



# SSP

Safety System Products

## SAFIX S1

### RFID Safety Sensor, lowcoded, autom. reset, M8

#### Your advantages

- PLe according to EN ISO 13849-1
- Series connection of up to 80 sensors without reduction in safety
- No increase in the response times with series connection
- No special analysis system required
- LED diagnosis
- Single information signal for diagnosis
- Highly coded according to EN ISO 14119 (version I1 and W1)
- Small compact design



To the downloads ►

we simplify safety

## SAFIX S1

Highly coded in a compact design – the latest RFID technology

The SAFIX safety sensors from the company SSP not only impress because of their compact design but also due to their use of the latest RFID technology. Available in 3 different versions with a choice of lower or higher levels of coding according to EN ISO 14119, they offer a high level of protection against manipulation.

SAFIX can be switched in series up to 80 times without any significant increase in response time and can thus be integrated into systems with the highest safety levels (PLe according to ISO 13849-1). Thanks to the 8-pin M8 connector and its OSSD output signals, the SAFIX can be connected to all manner of safety relays and thus perfectly integrated into the existing environment. A three colour LED display offers user-friendly diagnosis and enables fast maintenance and commissioning. The flat actuator means that SAFIX can be quickly and easily installed on a wide variety of applications, irrespective of whether it is a swing door, lifting gate or aluminium profile. Thanks to the 8-pole M8 connector and its OSSD output signals, the SAFIX can be connected to all manner of safety relays and thus perfectly integrated into the existing environment.

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|  |   |
|--|---|
| Electrical data - safety inputs                                | X1 and X2                                       |
| Standards  | ISO 13849-1, IEC 61508, IEC 60947-5-3, EN 62061 |
| Risk time (safe switch-off time) (also with series connection) | < 200 ms  |
| Rated operating current I <sub>0</sub>                         | 0,6 A   |
| Switching frequency  | 1 Hz  |

### General data

|                                  |                                     |
|----------------------------------|-------------------------------------|
| Type designation                 | SAFIX S1                            |
| Item number                      | SP-K-70-000-00                      |
| Functional type                  | RFID safety sensor, standard coding |
| Service life TM (EN ISO 13849-1) | 20 Years                            |



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|               |                    |
|---------------|--------------------|
| Coding levels | Low (EN ISO 14119) |
|---------------|--------------------|

#### Safety data

|                                |                         |
|--------------------------------|-------------------------|
| PFHd (EN ISO 13849)            | $6,8 \times 10^{-10}/h$ |
| Category (EN ISO 13849-1:2015) | cat. 4                  |
| SIL (acc. IEC 62061)           | SIL3, SILCL3            |
| Approvals                      | TÜV_SÜD, CE             |

#### Environmental conditions

|                            |                                      |
|----------------------------|--------------------------------------|
| Max. storage temperature   | -25 ... +85 °C                       |
| Max. operating temperature | -25 ... +65 °C                       |
| Protection class           | IP65, IP67 according to IEC/EN 60529 |
| Contamination level        | 3                                    |

#### Electrical data

|   |   |
|---|---|
| Overvoltage category                      | III   |
| Electrical service life (nominal load)    | 20 Years  |
| Rated impulse withstand voltage $U_{imp}$ | 0,8 kV  |
| Design / Connections                      | M8 plug connector   |
| Rated operating voltage $U_e$             | min. 20,4 VDC max. 26,4 VDC V   |
| Rated insulation voltage $U_i$            | 32 V  |
| No-load current $I_0$                     | 100 mA  |
| Conditional short-circuit current         | 100 A   |
| Switching frequency                       | 1   |
| Risk time                                 | < 100 ms  |
| Series connection                         | The construction of a series connection is possible. Response and risk times remain unchanged even when connected in series. The number of devices is limited only by the external line protection according to the technical data and the line losses. |
| rated operational voltage $U_{op}$        | min. 20,4 VDC max. 26,4 VDC   |
| Safety outputs                            | Y1 and Y2   |
| Amount of safe semiconductor outputs      | 2   |



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|  |   |
|--|---|
| max. output current safety output              | 0,25 A A                                    |
| residual current                               | ≤ 0,5 mA                                    |
| Diagnostic output                              | p-switch, shortcircuit proof                |
| Utilisation category                           | DC-12: 24 V / 0.25 A / DC-13: 24 V / 0.25 A |
| cross wiring/short-circuit monitoring possible | Yes   |
| Type of voltage                                | DC  |
| Rated conditional short-circuit                | 100 A                                       |

#### pin assignment with SSP accessories cable

|   |                       |
|---|-----------------------|
| 1 | A1 Ue                 |
| 2 | X1 safety input 1     |
| 3 | A2 GND                |
| 4 | Y1 safety output 1    |
| 5 | OUT diagnostic output |
| 6 | X2 safety input 2     |
| 7 | Y2 safety output 2    |
| 8 | IN not used           |

