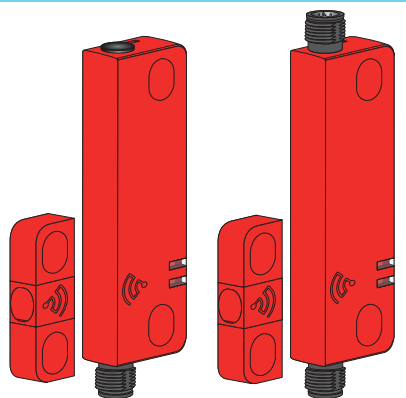
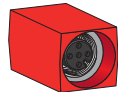


Contactless RFID Safety Switches



XCSRC.0M12:
Single Models for point-to-point connections

XCSRC.2M12:
Daisy-chain models for series connection



XCSRZE:
Loopback device M12

XCSRC.1.M12:
Standalone Models



<http://qr.tesensors.com/XCS015>

The XCSRC is to be integrated into the safety chain for the monitoring of mobile guards (swivelling, sliding or removable). The safe state is ensured when its two redundant safety outputs (OSSDs) are switched at the OFF state (guard door opened or safety switch in error mode)



Note: you can download the complete User Manual in different languages from our website at: www.tesensors.com



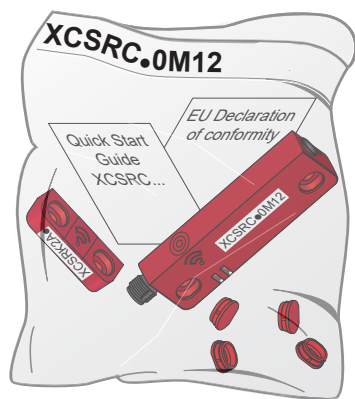
- (en) N°: QGH1315301
- (fr) N°: QGH1315302
- (de) N°: QGH1315303
- (es) N°: QGH1315304
- (it) N°: QGH1315305
- (pt) N°: QGH1315306
- (zh) N°: QGH1315307
- (ru) N°: QGH1315308



Scan the Qr-code to access the complete User Manual

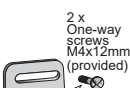
We welcome your comments about this document. You can reach us by e-mail at: customer-support@tesensors.com

Package Content (Example)

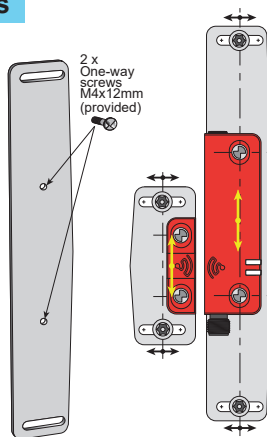


Accessories

Note:
• To order separately
• For fixing the mounting support on the machine, the use of M5 tamper-proof screws is strongly recommended



XCSRZSTK1



XCSRZSRC1

WARNING

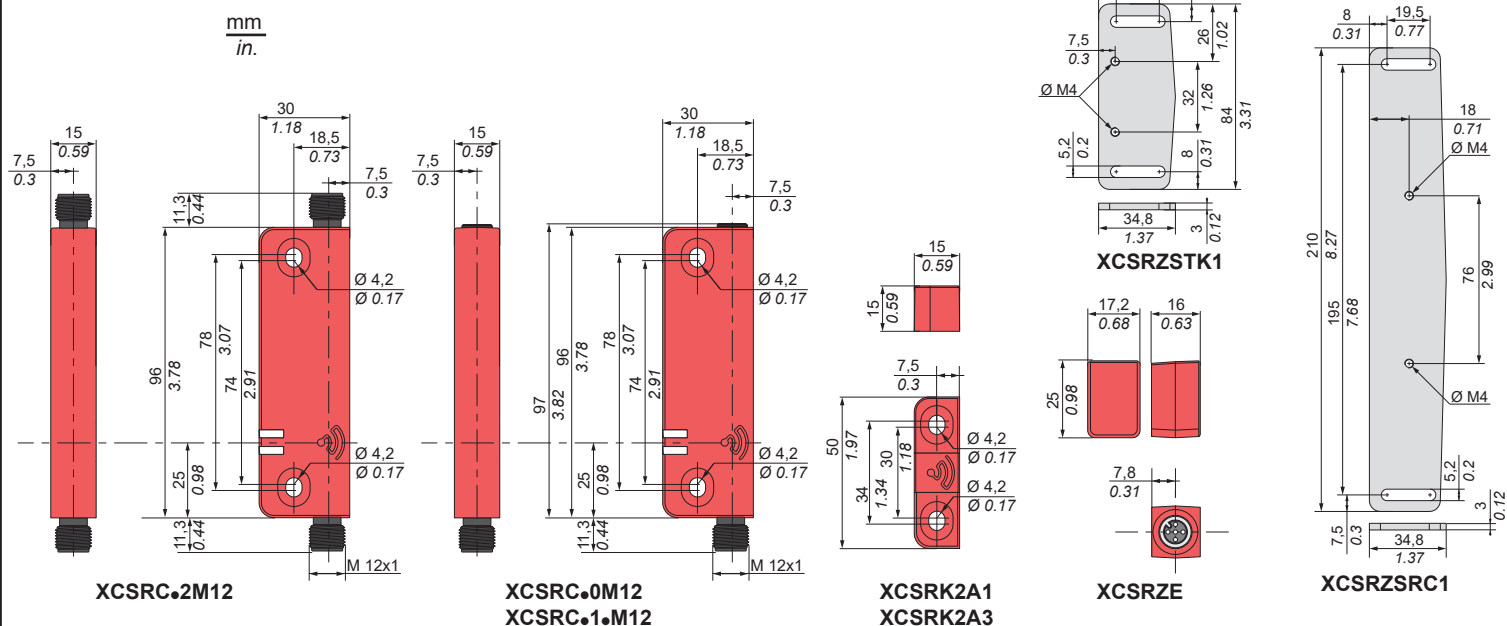
IMPROPER SETUP OR INSTALLATION

- This equipment must only be installed and serviced by qualified personnel.
- Read, understand, and follow the compliance below and the complete XCSR User Manual before installing the XCSR Safety RFID switch.
- Do not tamper with or make alterations on the unit.
- Comply with the wiring and mounting instructions.
- Check the connections and fastening during maintenance operations.
- Disconnect all power before servicing equipments.
- The proper functioning of the XCSR Safety RFID switch and its operating line must be checked on a regular basis based on the level of security required by the application (e.g. number of operations, level of environmental pollution, etc.).

