



TR4-SAM01CB

TR4 Direct

NON-CONTACT SAFETY SWITCHES

SICK
Sensor Intelligence.



Ordering information

Type	Part no.
TR4-SAM01CB	6070789

Other models and accessories → www.sick.com/TR4_Direct



Detailed technical data

Features

System part	Sensor with actuator
Sensor principle	RFID
Number of safe outputs	2
Safe switch on distance S_{ao}	15 mm
Safe switch off distance S_{ar}	25 mm
Active sensor surfaces	2
Actuation directions	5
Coding	Universally coded

Safety-related parameters

Safety integrity level	SIL3 (IEC 61508)
Category	Category 4 (EN ISO 13849)
Performance level	PL e (EN ISO 13849)
PFH_D (mean probability of a dangerous failure per hour)	$6.03 * 10^{-10}$
T_M (mission time)	20 years (EN ISO 13849)
Type	Type 4 (EN ISO 14119)
Actuator coding level	Low coding level (EN ISO 14119)
Classification in compliance with IEC/EN 60947-5-3	PDF-M
Safe state in the event of a fault	At least one safety-related semiconductor output (OSSD) is in the OFF state.

Functions

Safe series connection	With Flexi Loop (with diagnostics) With T-connector (without diagnostics)
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Interfaces

Connection type	Cable with plug M12, 8-pin
Length of cable	0.2 m
Long connecting cable	≤ 200 m
Cable diameter	6.5 mm
Conductor cross section	0.25 mm ²

Bend radius (with fixed installation)	> 7 x cable diameter
Bend radius (with moving cable)	> 14 x cable diameter
Cable material	PVC
Conductor material	Copper
Coupling nut material	Nickel-plated brass
Status display	✓

Electrical data

Protection class	III (EN 50178)
Classification according to cULus	Class 2
Supply voltage V_s	24 V DC (20.4 V DC ... 26.4 V DC)
Power consumption	≤ 50 mA
Type of output	Self-monitoring semiconductor outputs (OSSDs)
Output current	≤ 200 mA
Response time	45 ms ¹⁾
Release time	360 ms ²⁾
Risk time	≤ 100 ms ³⁾
Switch-on time	2 s ⁴⁾
Electrical life	10 x 10 ⁶ switching cycles

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

²⁾ Response time on approach to the enable zone.

³⁾ Detection time for external faults (e.g., short-circuit or cross-circuit of output signal switching devices). Follow the detailed information in the operating instructions.

⁴⁾ After application of the supply voltage to the safety switch.

Mechanical data

Design	Cylindrical
Housing diameter (sensor/actuator)	M18 / M18
Weight	62 g
Housing material	Valox® DR48

Ambient data

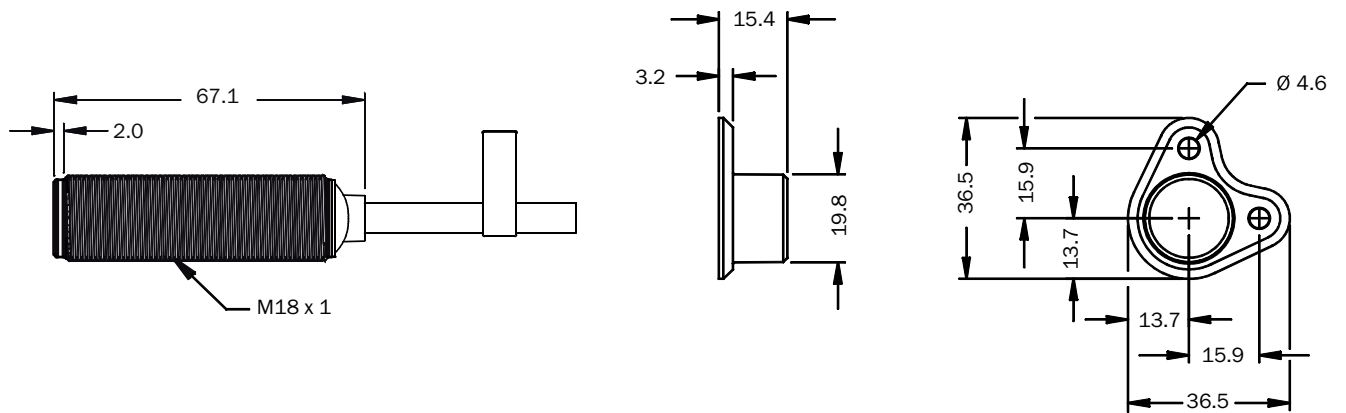
Enclosure rating	IP67 (IEC 60529) IP69K (ISO 20653)
Ambient operating temperature	-25 °C ... +70 °C
Vibration resistance	10 Hz ... 55 Hz, 3.5 mm (IEC 60068-2-6)
Shock resistance	30 g, 11 ms (EN 60068-2-27)

Classifications

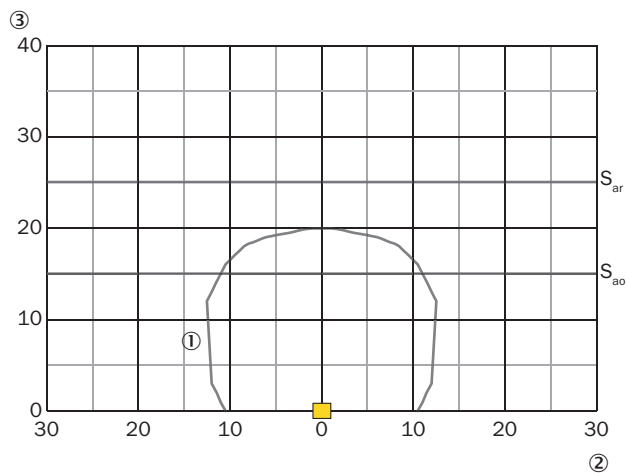
eCl@ss 5.0	27272403
eCl@ss 5.1.4	27272403
eCl@ss 6.0	27272403
eCl@ss 6.2	27272403
eCl@ss 7.0	27272403
eCl@ss 8.0	27272403
eCl@ss 8.1	27272403

eCl@ss 9.0	27272403
eCl@ss 10.0	27272403
eCl@ss 11.0	27272403
eCl@ss 12.0	27274601
ETIM 5.0	EC001829
ETIM 6.0	EC001829
ETIM 7.0	EC001829
ETIM 8.0	EC001829
UNSPSC 16.0901	39122205

