



# STR1-SASF0AC5

## STR1

NON-CONTACT SAFETY SWITCHES

**SICK**  
Sensor Intelligence.



### Ordering information

Type	Part no.
STR1-SASFOAC5	1073211

Other models and accessories → [www.sick.com/STR1](http://www.sick.com/STR1)



### Detailed technical data

#### Features

<b>System part</b>	Sensor and actuator
<b>Sensor principle</b>	Transponder
<b>Number of safe outputs</b>	2
<b>Auxiliary contact (AUX)</b>	1 (Switching behavior complementary to OSSDs)
<b>Safe switch on distance <math>S_{ao}</math></b>	10 mm (-30 °C ... +70 °C) <sup>1)</sup>
<b>Safe switch off distance <math>S_{ar}</math></b>	25 mm <sup>1)</sup>
<b>Active sensor surfaces</b>	3
<b>Actuation directions</b>	5
<b>Coding</b>	Permanently coded

<sup>1)</sup> Values apply for the frontal alignment of the sensor to the actuator. A detailed display of the alignment options and values can be found in the operating instructions.

#### Safety-related parameters

<b>Safety integrity level</b>	SIL3 (IEC 61508) SILCL3 (EN 62061)
<b>Category</b>	Category 4 (EN ISO 13849)
<b>Performance level</b>	PL e (EN ISO 13849)
<b>PFH<sub>D</sub> (mean probability of a dangerous failure per hour)</b>	$5,21 \times 10^{-9}$ (EN ISO 13849)
<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>	High 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.

#### Functions

<b>Safe series connection</b>	With Flexi Loop (with diagnostics)
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#### Interfaces

<b>Connection type</b>	Cable with plug M12, 5-pin
Length of cable	0.2 m
Cable material	PVC

Long connecting cable	≤ 200 m
<b>Diagnostics indicator</b>	✓
<b>Status display</b>	✓

#### Electrical data

<b>Protection class</b>	III (IEC 61140)
<b>Classification according to cULus</b>	Class 2
<b>Supply voltage <math>V_s</math></b>	24 V DC (19.2 V DC ... 28.8 V DC)
<b>Power consumption</b>	50 mA
<b>Type of output</b>	Self-monitoring semiconductor outputs (OSSDs)
<b>Output current</b>	≤ 100 mA
<b>Response time</b>	40 ms <sup>1)</sup>
<b>Enable time</b>	100 ms <sup>1)</sup>
<b>Risk time</b>	80 ms <sup>1)</sup>
<b>Switch-on time</b>	2.5 s <sup>2)</sup>

<sup>1)</sup> In a safe series connection, each downstream safety switch increases the system response time. More response times can be found in the operating instructions.

<sup>2)</sup> The time specified applies to one sensor after the supply voltage has been applied to the safety switch. In a safe series connection, 0.1-s must be added for each sensor. An additional 0.5-s per taught-in actuator must be added for uniquely coded and permanently coded sensors.

#### Mechanical data

<b>Dimensions (W x H x D)</b>	40 mm x 18 mm x 26 mm
<b>Weight</b>	82 g
<b>Housing material</b>	VISTAL®

#### Ambient data

<b>Enclosure rating</b>	IP67 (EN 60529) IPX9K (ISO 20653)
<b>Ambient operating temperature</b>	-30 °C ... +70 °C <sup>1)</sup>
<b>Storage temperature</b>	-30 °C ... +70 °C
<b>Vibration resistance</b>	10 Hz ... 55 Hz, 1 mm (IEC 60068-2-6)
<b>Shock resistance</b>	30 g, 11 ms (IEC 60068-2-27)
<b>EMC</b>	EN IEC 61326-3-1 EN IEC 60947-5-2 EN IEC 60947-5-3 EN 300330 V2.1.1

<sup>1)</sup> Only applies for safety switches whose serial numbers begin with number series 1825\*\*\*\* or higher. For safety switches whose serial numbers deviate from this, an ambient operating temperature of -10 °C ... +70 °C applies.

The serial number is displayed on the safety switch over the data matrix code.

