



FXL1-SPBMSA00

flexLock

SAFETY LOCKING DEVICES

SICK
Sensor Intelligence.



Ordering information

| Type | part no. |
|---------------|----------|
| FXL1-SPBMSA00 | 1101321 |

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 |

Safety-related parameters

| | |
|-------------------------------|---|
| Safety integrity level | SIL 3 (IEC 61508) |
| Category | Category 4 (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.

| | |
|---|--|
| Performance level | PL e (EN ISO 13849) ¹⁾ |
| PFH_D (mean probability of a dangerous failure per hour) | 9.55 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 | ✓ |
| Switching behavior of the OSSDs | Locking monitoring |
| Switching behavior of the application diagnostic output | Actuator 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 |
| Display elements | LEDs |
| Diagnostics indicator | ✓ |
| Status display | ✓ |

Electronics

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

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

| | |
|--------------------------|------------------------|
| Response time | ≤ 150 ms ¹⁾ |
| Release time | ≤ 350 ms ¹⁾ |
| 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.

Mechanics

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

Ambient data

| | |
|--------------------------------------|---|
| Enclosure rating | IP65, IP67, IP69K (IEC 60529, IEC 60529, 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 |

Certificates

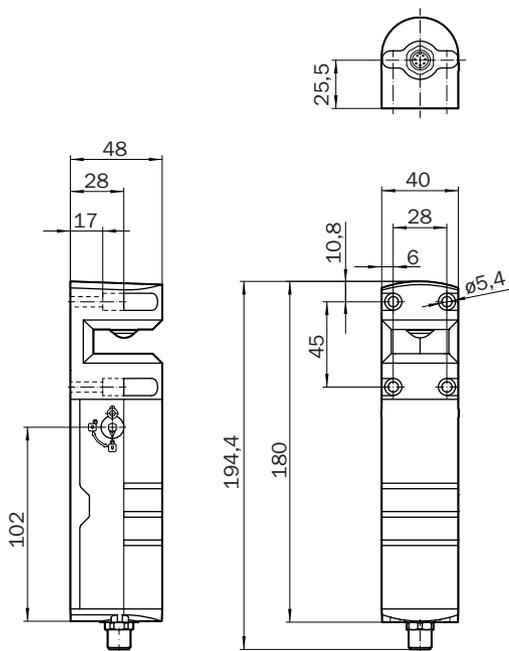
| | |
|---------------------------------------|---|
| EU declaration of conformity | ✓ |
| UK declaration of conformity | ✓ |
| ACMA declaration of conformity | ✓ |
| China-RoHS | ✓ |
| ECOLAB certificate | ✓ |
| cULus certificate | ✓ |
| EC-Type-Examination approval | ✓ |
| Third party certificate | ✓ |

Classifications

| | |
|---------------------|----------|
| ECLASS 5.0 | 27272603 |
| ECLASS 5.1.4 | 27272603 |
| ECLASS 6.0 | 27272603 |
| ECLASS 6.2 | 27272603 |
| ECLASS 7.0 | 27272603 |
| ECLASS 8.0 | 27272603 |

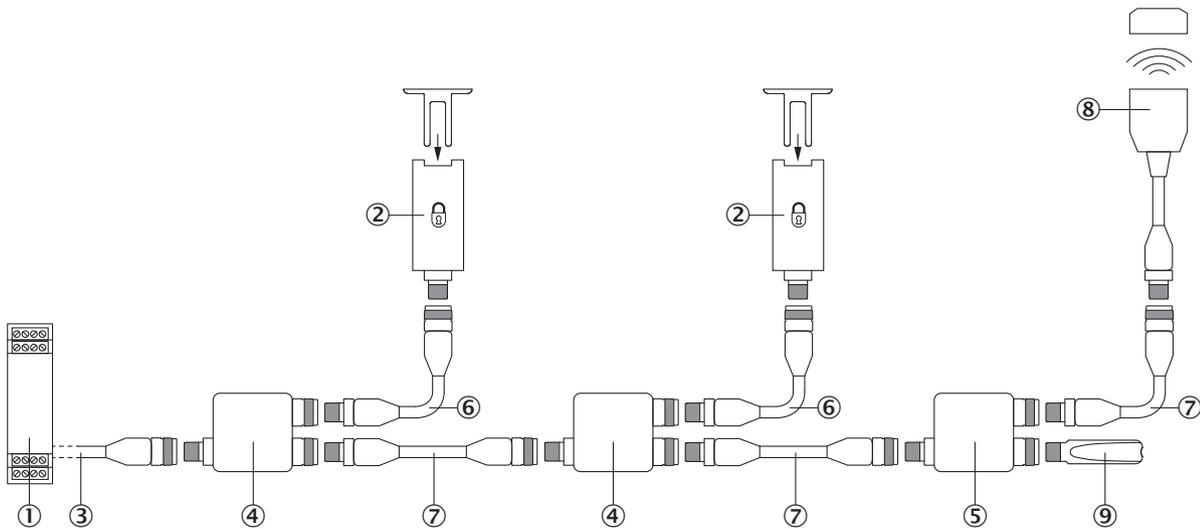
| | |
|-----------------------|----------|
| ECLASS 8.1 | 27272603 |
| ECLASS 9.0 | 27272603 |
| ECLASS 10.0 | 27272603 |
| ECLASS 11.0 | 27272603 |
| ECLASS 12.0 | 27272603 |
| ETIM 5.0 | EC002593 |
| ETIM 6.0 | EC002593 |
| ETIM 7.0 | EC002593 |
| ETIM 8.0 | EC002593 |
| UNSPSC 16.0901 | 39122205 |