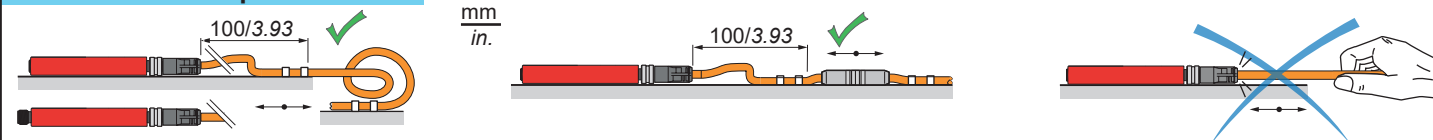
Failure to follow these instructions can result in death, serious injury, or equipment damage.

These devices have been designed to be in compliance with the standards currently in effect: EN/IEC 60947-5-2, EN/IEC 60947-5-3, EN/ISO 13849-1, IEC 61508, EN/IEC 62061, EN/ISO 14119, UL 508, CSA C22.2. These devices can achieve up to category 4 PL=e or SIL 3 (if combined with an appropriate Safety Control Unit PL=e / SIL 3 for Single and Daisy-chain models).

Dimensions



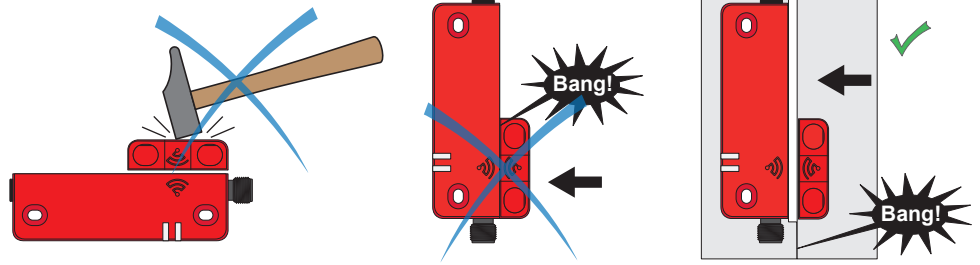
Cable connection procedures



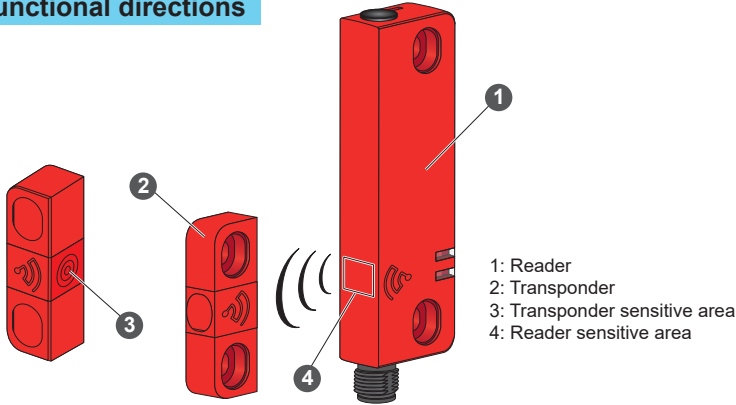
(en) Electrical equipment should be installed, operated and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

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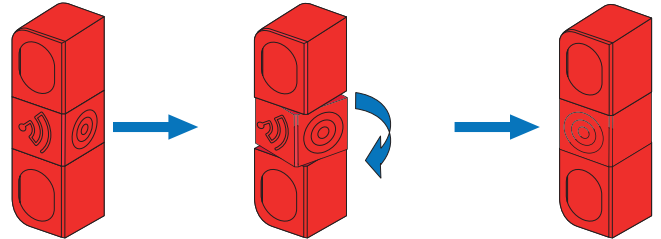
CAUTION
RISK OF MATERIAL DAMAGE
 • Do not use safety switch as a mechanical stop.
 • Do not adjust the position of switches using a hammer or other tool likely to exceed the device's shock and vibration tolerances.
Failure to follow these instructions can result in injury or equipment damage.



Functional directions



Orientation of the transponder sensitive area



Face to Face Mounting (preferred configuration)