#### Mechanical data

##### Dimensions

|                                     |  |
|-------------------------------------|--|
| Width                               | 40 mm                                  |
| Height                              | 29,5 mm                                |
| Length                              | 18 mm                                  |
| Mounting                            | without mounting set with 20 mm screws |
| Housing material                    | Plastic, thermoplast                   |
| Shock resistance                    | 30 g / 11 ms                           |
| Vibration resistance                | 10 ... 55 Hz, amplitude 1 mm Hz        |
| Diagnostic output                   | Yes                                    |
| Time to readiness                   | < 5 s                                  |
| Cascadable                          | Yes                                    |
| Operation plane                     | operation level front and side         |
| Active area                         | front and side                         |
| Switching distance Sn               | front 12 mm, side 9 mm                 |
| Assured switching distance ON S(ao) | front 10 mm, side 6 mm                 |































### SAFIX S1

|                                      |                         |
|--------------------------------------|-------------------------|
| Assured switching distance OFF S(ar) | front 18 mm, side 15 mm |
| Hysteresis                           | max. 2 mm               |
| Repeat accuracy R                    | < 0,5 mm                |

#### LED diagnostics

Advanced LED diagnosis

##### Extended LED-Diagnosis

| Green  | Red  | Yellow   | Remark   | Green  | Red  | Yellow   | Remark   |
|--|--|--|--|--|--|--|--|
| on<br>    | off<br>   | off<br>       | Input circuit OK,<br>Operating voltage OK                          | flashes<br>   | off<br>       | off<br>  | 10 minutes break after relearning<br>Door closed and target learned<br>(function only activated in<br>learning mode) |
| on<br>    | off<br>   | on<br>        | Door closed, Sensor has switched                                   | flashes<br> | off<br>     | on<br> | Error in input circuit X1 or X2.<br>Example: A door in a previous<br>safety circuit is open                          |
| on<br>  | off<br> | flashes<br> | Safety outputs have switched,<br>switching distance near the limit | off<br>     | flashes<br> | on<br> | Error in output Y1   |
| off<br> | on<br>  | flashes<br> | Sensor in learning mode  | off<br>     | flashes<br> | on<br> | Error in output Y2   |
|  |  |  |  | off<br>     | flashes<br> | on<br> | Cross circuit Y1/Y2  |
|  |  |  |  | off<br>     | flashes<br> | on<br> | Wrong or defective actuator  |