Dimensional drawing



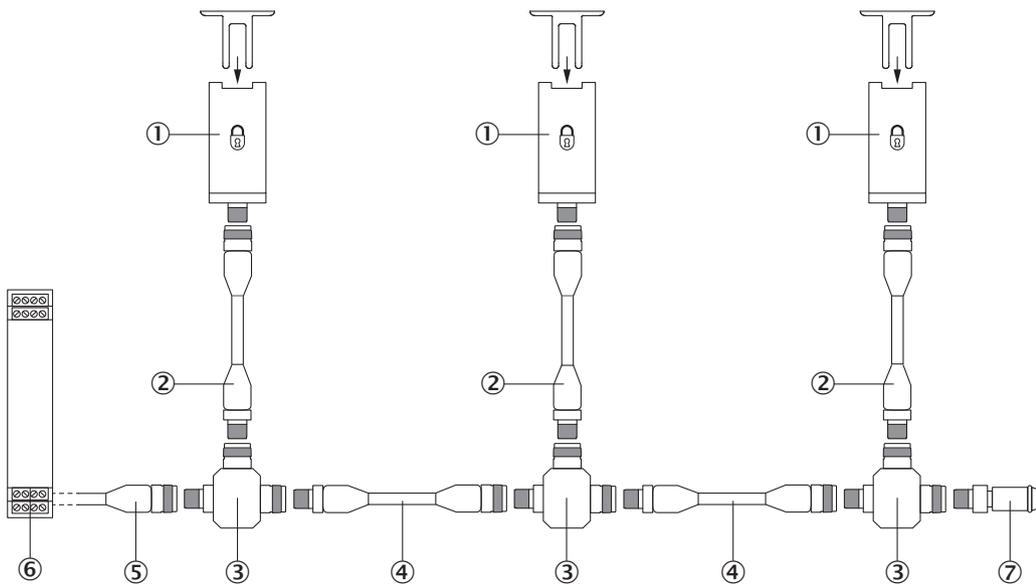
Dimensions in mm (inch)

Series connection 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

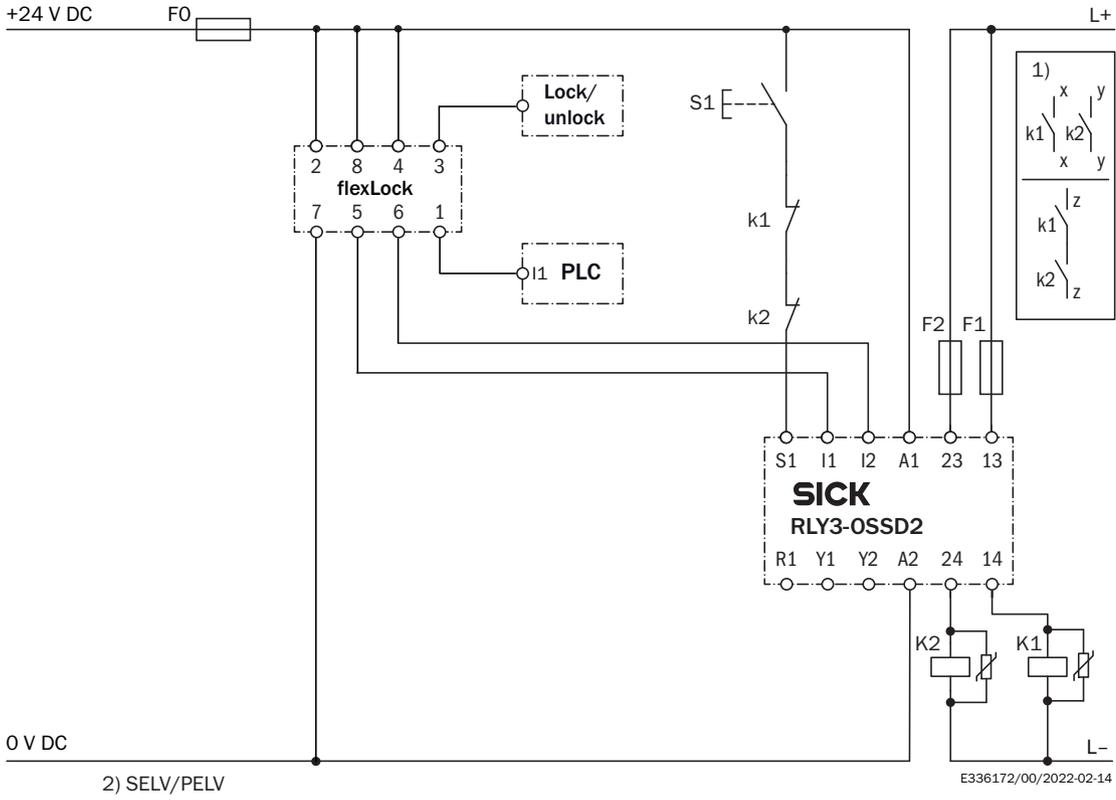
Series connection with T-piece (without diagnostics)