#### Classifications

<b>ECl@ss 5.0</b>	27272403
<b>ECl@ss 5.1.4</b>	27272403
<b>ECl@ss 6.0</b>	27272403
<b>ECl@ss 6.2</b>	27272403
<b>ECl@ss 7.0</b>	27272403
<b>ECl@ss 8.0</b>	27272403
<b>ECl@ss 8.1</b>	27272403

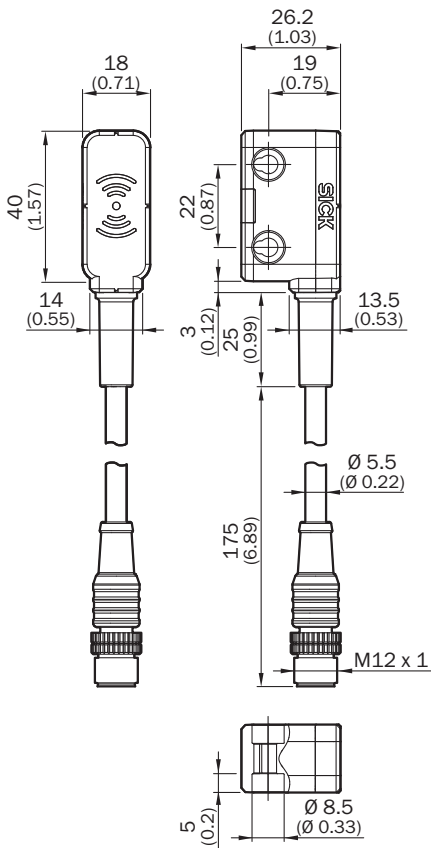
# STR1-SASFOAC5 | STR1

## NON-CONTACT SAFETY SWITCHES

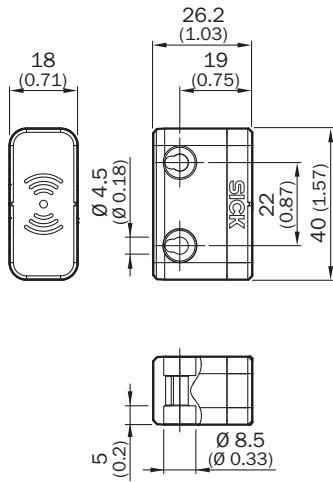
<b>ECl@ss 9.0</b>	27272403
<b>ECl@ss 10.0</b>	27272403
<b>ECl@ss 11.0</b>	27272403
<b>ETIM 5.0</b>	EC001829
<b>ETIM 6.0</b>	EC001829
<b>ETIM 7.0</b>	EC001829
<b>UNSPSC 16.0901</b>	39122205

