

Safety detection solutions

Contactless RFID safety switches

XCSRМ miniature format

Single model (5-pin) and advanced model (8-pin)

Single model: standalone, high level coding

- Pre-cabled, pigtail, or connector
- Unique code, high-level coding conforming to EN/ISO 14119
- Automatic pairing process for the 2 additional devices
- 2 OSSD safety outputs (PNP)
- Point-to-point connection to a safety control unit
- Automatic start/restart without EDM

Category 4/PL = e, SIL3, SILCL3

XCSRМ10L●●, XCSRМ10●●M12
Unique pairing (1)

XCSRМ30L●●, XCSRМ30●●M12
Two new pairings possible (2)

The switches are available with pre-cabled, M12 connector, and pigtail connection format.



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Single model: standalone, generic coding

- Pre-cabled, pigtail, or connector
- Low-level coding
- For point-to-point connections
- 2 OSSD safety outputs (PNP)
- Can dialog directly to switch without pairing

Category 4/PL = e, SIL3, SILCL3

XCSRML0L●●●, XCSRML0M12, XCSRML0L01M12,
Generic coded

The switches are available with pre-cabled, M12 connector, and pigtail connection format.



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Advanced model: daisy-chain and External Device Monitoring (EDM)

- 2 OSSD safety outputs (PNP) and 2 OSSD safety inputs
- External Device Monitoring (EDM)
- Unique or unlimited pairing available
- Up to 16 switches can be connected in series
- Automatic pairing process for the unlimited pairing model

Category 4/PL = e, SIL3, SILCL3

XCSRМ13M12 and XCSRМ13L01M12
Unique coded

XCSRМU3M12 and XCSRМU3L01M12
Unlimited pairing possible

The switches are available with M12 connector and pigtail connection format.



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- (1) The switch and actuator are supplied together, already factory-paired with a unique code.
(2) For these switches, the reader and actuator are supplied together, already factory-paired with a unique code. However, the reader can be re-paired (twice only) with a new (blank) actuator (see page 100). Once the new actuator has been paired, the previous actuator is no longer usable. A new blank actuator can only be paired once.

Type of contactless RFID switch			XCSRМ10L●●, XCSRМ10●●M12, XCSRМ30L●●, XCSRМ30●●M12, XCSRML0L●●●, XCSRML0M12, XCSRML0L01M12	XCSRМ●3M12, XCSRМ●3L●●M12
Environment				
Conforming to standards			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 N°14	
Product certifications			Tüv, cULus, FCC, IC, UKCA, ECOLAB	
Maximum safety level (2)			SIL3 conforming to IEC 61508, SILCL3 conforming to IEC 62061, and PL=e, category 4 conforming to EN/ISO 13849-1 (1)	
Ambient air temperature	For operation		-25...+70°C	
	For storage		-25...+70°C	
Vibration resistance	Conforming to EN/IEC 60068-2-6		± 1 mm amplitude (10 .. 55Hz), 5 min	
Shock resistance	Conforming to EN/IEC 60068-2-27		30 gn, impulse duration 11 ms, in all 3 axes	
Protection against electric shock	Conforming to EN/IEC 61140		Class III	
Degree of protection	Conforming to EN/IEC 60529		IP65, IP67 conforming to IEC 60529, conforming to DIN 40050	
	Conforming to DIN 40050		IP69K (except M12 connector and pigtail)	
Materials	Housing		Nylon (PK)	
	Cable		PVC	
Characteristics				
Rated impulse withstand voltage (U imp)	Conforming to EN/IEC 60947-5-2		1 kV	
Integrated output protection			Short Circuit protection conforming to EN/IEC 60947-5-3	
Connection	Conforming to EN/IEC 60947-5-2-A3 and EN/IEC 61076		M12 connector (A coding)	
Safety outputs 2 PNP NO OSSDs (output signal switching devices)	Maximum current		300 mA	
Maximum switching frequency			1 Hz	
Delay	Power-on		10 s, 15 s Max	
Maximum response time (on transponder entry into operating zone)			≤ 250 ms	
Risk time (on transponder exit from operating zone)			Tr < 55 ms , addition of 12 ms per switch in Daisy-Chain	
Probability of dangerous failure per hour PFH _o	Conforming to EN/ISO13849-1 and EN/IEC 62061		2.62 x 10 ⁻⁹ Per reader	
Tightening torque	M4 retaining screw	Switch	0.8 - 1.5 Nm	
		Actuator	0.8 - 1.2 Nm	
	M12 connectors		0.8 Nm	
Mission time (TM)			20 years	
RFID protocol			Low Frequency based on ISO/IEC 18000-2	
Functions				
Functions			Automatic start/restart without EDM Point-to-point connection to a safety control unit State (PNP) output to Non Safety control unit (PLC) LED indicators for status and diagnosis	Automatic start/restart with or without EDM Manual start/restart with or without EDM Series connection (daisy-chain) Point-to-point connection to a safety control unit Diagnostic output to Non Safety control unit (PLC) LED indicators for status and diagnosis

