



# FXL1-SPLMSA00

flexLock

SAFETY LOCKING DEVICES

**SICK**  
Sensor Intelligence.



### Ordering information

Type	part no.
FXL1-SPLMSA00	1101323

Other models and accessories → [www.sick.com/flexLock](http://www.sick.com/flexLock)

actuator not supplied with delivery



### Detailed technical data

#### Features

<b>Sensor principle</b>	RFID
<b>Locking principle</b>	Power to lock
<b>Coding</b>	Universally coded
<b>Locking force <math>F_{max}</math></b>	
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)
<b>Locking force <math>F_{Zh}</math></b>	
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)
<b>Actuation force</b>	20 N
<b>Retaining force</b>	30 N
<b>Force against which unlocking is possible</b>	≤ 25 N
<b>Actuation frequency</b>	≤ 1 Hz
<b>Approach speed</b>	≤ 20 m/min

#### Safety-related parameters

<b>Safety integrity level</b>	SIL 3 (IEC 61508)
<b>Category</b>	Category 4 (EN ISO 13849) <sup>1)</sup>

<sup>1)</sup> Applies for monitoring of the door position (interlocking monitoring) and locking monitoring.

<sup>2)</sup> At 40 °C and 0 m above sea level.

<b>Performance level</b>	PL e (EN ISO 13849) <sup>1)</sup>
<b>PFH<sub>D</sub> (mean probability of a dangerous failure per hour)</b>	9.55 x 10 <sup>-9</sup> <sup>2)</sup>
<b>T<sub>M</sub> (mission time)</b>	20 years (EN ISO 13849)
<b>Type</b>	Type 4 (EN ISO 14119)
<b>Actuator coding level</b>	Low coding level (EN ISO 14119)
<b>Safe state in the event of a fault</b>	At least one safety-related semiconductor output (OSSD) is in the OFF state.

<sup>1)</sup> Applies for monitoring of the door position (interlocking monitoring) and locking monitoring.

<sup>2)</sup> At 40 °C and 0 m above sea level.

## Functions

<b>Switching behavior of the OSSDs</b>	Locking monitoring
<b>Switching behavior of the application diagnostic output</b>	Actuator monitoring
<b>Safe series connection</b>	In control cabinet (with diagnostics) With Flexi Loop (with diagnostics) With T-connector (without diagnostics)

## Interfaces

<b>Connection type</b>	Plug connector, M12, 8-pin
Coupling nut material	Stainless steel
<b>Display elements</b>	LEDs
Diagnostics indicator	✓
Status display	✓

## Electronics

<b>Protection class</b>	III (IEC 61140)
<b>Contamination rating</b>	3 (IEC 60947-1)
<b>Classification according to cULus</b>	Class 2
<b>Usage category</b>	DC-13 (IEC 60947-5-3)
<b>Rated insulation voltage U<sub>i</sub></b>	32 V
<b>Rated impulse withstand voltage U<sub>imp</sub></b>	1,500 V
<b>Supply voltage V<sub>s</sub></b>	24 V DC (19.2 V DC ... 28.8 V DC)
<b>Power consumption</b>	
Locking device unlocked	65 mA
Locking device locked	125 mA
<b>Peak current</b>	800 mA, 200 ms
<b>Type of output</b>	Self-monitoring semiconductor outputs (OSSDs)
Safety outputs	2 PNP semiconductors, short-circuit protected, cross-circuit monitored
<b>Output current</b>	
Safety outputs	≤ 100 mA
Application diagnostic outputs	≤ 50 mA
<b>Output voltage</b>	U <sub>V</sub> - 2 V DC ... U <sub>V</sub>
<b>Response time</b>	≤ 150 ms <sup>1)</sup>

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

<b>Release time</b>	≤ 350 ms <sup>1)</sup>
<b>Risk time</b>	150 ms <sup>1)</sup>
<b>Switch-on time</b>	3 s
<b>Locking principle</b>	Power to lock

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

### Mechanics

<b>Weight</b>	535 g	
<b>Material</b>	Housing	VISTAL®
	Ball bracket	Stainless steel
	Latch plate of the actuator	Stainless steel
	Plug connectors	Stainless steel
<b>Mechanical life</b>	1 x 10 <sup>6</sup> switching cycles	

