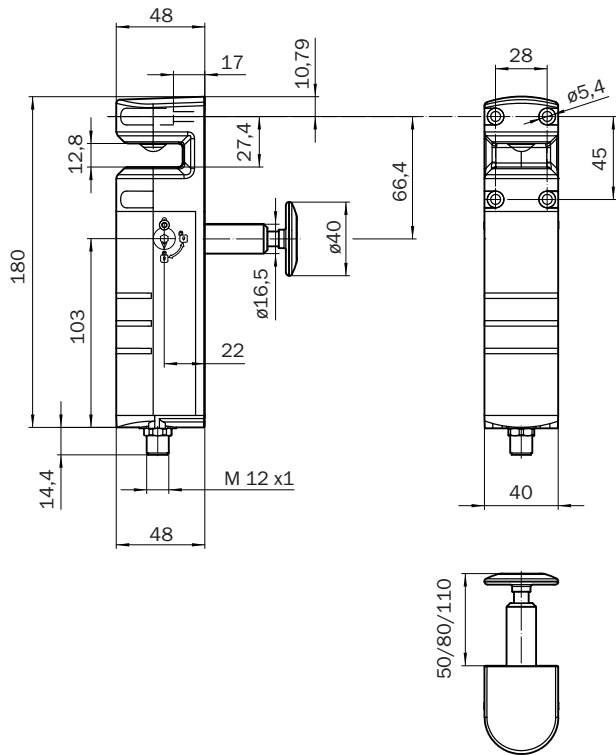
Classifications

| | |
|---------------------|----------|
| 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

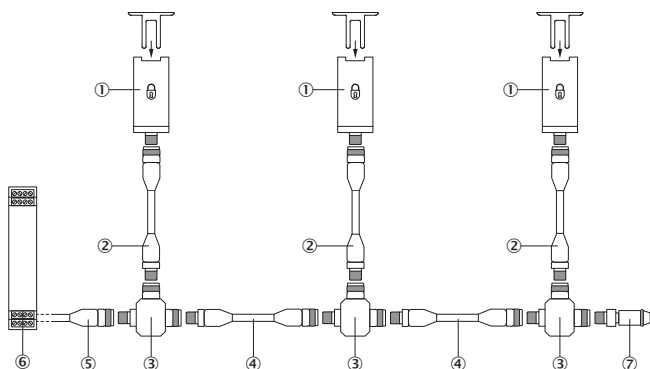
39122205

Dimensional drawing (Dimensions in mm (inch))



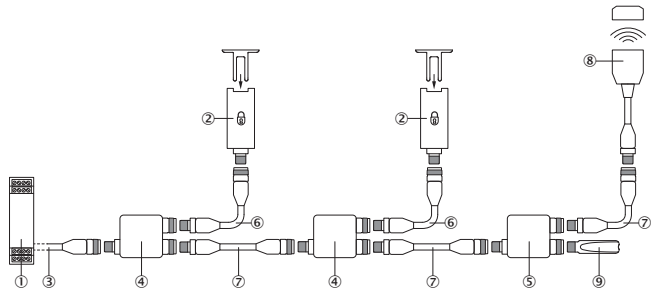
Series connection

Series connection with T-piece (without diagnostics)



- ① flexLock safety locking device
- ② Connection cable with 8-pin, M12 male connector and 8-pin, M12 female connector (e.g., YF2A18-xxxUA5M2A18)
- ③ T-junctions
- ④ Connection cable with 5-pin, M12 male connector and 5-pin, M12 female connector (e.g., YF2A15-xxxUB5M2A15)
- ⑤ Connecting cable with M12 female connector, 5-pin and flying leads (e.g., YF2A15-xxxVB5XLEAX)
- ⑥ Safe evaluation unit
- ⑦ End plug

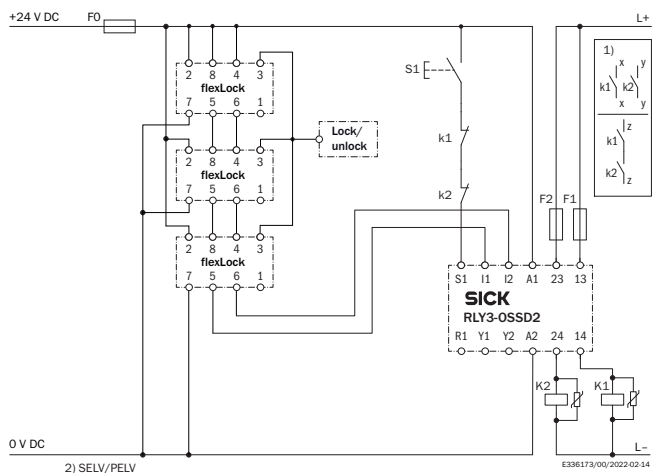
Series connection with Flexi Loop (with diagnostics)