(1) With an appropriate, correctly connected safety control system for daisy-chain and single models.

Safety detection solutions

Contactless RFID safety switches
XCSRMiniature format
Single model, 5-pin connector

Type	Single miniature contactless RFID safety switches		
Connection	M12 connector	Pre-cabled (5 wires)	Pigtail M12 connector

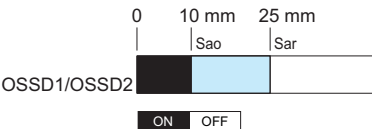


References					
Composition		Unique pairing	Two new pairings possible	Generic coded	Weight (kg)
- Switch - Actuator - Actuator and switch factory paired 6 blanking plugs - Quick Start Guide - EU and UKCA declaration of conformity	2 m cable	XCSRMiniature10L02	XCSRMiniature30L02	XCSRMiniatureL0L02	0.150
	5m cable	XCSRMiniature10L05	XCSRMiniature30L05	XCSRMiniatureL0L05	0.309
	10 m cable	XCSRMiniature10L10	XCSRMiniature30L10	XCSRMiniatureL0L10	0.562
	M12 connector	XCSRMiniature10M12	XCSRMiniature30M12	XCSRMiniatureL0M12	0.044
	Pigtail M12 connector	XCSRMiniature10L01M12	XCSRMiniature30L01M12	XCSRMiniatureL0L01M12	0.056

Detection characteristics (2)	
Typical operating sensing distance (for detection of transponder presence)	12
Assured operating sensing distance	10
Assured release distance	25
Repeat accuracy	≤1.2%
Hysteresis	< 20%

Output states

Output states shown are with the dedicated transponder positioned in front of the reader.



- Outputs closed
- Outputs open
- Transient state

Sao: Assured operating sensing distance
Sar: Assured release distance
Conforming to EN/IEC 60947-5-3

Connections	Dimensions
-------------	------------

5-pin M12 connector

- 1 +24 V ---
- 2 OSSD1 Safety output
- 3 0 V ---
- 4 OSSD2 Safety output
- 5 Status

(1) The start command is effective after the operator has pressed and released the start button.
(2) These values are given for a face-to-face mounting configuration of the reader and transponder on a non-magnetic support, without misalignment between the transponder and the reader, and at an ambient temperature between +20 and +25 °C.

Safety detection solutions

Contactless RFID safety switches

XCSRMiniature format

Advanced model, 8-pin connector

Type	Advanced miniature contactless RFID safety switches	
Connection	M12 connector	Pigtail, 8-pin M12 connector,



References

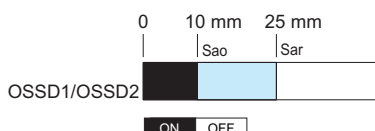
Composition	Unique pairing	Unlimited pairings	Generic coded	Weight (kg)
- Factory-paired switch and actuator 6 blanking plugs - Quick Start Guide - EU and UKCA declaration of conformity	XCSRMiniature13M12	XCSRMiniature3M12	XCSRMiniature3M12	0.044
	XCSRMiniature13L01M12	XCSRMiniature3L01M12	XCSRMiniature3L01M12	0.056