### Ambient data

<b>Enclosure rating</b>	IP65, IP67, IP69K (IEC 60529, IEC 60529, IEC 20653)
<b>Ambient operating temperature</b>	-20 °C ... +55 °C
<b>Storage temperature</b>	-25 °C ... +70 °C
<b>Relative humidity</b>	10 % ... 95 %, at 40 °C (IEC 60068)
<b>Vibration resistance</b>	10 Hz ... 55 Hz, 1 mm (IEC 60068-2-6)
<b>Shock resistance</b>	30 g, 11 ms (EN 60068-2-27)
<b>EMC</b>	EN IEC 61326-3-1 EN IEC 60947-5-2 EN IEC 60947-5-3 EN 300330

### Certificates

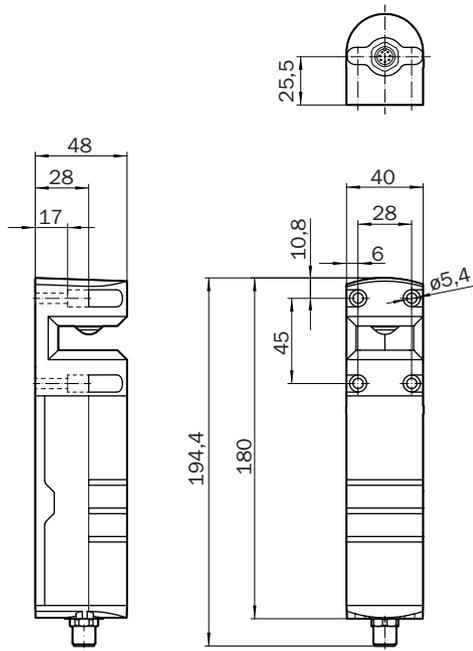
<b>EU declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>China-RoHS</b>	✓
<b>ECOLAB certificate</b>	✓
<b>cULus certificate</b>	✓
<b>EC-Type-Examination approval</b>	✓
<b>Third party certificate</b>	✓

### Classifications

<b>ECLASS 5.0</b>	27272603
<b>ECLASS 5.1.4</b>	27272603
<b>ECLASS 6.0</b>	27272603
<b>ECLASS 6.2</b>	27272603
<b>ECLASS 7.0</b>	27272603
<b>ECLASS 8.0</b>	27272603
<b>ECLASS 8.1</b>	27272603
<b>ECLASS 9.0</b>	27272603

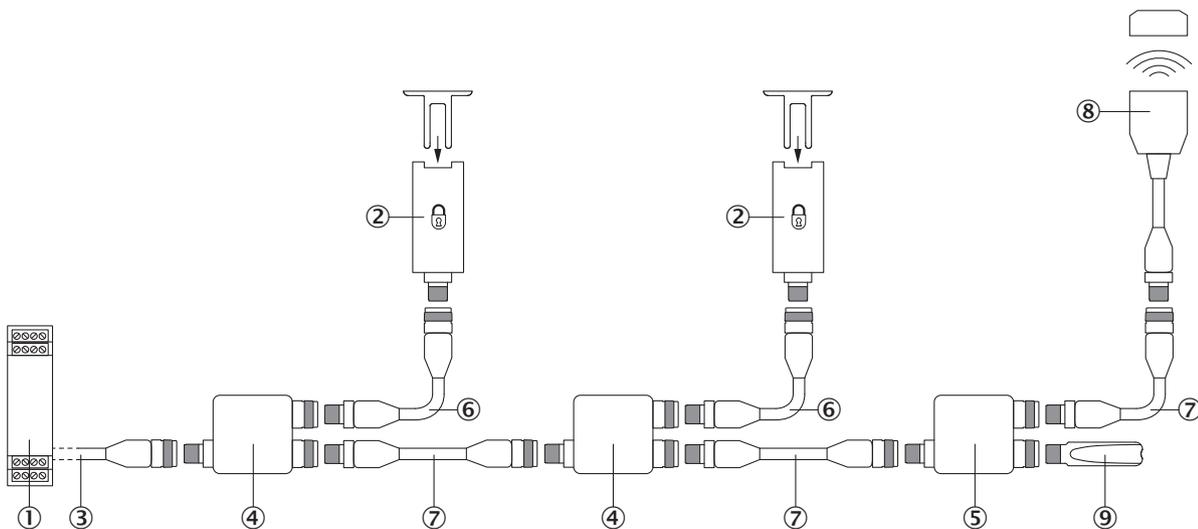
<b>ECLASS 10.0</b>	27272603
<b>ECLASS 11.0</b>	27272603
<b>ECLASS 12.0</b>	27272603
<b>ETIM 5.0</b>	EC002593
<b>ETIM 6.0</b>	EC002593
<b>ETIM 7.0</b>	EC002593
<b>ETIM 8.0</b>	EC002593
<b>UNSPSC 16.0901</b>	39122205