Dimensional drawing (Dimensions in mm (inch))

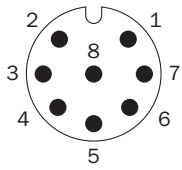


Response range



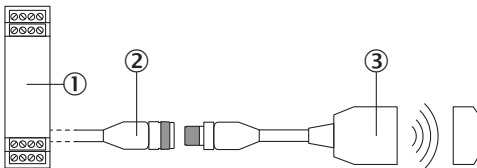
- ① Sensing range
- ② Side deviation in mm
- ③ Distance to sensor surface

Pin assignment



1	Aux output (not safe)
2	Voltage supply 24 V DC
3	Not connected
4	Enable input for OSSD 2
5	OSSD 1
6	OSSD 2
7	Voltage supply 0 V DC
8	Enable input for OSSD 1

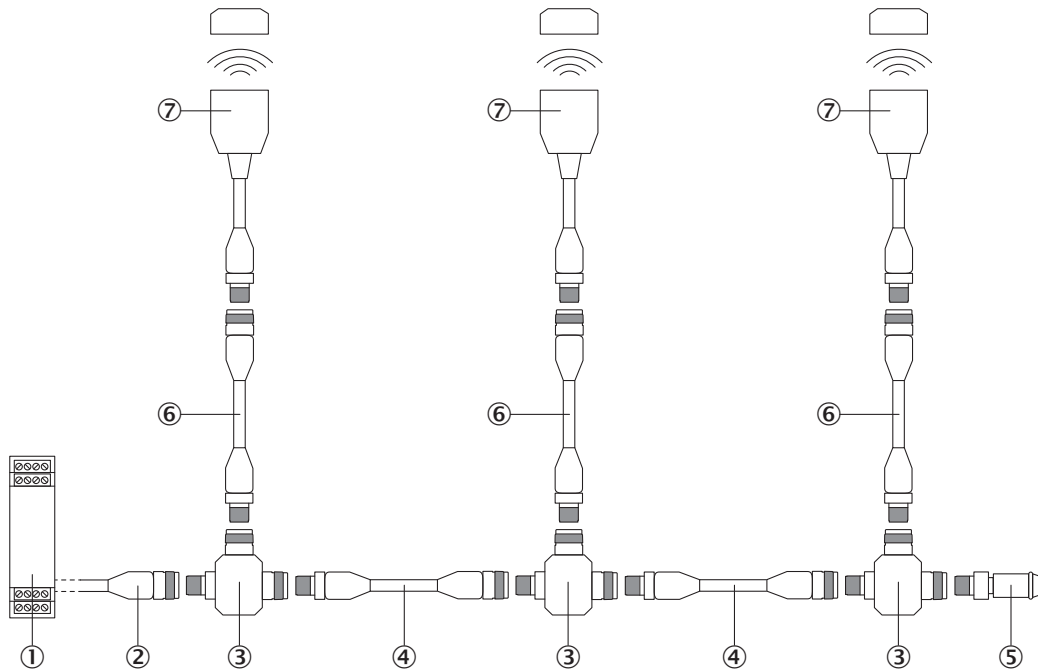
Connection single sensor



- ① Safe evaluation unit
- ② Connecting cable with M12 female connector, 8-pin and flying leads (e.g. YF2A18-xxUA5LEAX)
- ③ TR4 Direct RFID safety switch (e.g., TR4-Sxx01C)

Series connection



Series connection with T-piece (without diagnostics)




- ① Safe evaluation unit
- ② Connecting cable with M12 female connector, 4-pin and flying leads (e.g. YF2A14-xxxVB3XLEAX)
- ③ STR1-XXA T-connector
- ④ Connection cable with 4-pin, M12 male connector and 4-pin, M12 female connector (e.g., YF2A14-xxxVB3M2A14)
- ⑤ MLP1-XXT end connector
- ⑥ Connection cable with 8-pin, M12 male connector and 8-pin, M12 female connector (e.g., YF2A18-xxxUA5M2A18)
- ⑦ TR4 Direct RFID safety switch (e.g., TR4-Sxx01C)

Recommended accessories

Other models and accessories → www.sick.com/TR4_Direct

Brief description	Type	Part no.
Mounting brackets and plates		
 Mounting bracket for M18 sensors, steel, zinc coated, without mounting hardware	BEF-WN-M18	5308446
Plug connectors and cables		
 Head A: female connector, M12, 8-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 2 m	YF2A18-020UA5XLEAX	2095652
Head A: female connector, M12, 8-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 5 m	YF2A18-050UA5XLEAX	2095653
Head A: female connector, M12, 8-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 10 m	YF2A18-100UA5XLEAX	2095654

	Brief description	Type	Part no.
Terminal and alignment brackets			
	Clamping block for round sensors M18, without fixed stop, plastic (PA12), glass-fiber reinforced, mounting hardware included	BEF-KH-M18	2051481

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