Detection characteristics (2)

Typical operating sensing distance (for detection of transponder presence)	12
Assured operating sensing distance	10
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Repeat accuracy	≤1.2%
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Output states

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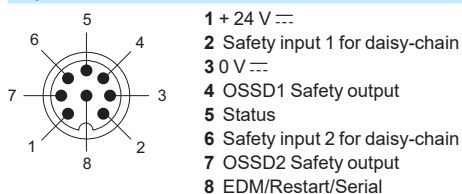


	Outputs closed
	Outputs open
	Transient state

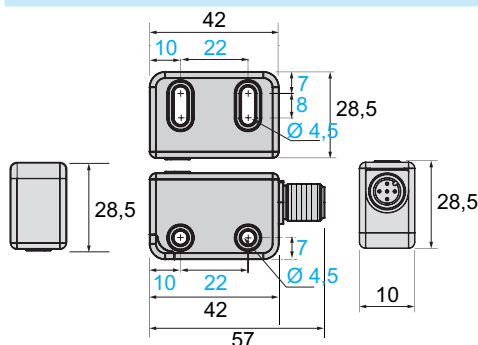
Sao: Assured operating sensing distance
Sar: Assured release distance
Conforming to EN/IEC 60947-5-3

Connections

8-pin M12 connector



Dimensions



(1) The start command is effective after the operator has pressed and released the start button.

(2) These values are given for a face-to-face mounting configuration of the reader and transponder on a non-magnetic support, without misalignment between the transponder and the reader, and at an ambient temperature between +20 and +25 °C.

Safety detection solutions

Contactless RFID safety switches

Accessories for XCSRMiniature format



XCSRK1BU



XCSRK1BL



XCSRZY●



XCSRZSTK1



XZCP11V12L●



XZCP12V12L●



XZCR1511064D●



XZCP29P12L●



XZCP53P12L●



XZCR2829P11D●



XZCC12FDM50B



XZCC12FCM50B



XZCC12FDM80B



XZCC12FCM80B

Actuators

Description	Used with	Reference	Weight (kg)
Actuator, Unlimited pairing	XCSRMU●●●●, XCSRMS●●●●	XCSRK1BU	0.19
Actuator, Generic coded	XCSRML●●●●	XCSRK1BL	0.19

Splitter connectors

Description	Poles	Used with	Reference	Weight (kg)
Splitter M12 connector, Female-Male-Female (Y connector)	8-8-5, 1st switch in daisy chain	XCSRMS●3●●●	XCSRZY1	0.026
	8-5-5, other switches in daisy chain		XCSRZY2	0.026

Mounting accessories

Description	Used with	Reference	Weight (kg)
Mounting supports	Switch and actuator	XCSRZSTK1	0.050

Cables

Description	Connector type	Length (m)	Reference	Weight (kg)
PUR pre-wired cables, 5 pins, for single XCSRMiniature and advanced XCSRMiniature (1) models				
PUR cable with pre-wired connectors XZCP	M12, female, straight, 5 pins	2	XZCP11V12L2	0.100
		5	XZCP11V12L5	0.250
		10	XZCP11V12L10	0.500
		20	XZCP11V12L20	1.000
	M12, female, elbowed, 5 pins	2	XZCP12V12L2	0.100
		5	XZCP12V12L5	0.250
		10	XZCP12V12L10	0.500
		20	XZCP12V12L20	1.000

PUR jumper cable, 5 pins, for Y connectors (XCSRMiniature-3 in daisy-chain connection)

	Male	Female		
Jumper cable XZ	M12, straight, 5 pins	M12, straight, 5 pins	1	XZCR1511064D1 0,08
			2	XZCR1511064D2 0,13
			5	XZCR1511064D5 0,325
			10	XZCR1511064D10 0,325