Dimensional drawing



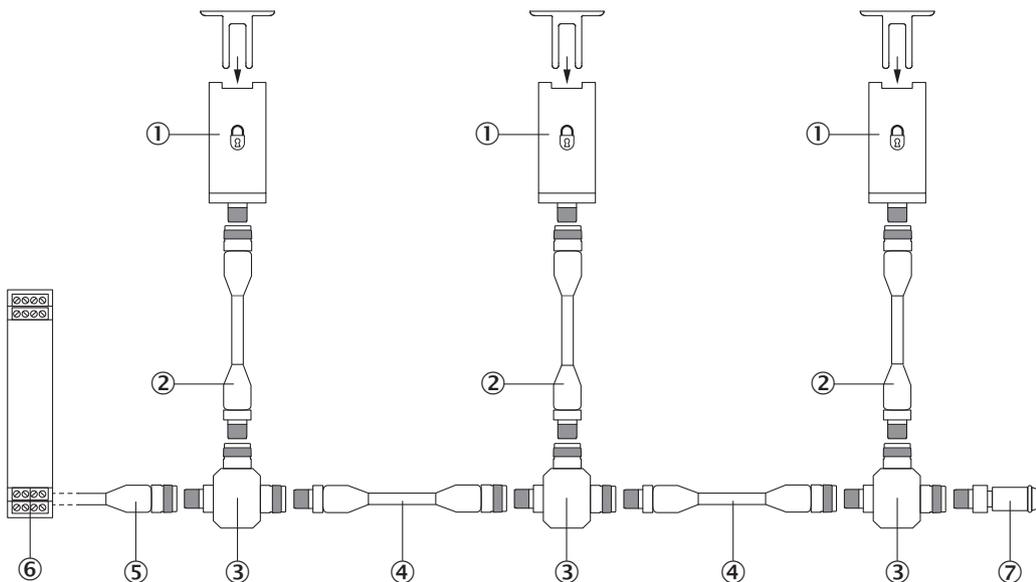
Dimensions in mm (inch)

### 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-SAXxOAC5)
- ⑨ FLT-TERM00001 Flexi Loop terminating element

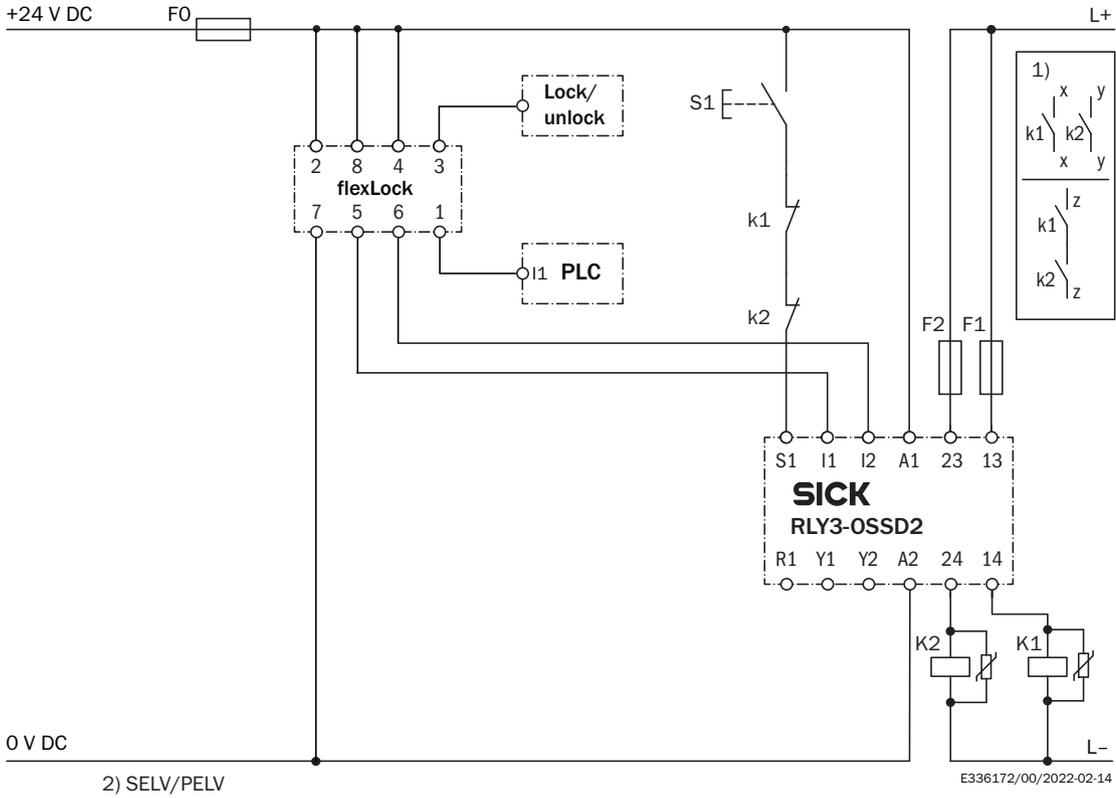
### Series connection with T-piece (without diagnostics)