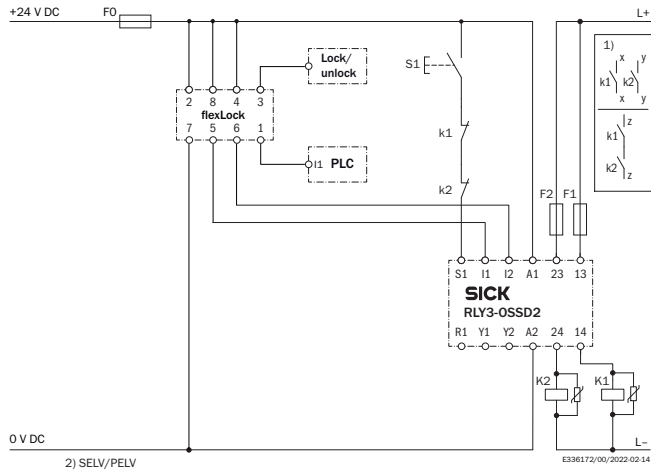
- ① Flexi Compact safety controller
- ② flexLock safety locking device
- ③ Connecting cable with M12 female connector, 5-pin and flying leads (e.g., YF2A15-xxxVB5XLEAX)
- ④ FLN-OSSD1100108 Flexi Loop node
- ⑤ FLN-OSSD1000105 Flexi Loop node
- ⑥ Connection cable with 8-pin, M12 male connector and 8-pin, M12 female connector (e.g., YF2A18-xxxUA5M2A18)
- ⑦ Connection cable with 5-pin, M12 male connector and 5-pin, M12 female connector (e.g., YF2A15-xxxUB5M2A15)
- ⑧ STR1 RFID safety switch (e.g., STR1-SAx0AC5)
- ⑨ FLT-TERM00001 Flexi Loop terminating element

Connection diagram

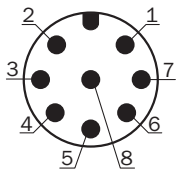
Series connection of three flexLock safety locking devices to RLY3-OSSD2 safety relay



flexLock safety locking device to RLY3-OSSD2 safety relay



Pin assignment





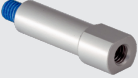

| Pin | Designation | Description |
|-----|-------------|--|
| 1 | Out AUX | Application diagnostic output (not safe) |
| 2 | +24 V DC | 24 V DC voltage supply |
| 3 | LOCK | Locking device input |
| 4 | In 2 | Enable input for OSSD 2* |
| 5 | OSSD 1 | OSSD 1 output |
| 6 | OSSD 2 | OSSD 2 output |
| 7 | 0 V | 0 V DC voltage supply |
| 8 | In 1 | Enable input for OSSD 1* |

* When used as an individual safety locking device or as the first safety locking device in a safe series connection, apply 24 V DC.

Recommended accessories

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

| | Brief description | Type | Part no. |
|---|---|----------|----------|
| Actuators | | | |
|  | Flexible actuator, can be inserted into the locking device from the front | FXL1-AF1 | 1101326 |

| | Brief description | Type | Part no. |
|---|--|-----------------|----------|
|  | Rigid actuator, can be inserted into the locking device from the front or side | FXL1-AR1 | 1101327 |
| Other mounting accessories | | | |
|  | 2 pieces, two extension pieces (30 mm each) for the axis of the escape release | Extension piece | 2132721 |
| MB1 | | | |
|  | <ul style="list-style-type: none"> • Catch release button/ANSI-compliant locking mechanism: yes • Escape release: yes • Frame plate with latching function: no • Suitable for: flexLock safety locking device (with actuator FXL-AR1) • Items supplied: Bolt unit, frame plate flexLock, adapter for actuator mounting (MB1-BRFL), safety screws for installing provided adapters, Mounting instructions, escape release | MB1-BF11 | 1111206 |

SICK AT A GLANCE

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