WARNING

IMPROPER SETUP OR INSTALLATION

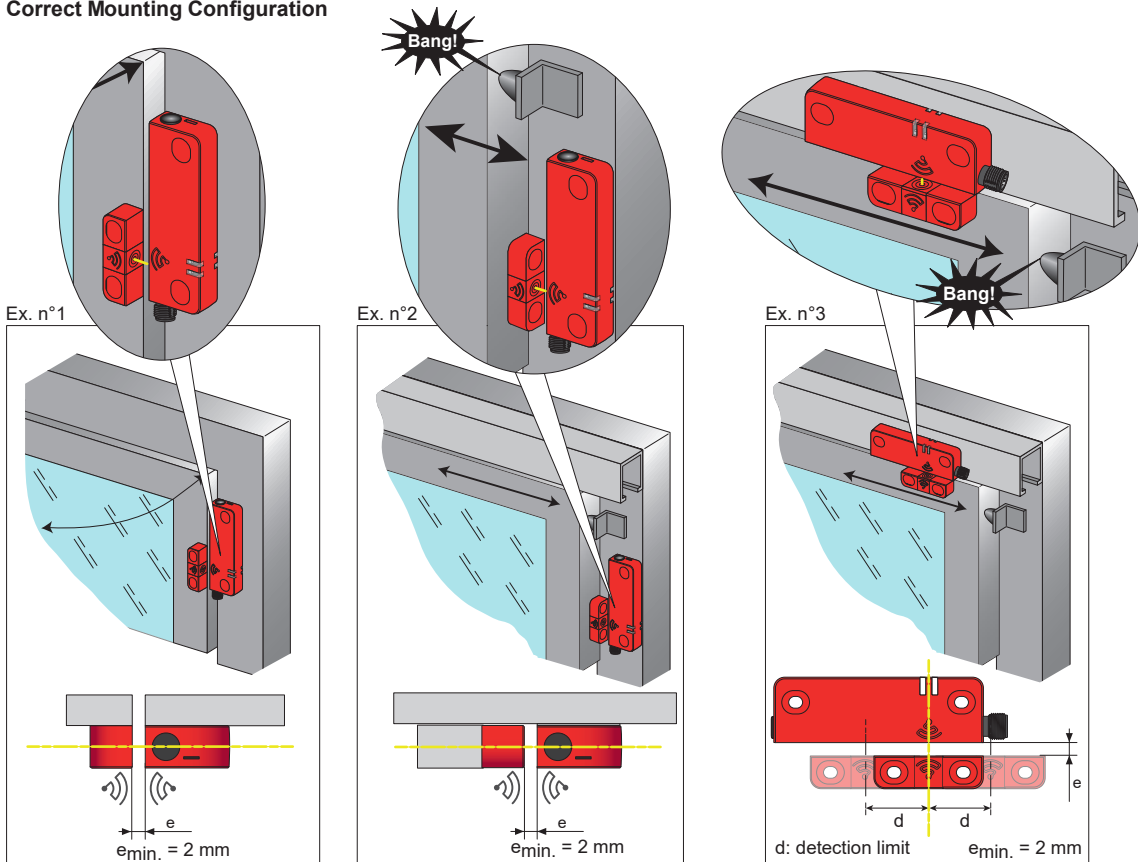
The XCSR RFID switch must always be mounted and used with respect to the assured sensing distances **Sao** and **Sar**:
 • When the guard is closed, the maximum distance between the transponder and the reader must be **Sao**.
 • When the guard is being opened and up to **Sar**, the protected machinery shall not present any risk of danger.

UNINTENDED EQUIPMENT OPERATION

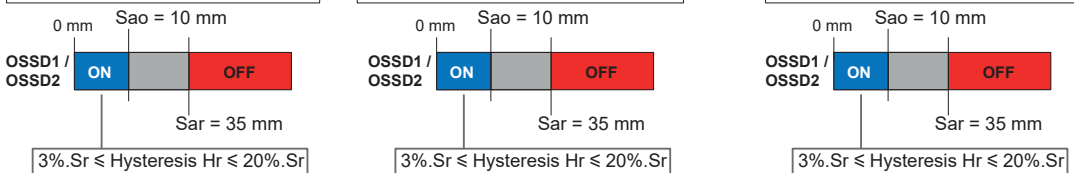
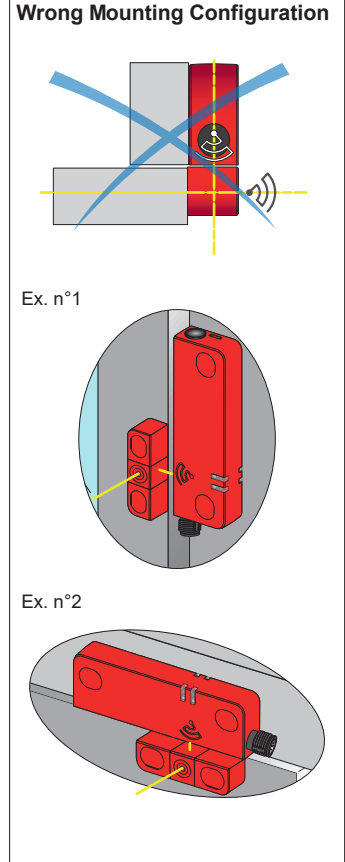
At every power-up phase, an automatic tuning between the transponder and the reader is performed. The aim of this automatic tuning is to reduce the environmental effects on the sensing distances (e.g. material of the mounting support, room temperature). Thus, transponder and reader must be installed in their definitive operational conditions before operating the power-up.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Correct Mounting Configuration



Wrong Mounting Configuration



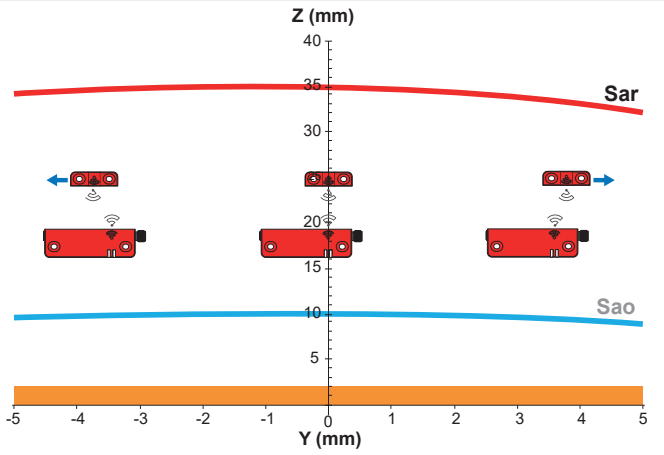
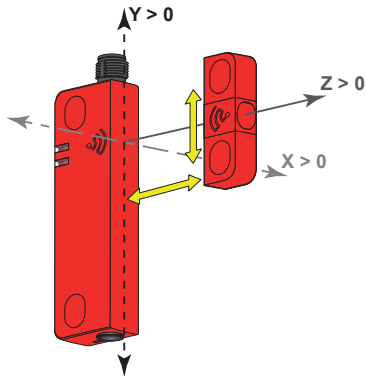
e = Recommended minimum mounting distance between transponder and reader.
Sr = Real switch-ON sensing distance
Sao: assured operating distance
Sar: assured release distance.