### SAFIX S1

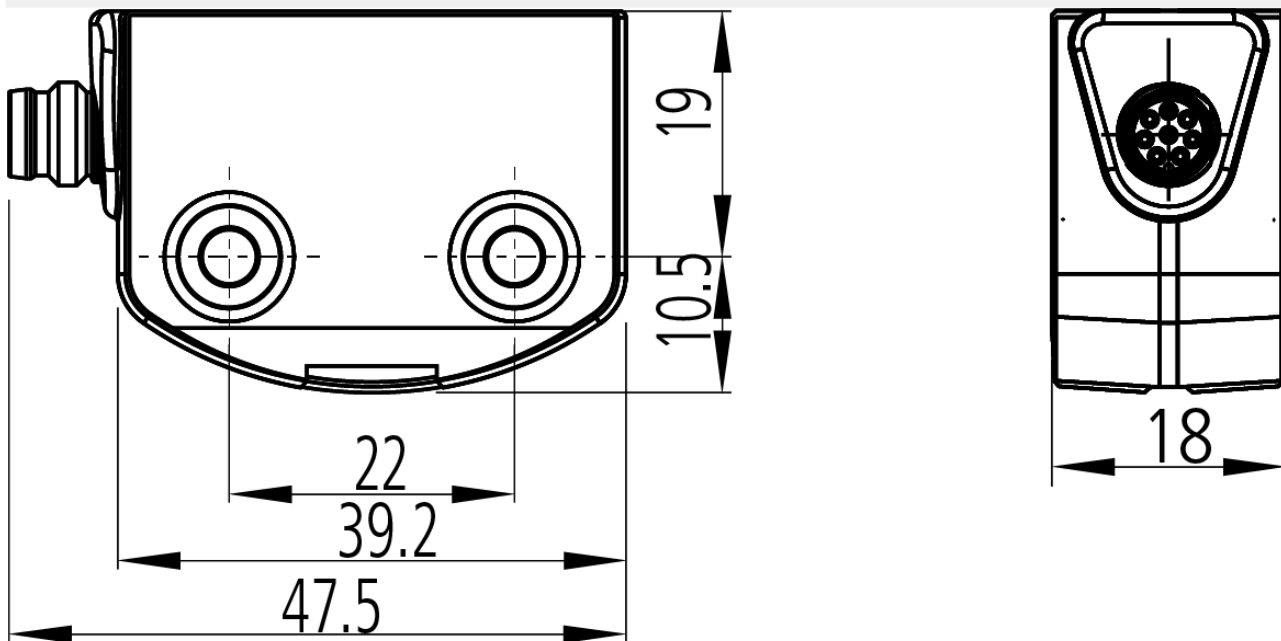
Diagnose function

#### Examples for diagnosis functions of safety sensors

| Sensor function |                                    | LED's   |         |               | Diagnosis output | Safety outputs | Remark   |
|-----------------|------------------------------------|---------|---------|---------------|------------------|----------------|--|
|                 |                                    | Green   | Red     | Yellow        |                  |                |  |
|                 |                                    |         |         |               |                  | <b>Y1, Y2</b>  |  |
| I.              | Supply voltage                     | on      | off     | off           | 0 V              | 0 V            | Voltage applied, no valuation of voltage   |
| II.             | Dampened                           | on      | off     | on            | 24 V             | 24 V           | The yellow LED signalises a acctuator in the detection zone  |
| III.            | Dampened, acctuator in border area | on      | off     | flashes (1Hz) | 24 V clocked     | 24 V           | Sensor should be readjusted, to prevent the distance to the acctuator from widening further, switch off the safety outputs and thus stopping the machine |
| IV.             | Error warning, Sensor dampened     | off     | flashes | on            | 0 V              | 24 V           | After 30 min error   |
| V.              | Error                              | off     | flashes | on            | 0 V              | 0 V            | View table blinkcodes  |
| VI.             | Target training                    | off     | on      | flashes       | 0 V              | 0 V            | Sensor in training mode  |
| VII.            | Protection time                    | flashes | off     | off           | 0 V              | 0 V            | 10 min break after   |
| VIII.           | Error in Input circle X1, X2       | flashes | off     | off           | 0 V              | 0 V            | Input circuit X1 or X2 not present   |

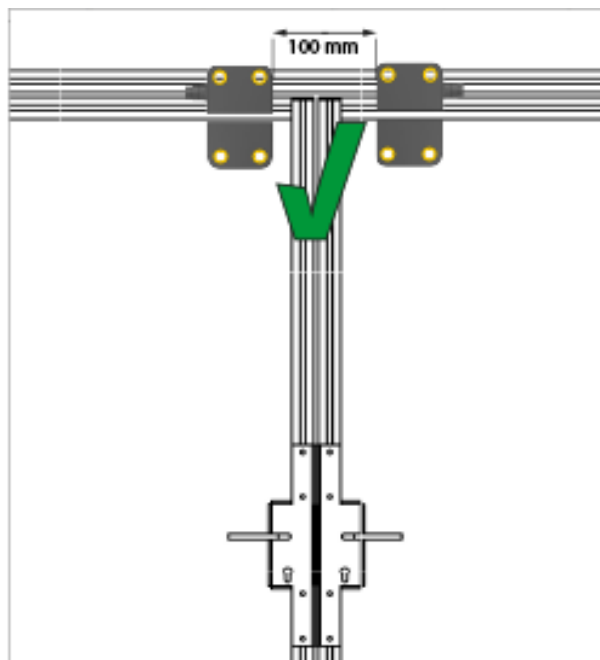
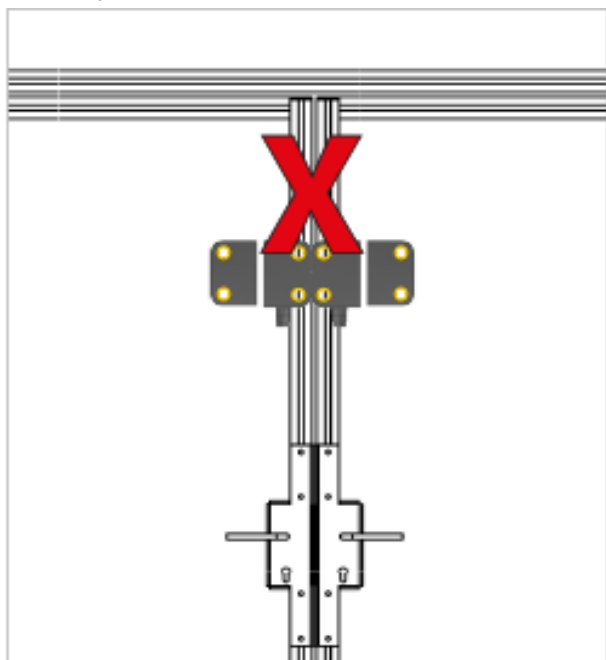
#### Drawings