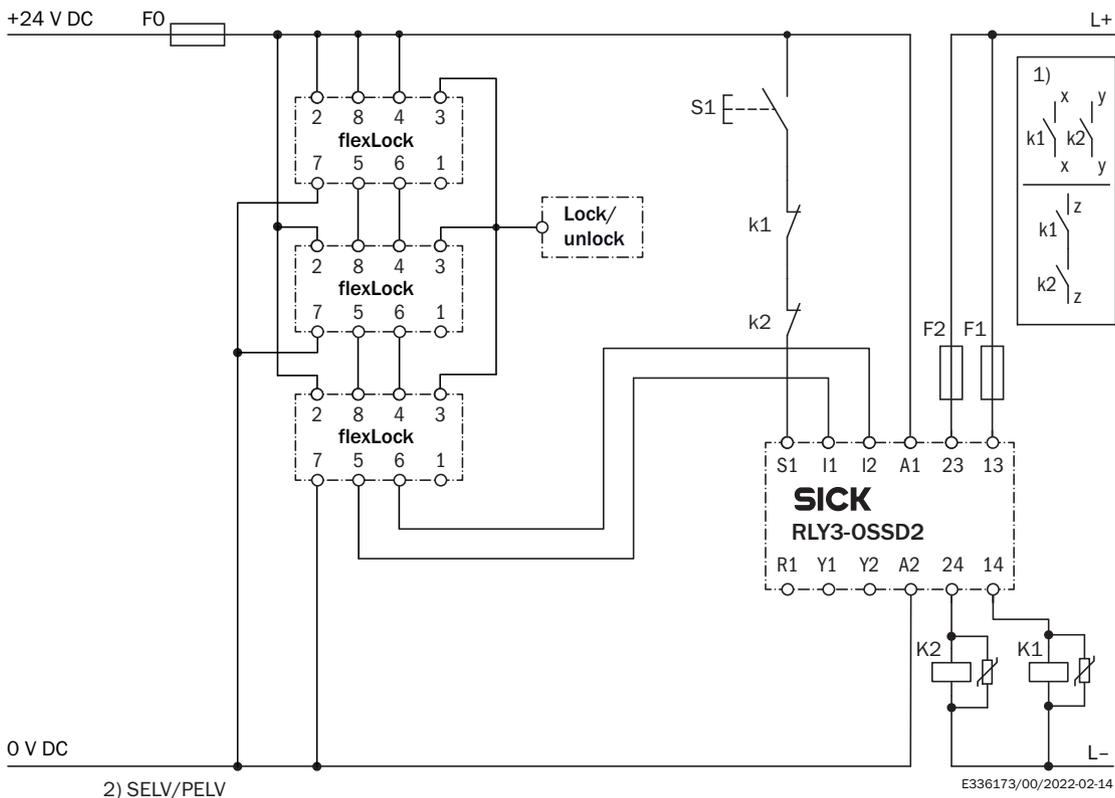
- ① flexLock safety locking device
- ② Connection cable with 8-pin, M12 male connector and 8-pin, M12 female connector (e.g., YF2A18-xxxUA5M2A18)
- ③ T-junctions
- ④ Connection cable with 5-pin, M12 male connector and 5-pin, M12 female connector (e.g., YF2A15-xxxUB5M2A15)
- ⑤ connecting cable with M12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

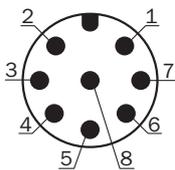
Connection diagram flexLock safety locking device to RLY3-OSSD2 safety relay



### 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](http://www.sick.com/flexLock)

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