



FXL1-SPBUSA00

flexLock

SAFETY LOCKING DEVICES

SICK
Sensor Intelligence.



Ordering information

Locking principle	Switching behavior of the OSSDs	Coding	Auxiliary release	Type	Part no.
Power to release	Locking monitoring	Uniquely coded	✓	FXL1-SP-BUSA00	1101320

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	Uniquely 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	SIL3 (IEC 61508)
Category	Category 4 (EN ISO 13849) ¹⁾
Performance level	PL e (EN ISO 13849) ¹⁾
PFH_D (mean probability of a dangerous failure per hour)	6.79×10^{-9} ²⁾

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

²⁾ At 40 °C and 0 m above sea level.

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⁾ 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
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⁾
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
Mechanical life	1 x 10 ⁶ switching cycles

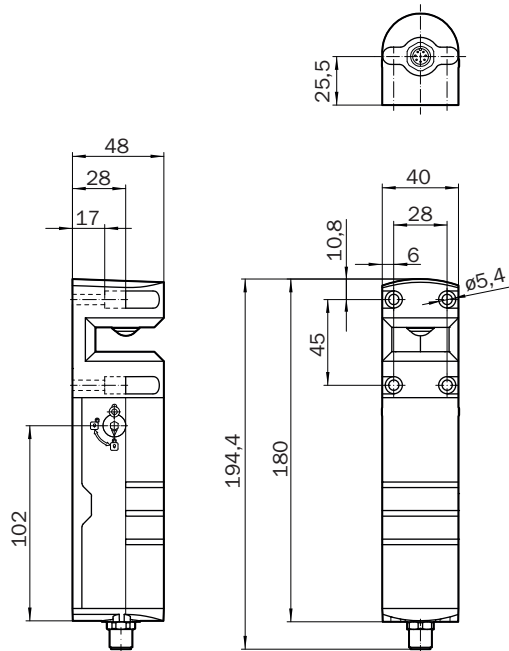
Ambient data

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

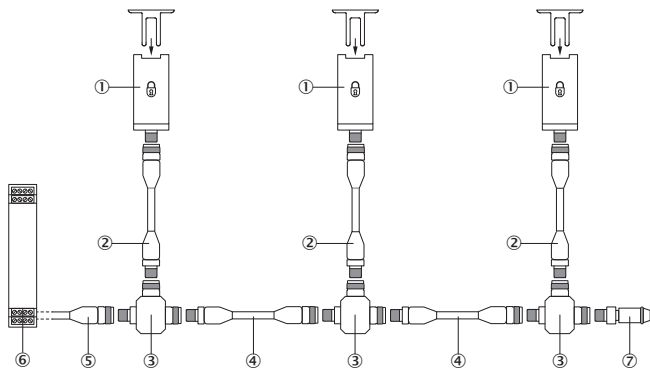
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ETIM 5.0	EC002593
ETIM 6.0	EC002593
ETIM 7.0	EC002593
ETIM 8.0	EC002593
UNSPSC 16.0901	39122205

Dimensional drawing (Dimensions in mm (inch))



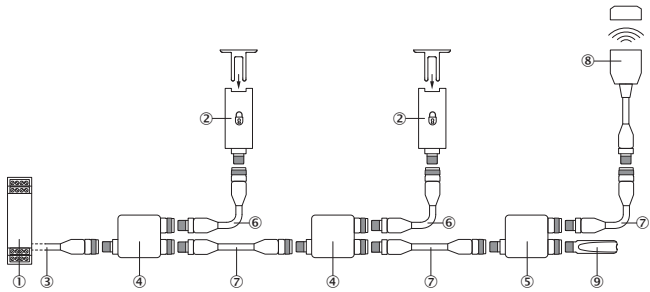
Series connection

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

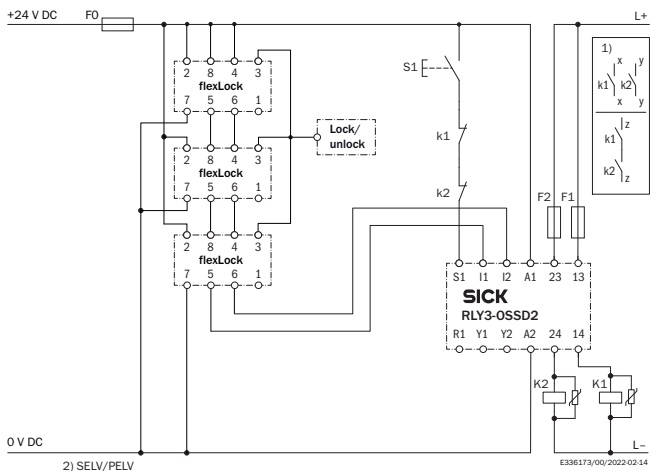
Series connection with Flexi Loop (with diagnostics)





- 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



	Brief description	Type	Part no.
	Rigid actuator, can be inserted into the locking device from the front or side	FXL1-AR1	1101327
MB1			
	<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: Bolt unit, frame plate flexLock, adapter for actuator mounting (MB1-BRFL), safety screws for installing provided adapters, Mounting instructions 	MB1-BF10	1111207

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