Sao, Sar, Hr values above are given without misalignment between the transponder and the reader : Transient state 1 mm = 0.04 in.

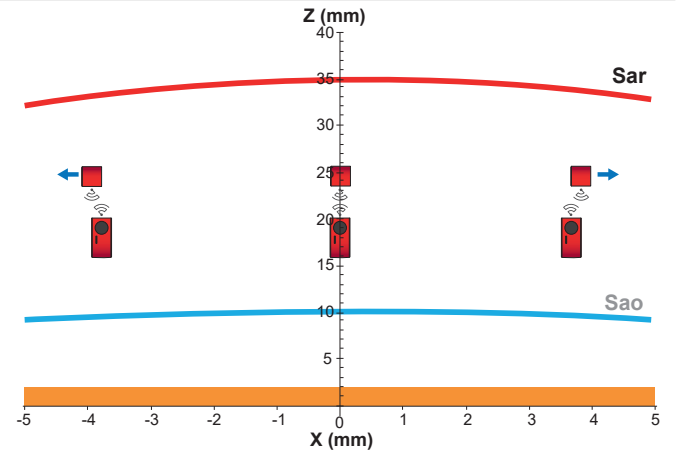
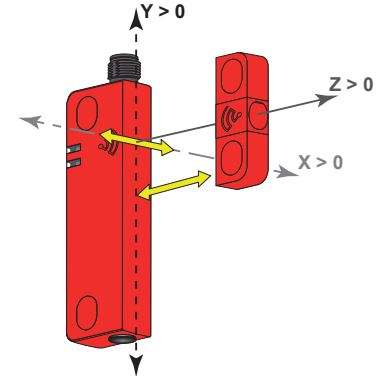
Detection Curves

A: Face to Face Mounting (preferred configuration)

Sao and Sar sensing distances along Y axis as function of Z (longitudinal misalignment for X=0)

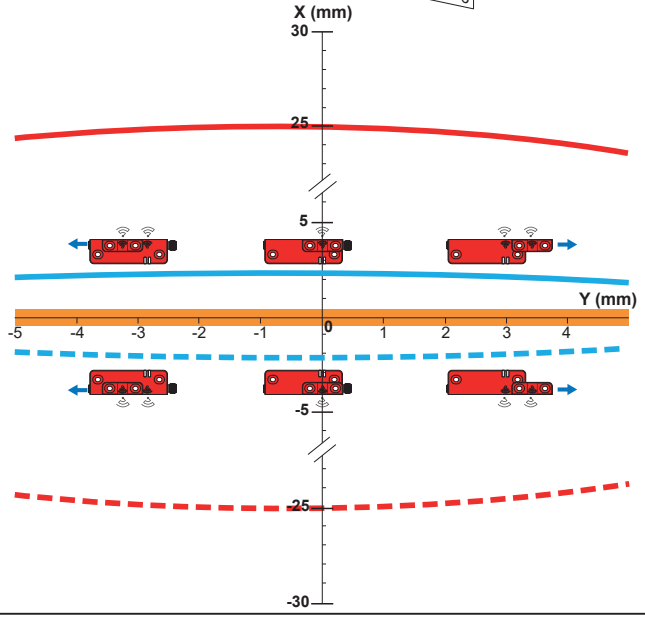
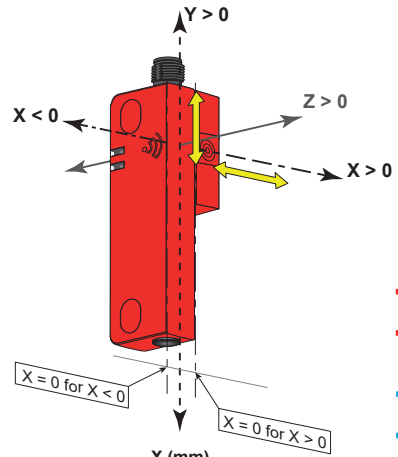


Sao and Sar sensing distances along X axis as function of Z (transverse misalignment for Y=0)

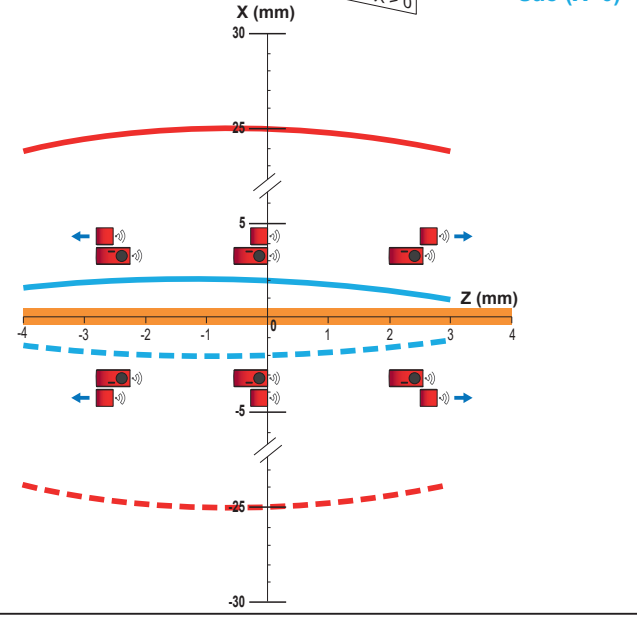
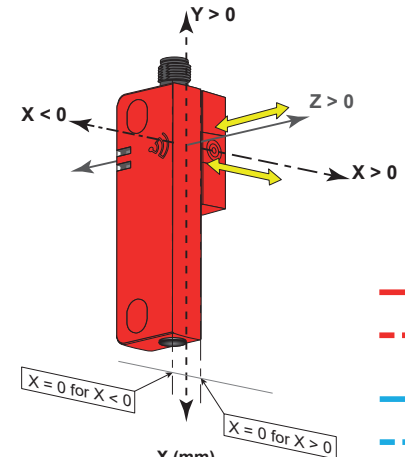