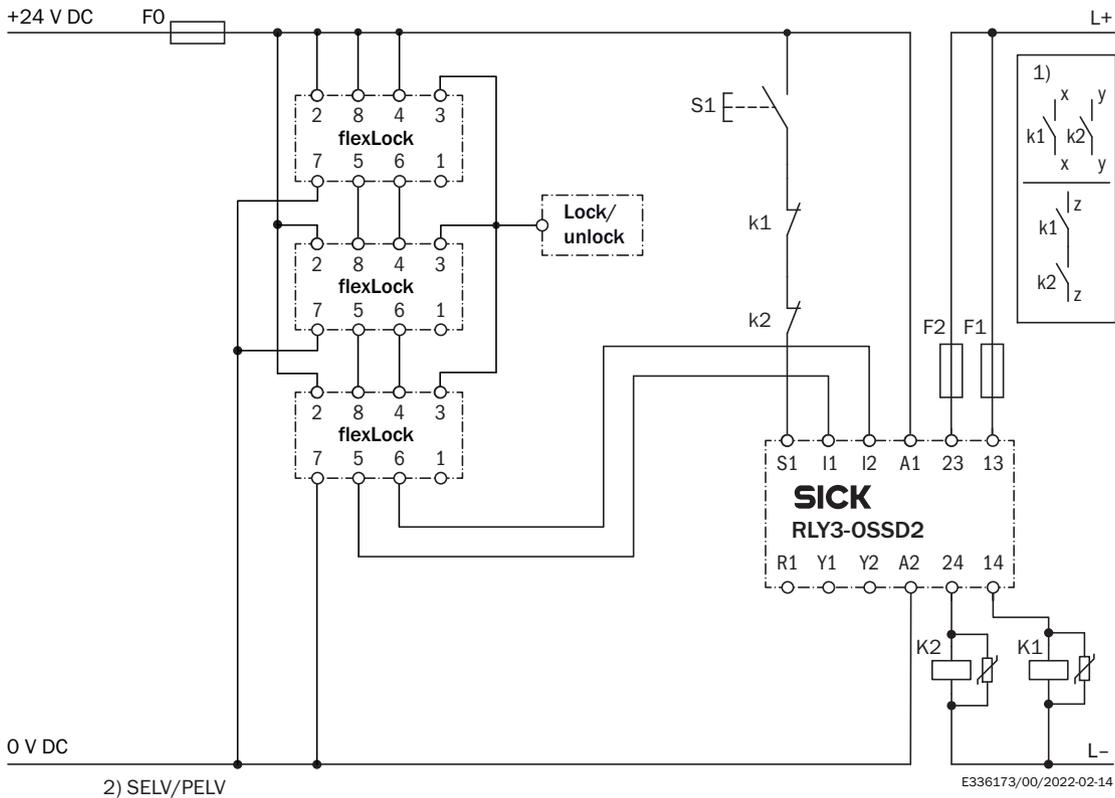
- ① flexLock safety locking device
- ② Connection cable with 8-pin, M12 male connector and 8-pin, M12 female connector (e.g., YF2A18-xxxUA5M2A18)
- ③ T-junctions
- ④ Connection cable with 5-pin, M12 male connector and 5-pin, M12 female connector (e.g., YF2A15-xxxUB5M2A15)
- ⑤ connecting cable with M12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

⑦ End plug

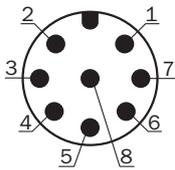
Connection diagram flexLock safety locking device to RLY3-OSSD2 safety relay



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



Pinouts



| 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 and bolts | | | |
|  | <ul style="list-style-type: none"> • Catch release button/ANSI-compliant locking mechanism: yes • Escape release: no • Frame plate with latching function: no • Suitable for: flexLock safety locking device (with actuator FXL-AR1) • Items supplied: Frame plate flexLock, adapter for actuator mounting (MB1-BRFL), adapter for actuator mounting (MB1-BRFL), safety screws for installing provided adapters, Mounting instructions • Description: Complete set consisting of door bolting unit with frame plate for flexLock and adapters for actuators | MB1-BF10 | 1111207 |
|  | <ul style="list-style-type: none"> • Product: Actuators for RFID safety switches • Description: Rigid actuator, can be inserted into the locking device from the front or side | FXL1-AR1 | 1101327 |
|  | <ul style="list-style-type: none"> • Product: Actuators for RFID safety switches • Description: Flexible actuator, can be inserted into the locking device from the front | FXL1-AF1 | 1101326 |

SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

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.”

WORLDWIDE PRESENCE:

Contacts and other locations –www.sick.com