### Dimensional drawing (Dimensions in mm (inch))

Sensor with cable and male connector

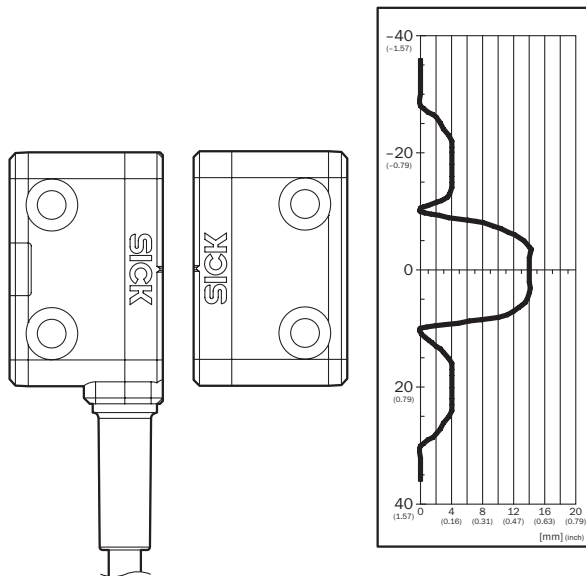


"Standard" actuator



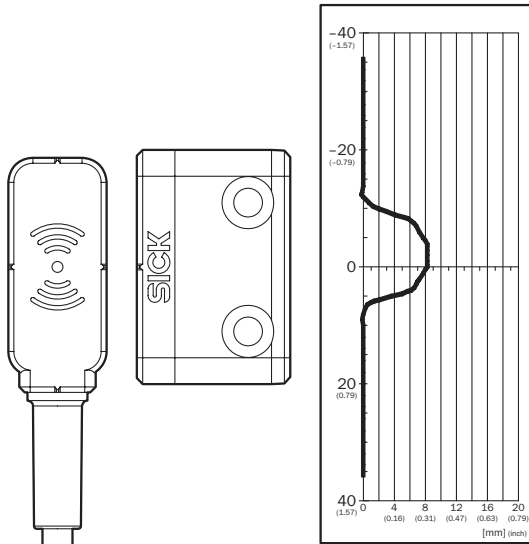
Response range

"Standard" actuator, active front sensor surface



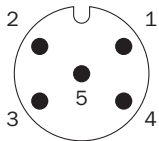
Assured switch on distance  $S_{ao}$  10 mm. Observe border areas for parallel approach: a minimum distance of 6 mm (typical) must be upheld when the actuator moves laterally to the sensor surface. This prevents early triggering due to the side preparation areas.

"Standard" actuator, active side sensor surface



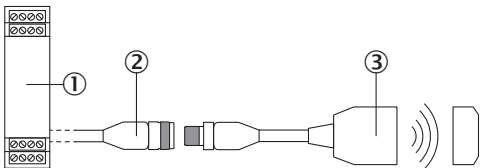
Safe switch on distance  $S_{a0}$  6 mm

### Connection diagram



1	Voltage supply 24 V DC
2	OSSD 1
3	Voltage supply 0 V DC
4	OSSD 2
5	Aux output (not safe)

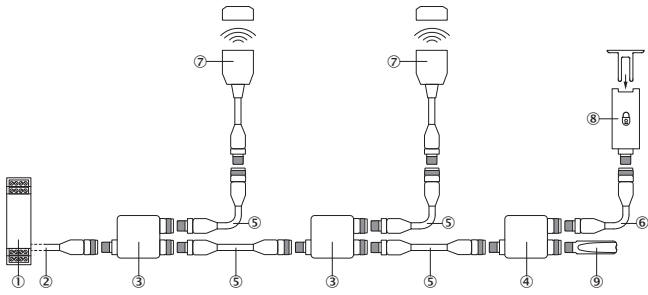
### Connection single sensor



- ① Safe evaluation unit
- ② Connecting cable with 5-pin, M12 female connector and flying leads (e.g., YF2A15-xxVB5XLEAX)
- ③ STR1 transponder safety switch (e.g., STR1-SAx0AC5)

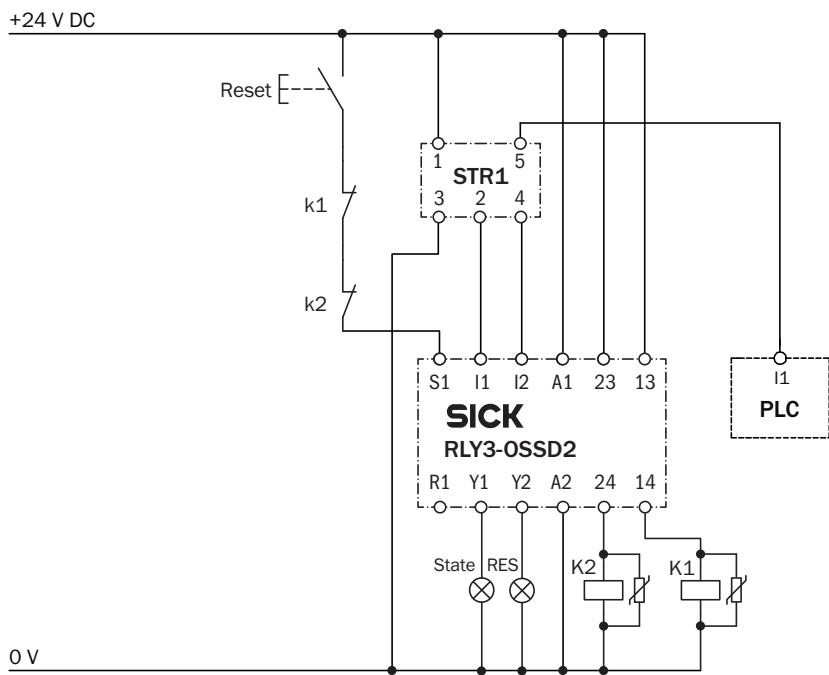
## Series connection

Series connection with Flexi Loop (with diagnostics)