B: Side by Side Mounting

Sao and Sar sensing distances along Y axis as function of X (longitudinal misalignment for Z=0mm)

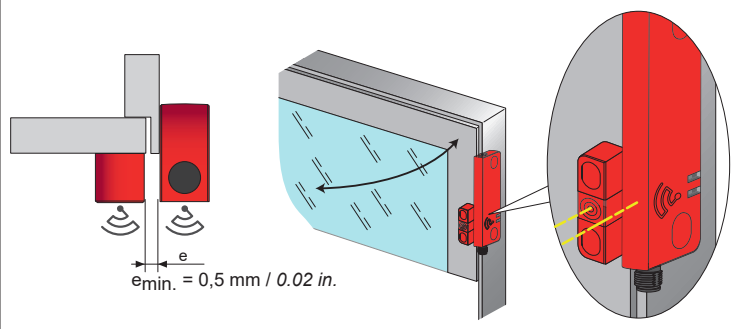


Sao and Sar sensing distances along Z axis as function of X (transverse misalignment for Y=0mm)

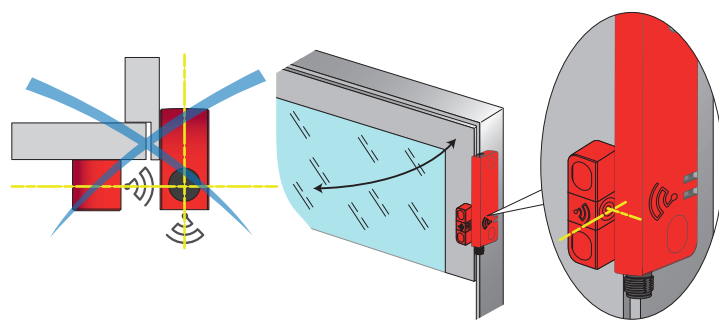


Side by Side Mounting (specification)

Correct Mounting Configuration

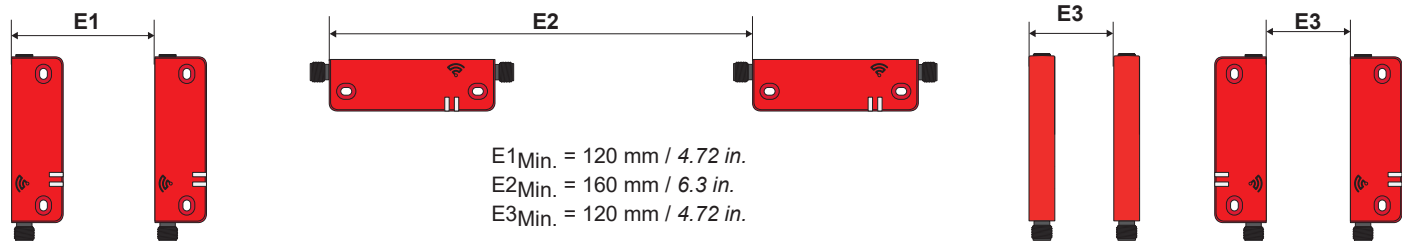


Wrong Mounting Configuration

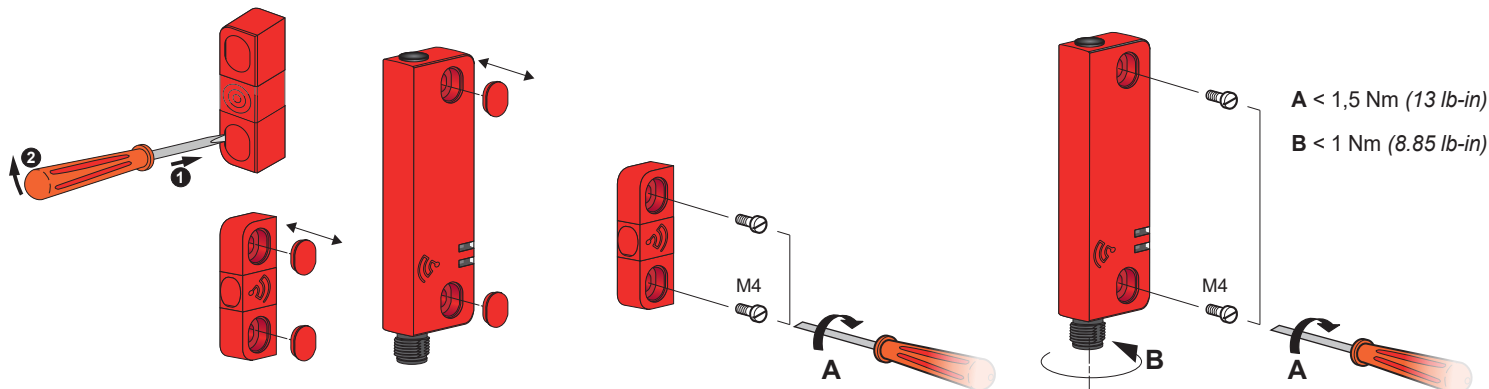



e = Recommended minimum mounting distance between transponder and reader.