##### Dimensions



## SAFIX S1

Assembly

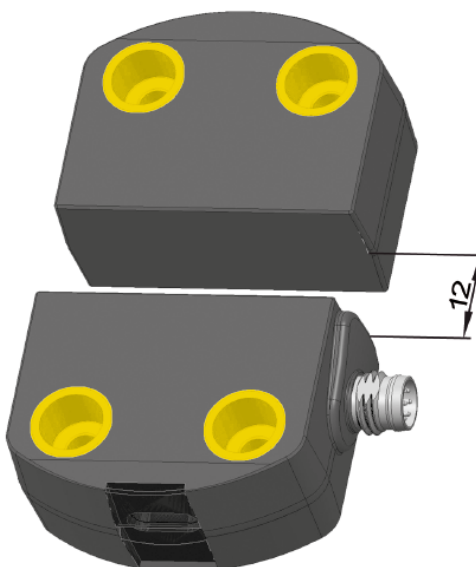


Minimum distance between two sensors 100 mm

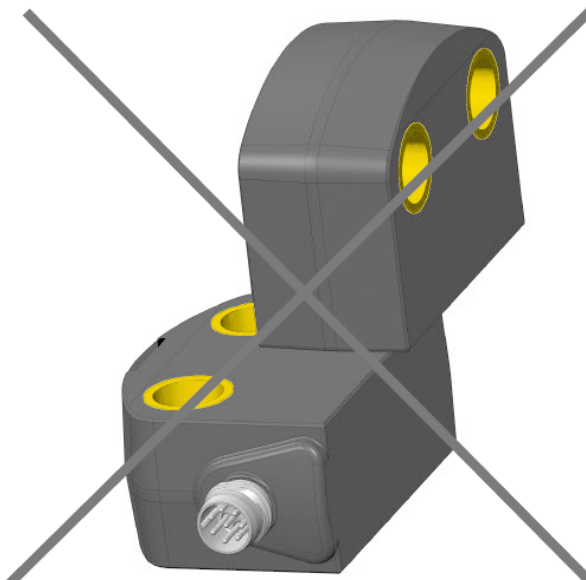
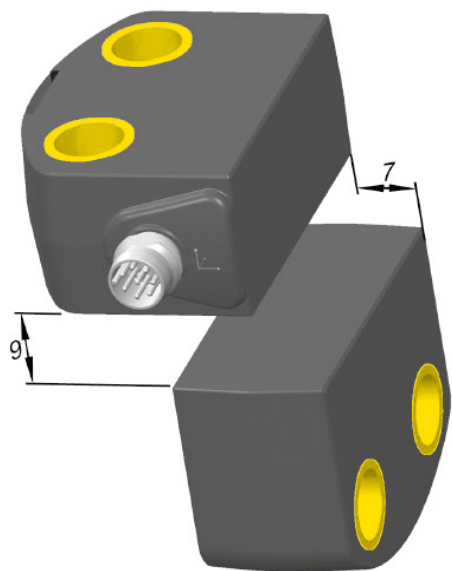
## SAFIX S1

### Approach

Front view



Side view




### Equipment

### Accessories



### SAFIX S1

|                                       |                |                |   |
|---------------------------------------|----------------|----------------|---|
| M8-female connector, 8 pin, 10 m      | M8-C8101-G     | SP-X-33-000-01 |    |
| M8-female connector, 8 pin, 90°, 10 m | M8-C8101-V     | SP-X-33-000-04 |    |
| M8-female connector, 8 pin, 90°, 20 m | M8-C8201-V     | SP-X-33-000-05 |    |
| M8-female connector, 8 pin, 5 m       | M8-C851-G      | SP-X-33-000-00 |  |
| M8-female connector, 8 pin, 90°, 5 m  | M8-C851-V      | SP-X-33-000-03 |  |
| M8-M12-connecting cable, 8 pin, 10 m  | M8-M12-C8103-G | SP-X-33-000-17 |  |
| M8-M12-connecting cable, 8 pin, 2 m   | M8-M12-C823-G  | SP-X-33-000-15 |  |

#### Safe control technology

MOSAIC M1      SP-R-11-000-00



### SAFIX S1

Standard safety relay 1 safety function

S series

SP-S-00-001-01



Time delay safety relay 1 safety function

T series

SP-S-00-002-01



#### Safety switches

Standard-actuator for SAFIX 1

SAFIX T3

SP-K-70-000-03



Flat actuator for SAFIX 1

SAFIX T4

SP-K-70-000-04



Mounting

SAFIX Z B5

SP-K-71-000-08



Passive distributor

XCONN P6-M12-10m

SP-X-71-000-04



Passive distributor

XCONN P6-M12-5m

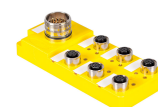
SP-X-71-000-00



Passive distributor

XCONN P6-M12-M23

SP-X-71-000-01



## **SAFIX S1**

### **Downloads**

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- Certificate
- EPLAN-Data