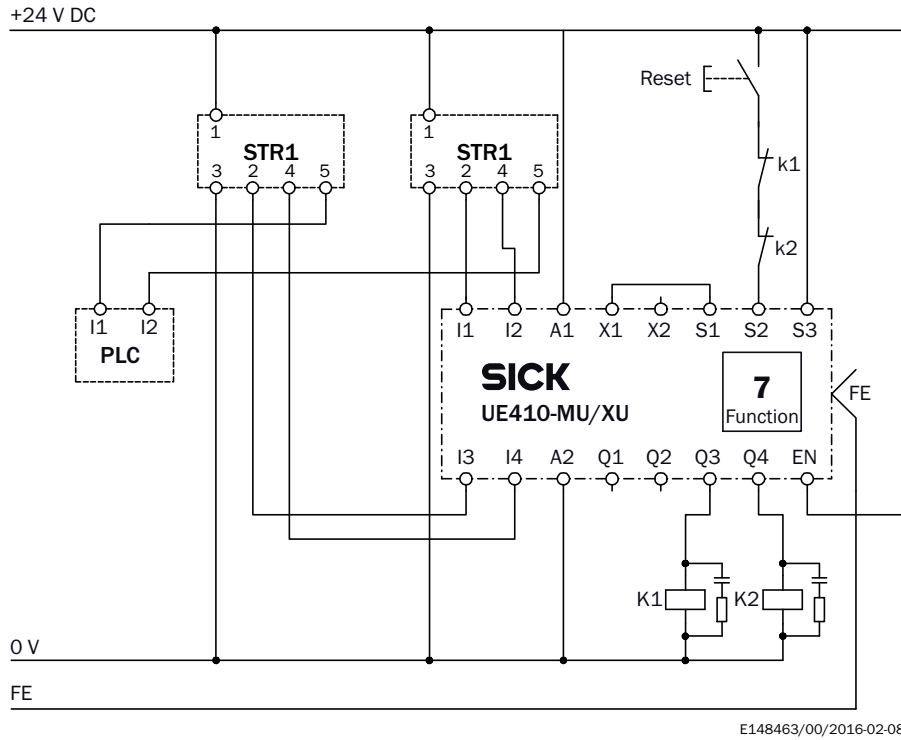
- ① Flexi Soft safety controller
- ② Connecting cable with 5-pin, M12 female connector and flying leads (e.g., YF2A15-xxxVB5XLEAX)
- ③ FLN-OSSD1000105 Flexi Loop node
- ④ FLN-EMSS1100108 Flexi Loop node
- ⑤ Connection cable with 5-pin, M12 male connector and 5-pin, M12 female connector (e.g., YF2A15-xxxUB5M2A15)
- ⑥ Connection cable with 8-pin, M12 male connector and 8-pin, M12 female connector (e.g., YF2A18-xxxUA5M2A18)
- ⑦ STR1 transponder safety switch (e.g., STR1-SAx0AC5)
- ⑧ Safety locking device (e.g., i10-x0454 or i110-x0454)
- ⑨ FLT-TERM00001 Flexi Loop terminating element

STR1 transponder safety switch to RLY3-OSSD2 safety relay





E212770/00/2018-06-07

Parallel connection of two STR1 transponder safety switches to a Flexi Classic safety controller



## Recommended accessories

Other models and accessories → [www.sick.com/STR1](http://www.sick.com/STR1)

Brief description		Type	Part no.
<b>Nuts and screws</b>			
	10 pieces	Safety screws M4 x 20	5333571
<b>Plug connectors and cables</b>			
	Head A: female connector, M12, 5-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 2 m	YF2A15-020VB5XLEAX	2096239
	Head A: female connector, M12, 5-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m	YF2A15-050VB5XLEAX	2096240
	Head A: female connector, M12, 5-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 10 m	YF2A15-100VB5XLEAX	2096241



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For us, that is “Sensor Intelligence.”

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