Minimum mounting clearances between safety switches



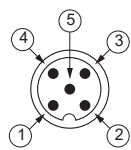
Tightening torque, tightening capacity



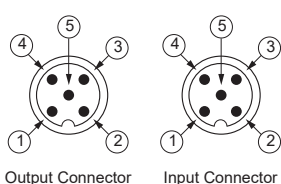
Possible use of one-way screws	One-Way Screw reference	Screw size	Sold in lots of
 to be ordered separately	XCSZ71	∅4mm x L14mm	10
	XCSZ72	∅4mm x L35mm	

Electrical Connections

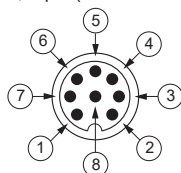
M12, 5-pin (XCSRC-0M12)



M12, 5-pin (XCSRC-2M12)



M12, 8-pin (XCSRC-1M12)

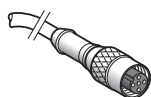


Pin Number	Description			
	XCSRC-0M12	XCSRC-2M12		XCSRC-1M12
		Connector "OUT"	Connector "IN"	
①	+24 Vdc	+24 Vdc	+24 Vdc	+24 Vdc
②	OSSD2	OSSD2 (O2)	INPUT2 (I2)	OSSD2
③	0 Vdc	0 Vdc	0 Vdc	0 Vdc
④	OSSD1	OSSD1 (O1)	INPUT1 (I1)	OSSD1
⑤	NC	Diagnosis Out (Do)	Diagnosis In (Di)	EDM_ST_1
⑥				EDM_ST_2
⑦				NC
⑧				NC

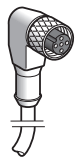
NC : Not connected

Pre-Wired Female Connectors

M12, 5 pins

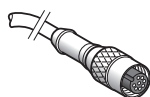


- XZCP11V12L2
- XZCP11V12L5
- XZCP11V12L10
- XZCP11V12L20



- XZCP12V12L2
- XZCP12V12L5
- XZCP12V12L10
- XZCP12V12L20

M12, 8 pins

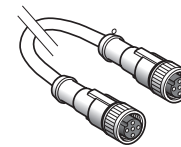


- XZCP29P12L2
- XZCP29P12L5
- XZCP29P12L10
- XZCP29P12L20



- XZCP53P12L2
- XZCP53P12L5
- XZCP53P12L10
- XZCP53P12L20

M12/M12 Female Jumpers



- XZCR1111064D03
- XZCR1111064D3
- XZCR1111064D5
- XZCR1111064D10
- XZCR1111064D25

Wiring diagram

Cat. 4 / PL=e (EN/ISO 13849-1) / SIL3 (IEC 61508) / SILCL3 (IEC 62061)
 (if combined with an appropriate Safety Control Unit PL=e / SIL 3 for Single and Daisy-chain models)

WARNING

UNINTENDED EQUIPMENT OPERATION

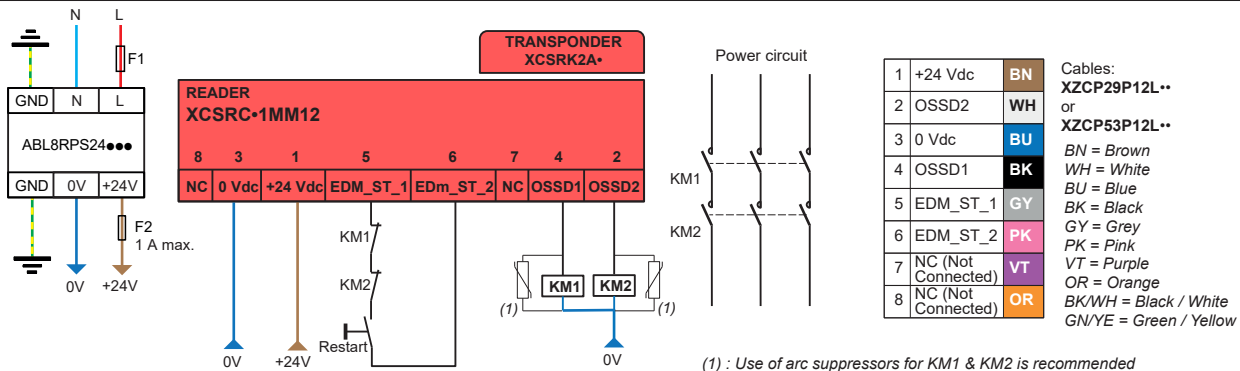
The external KM1 and KM2 contactors must have force-guided contacts.

IMPROPER CONNECTION

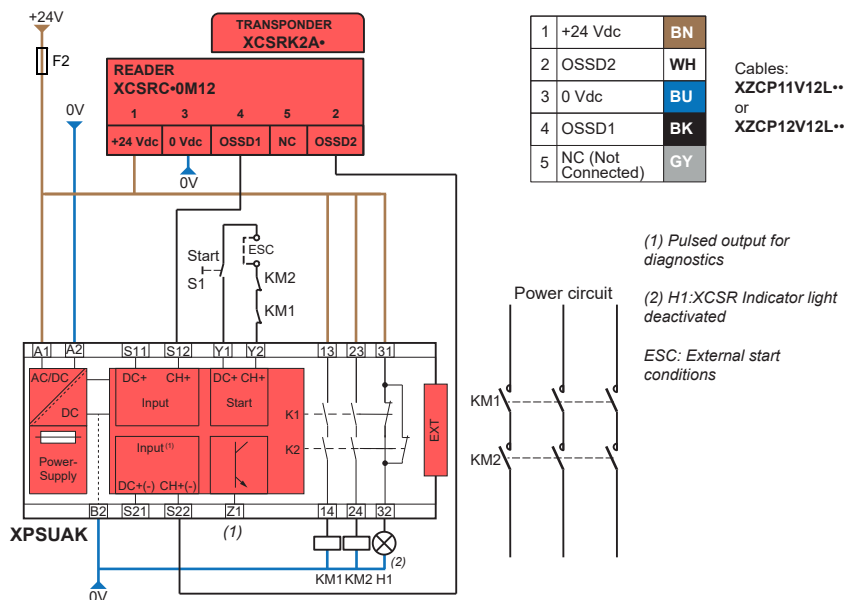
- The XCSR RFID Safety Switches must be powered by a dedicated safety extra low voltage (SELV) or a protected extra low voltage (PELV).
- The XCSR RFID Safety Switches operate directly from a 24 Vdc power supply. The power supply must meet the requirements of IEC 60204-1. The SELV Schneider Electric part number ABL8RPS24*** is recommended.
- The XCSR RFID Safety Switches must be connected using both safety outputs. A single safety output, if it fails, may not stop the machine.

Failure to follow these instructions can result in death, serious injury or equipment damage.

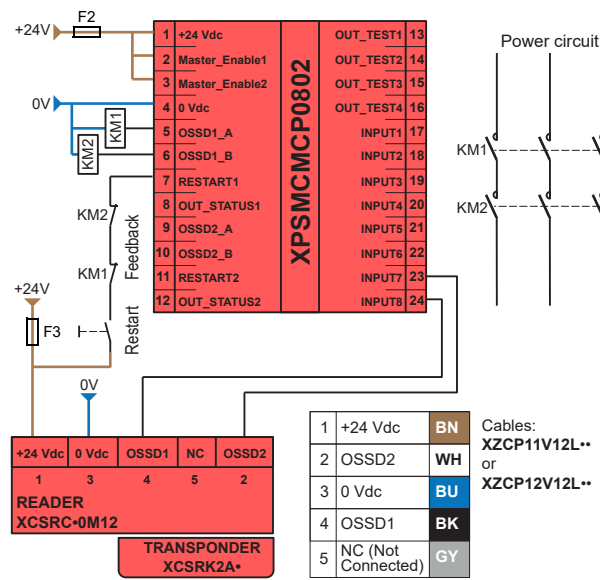
Standalone models



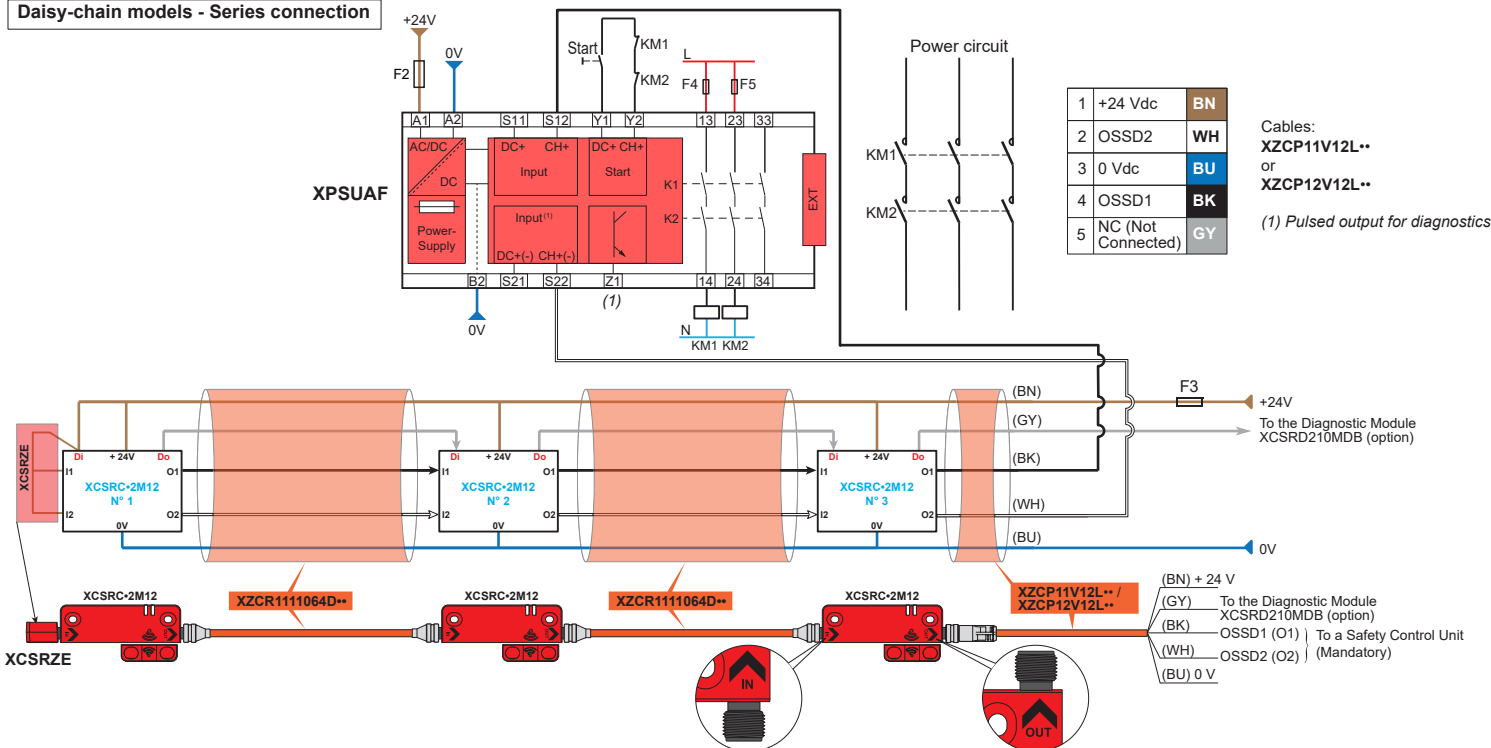
Single models Connection to a safety relay XPSUAK



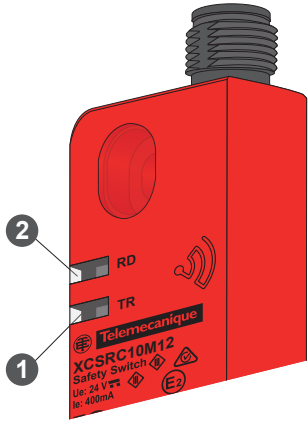
Single models Connection to a safety controller XPSMCM



Daisy-chain models - Series connection



Operating and output States, LED meaning



LED1 (TR): Transponder state
LED2 (RD): Reader/Output state

Operating state	Color LED1 (TR)	Color LED2 (RD)	OSSDs	LEDs meaning	Comment
OFF	OFF	OFF	OFF	XCSR reader is unpowered	
Initialization	Orange	Orange	OFF	XCSR reader initialization in progress	
Configuration	Orange Fast blinking	Orange Fast blinking	OFF	XCSR reader is in configuration mode	
	Green	Orange Fast blinking	OFF	Pairing with new transponder done: New power-up required	Only for "re-pairing enabled models"
	Orange blinking	Red	OFF	Maximum of pairing reached	
	Red blinking	Red	OFF	Invalid transponder detected	Transponder not blank or not Telemecanique transponder
	Orange Fast blinking	Red	OFF	Pairing process unsuccessful	Only for "re-pairing enabled models"
Run	Green	Orange blinking	OFF	Paired transponder detected: waiting for the start condition and/or KM1_KM2 feedback (EDM)	Only for standalone versions
	Green	Green	ON	Paired transponder detected and all other operating conditions are correct	Door closed
	Green	Red	OFF	Paired transponder detected but the safety inputs are at the OFF state.	For Daisy-Chain models: At least one of the previous readers has its OSSDs at the OFF state (door opened, error detected or OFF state)
	OFF	Red	OFF	No transponder in the field	Door opened
Error	Red blinking	Red blinking	OFF	Invalid transponder or non-paired transponder detected: New power-up required after fault clearance	Possible attempted fraud or transponder damaged
	Green or OFF	1,2,3,4 or 5 red flashes	OFF	Internal error detected. Contact the customer support of your country	The color of the LED1 depends on the presence of the transponder: ● Green: transponder detected ● OFF: no transponder detected

NOTE: The safe state is ensured when the two redundant safety outputs (OSSDs) are switched at the OFF state (i.e. guard door opened or safety switch in error mode).

Characteristics

Product certifications	CE, cULus (The safety function of this device has been evaluated by TÜV nord, not by UL), TÜV, FCC, SAC, IC, RCM, E2
Maximum Safety Level	Up to category 4 PL=e or SIL 3 (if combined with an appropriate Safety Control Unit PL=e / SIL 3 for Single and Daisy-chain models).
Assured operating distance (Sao)	10 mm (values above are given without misalignment between the transponder and the reader for face to face mounting)
Assured release distance (Sar)	35 mm (values above are given without misalignment between the transponder and the reader for face to face mounting)
Ambient air temperature	Operation: - 25...70 °C (- 13 °F to 158 °F) without blanking plugs or - 25...45 °C (- 13 °F to 113 °F) with blanking plugs Storage: - 40...85 °C (- 40 °F to 185 °F)
Degree of protection	Conforming EN/IEC 60529: IP65, IP66 & IP67; Conforming DIN 40050: IP69K; Enclosure type 4, 4X according to IEC 62262
Vibration resistance	10 gn (10-150 Hz) conforming to EN/IEC 60068-2-6
Shock resistance	30 gn (11 ms) conforming to EN/IEC 60068-2-27
Protection against electric shock	Class III conforming to EN/IEC 61140
Rated operating characteristics	Ue = 24 V ∴ Ie = 60 mA The power supply must meet the requirements of EN/IEC 60204-1 relative to SELV/PELV power supply
Repeat accuracy	≤ 10 % .Sr
Hysteresis	3% ≤ Hr ≤ 20%.Sr (given without misalignment between the transponder and the reader for face to face mounting)
Switching frequency	< 0,5 Hz
Risk Time	< 120 ms (+18 ms per additional switch in Daisy-chain configuration)
Response time	Typical: = 120 ms (+50 ms per additional switch in Daisy-chain configuration) and < 250 ms (for the Standalone models)
First-up time	< 5 s
Pairing mode time	10 s (after First-up time)
Number of switches in series connection (Daisy-chain)	≤ 20 XCSR●2M12
PFH _D (according to EN/ISO 13849-1 and EN/IEC 62061)	5.10 ⁻¹⁰
Mission Time (TM)	20 years
OSSD	Standalone XCSR●1●M12 Imax=400 mA per output at 24 Vdc Drop out voltage < 2 Vdc, Leakage current (OFF state) < 1 mA Maximum Load capacitance: 40 nF under 24 Vdc Single and Daisy-chain XCSR●0M12 and XCSR●2M12 Imax=200 mA per output at 24 Vdc Drop out voltage < 2 Vdc, Leakage current (OFF state) < 1 mA Maximum Load capacitance: 40 nF under 24 Vdc