PUR pre-wired cables, 8 pins, for XCSRMiniature-3 standalone, EDM connection

Pre wired connectors XZ	M12, female, straight, 8 pins	2	XZCP29P12L2	0,100
		5	XZCP29P12L5	0.250
		10	XZCP29P12L10	0.500
		20	XZCP29P12L20	1.000
	M12, female, elbowed, 8 pins	2	XZCP53P12L2	0.100
		5	XZCP53P12L5	0.250
		10	XZCP53P12L10	0.500
		20	XZCP53P12L20	1.000

PUR jumper cable, 8 pins, for XCSRMiniature-3 in daisy-chain connection

	Male	Female		
PUR jumper cable	M12, 8-pin, straight	M12, 8-pin, straight	XZCR2829P11D2	0.109
			XZCR2829P11D5	0.265
			XZCR2829P11D10	0.520
			XZCR2829P11D20	1.025

Cables glands

Description	Connector type	Nb of pins	Used with	Reference	Weight (kg)
M12 cable gland Pg 7, female	Straight	5	XCSRMiniature-0	XZCC12FDM50B	0,020
	Elbowed 90°			XZCC12FCM50B	0,020
M12 cable gland, female	Straight	8	XCSRMiniature-3	XZCC12FDM80B	0,020
	Elbowed 90°			XZCC12FCM80B	0,020

(1) With XCSRMiniature-3, only for the connection between a safety control unit and the last XCSRMiniature-3 switch of a daisy chain

Dimensions **Safety detection solutions**

Contactless RFID safety switches

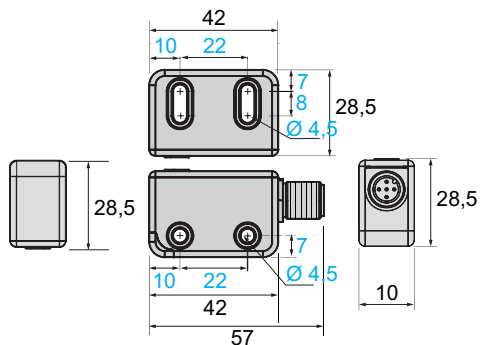
XCSRМ miniature format

Single and advanced models, accessories

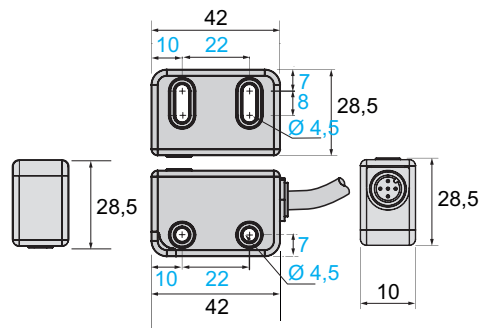
Safety switches

Switch with M12 connector

XCSRМ1•M12



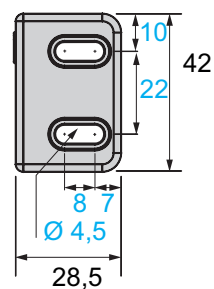
Switch with pigtail connector or pre-cabled



Accessories

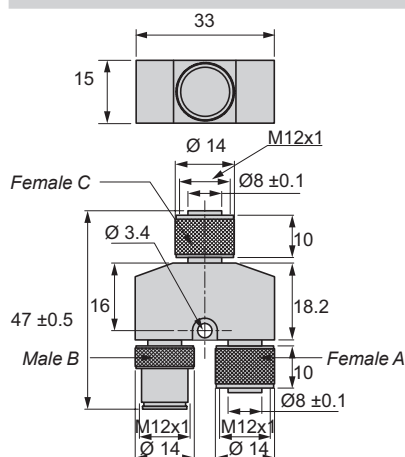
Actuators

XCSRК1BU, XCSRК1BL



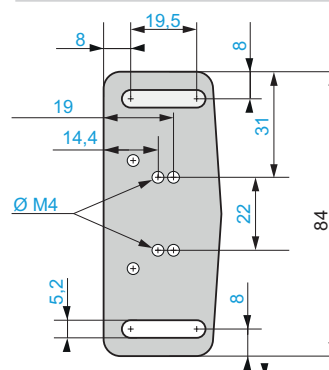
Splitter connector

XCSRZY1, XCSRZY2



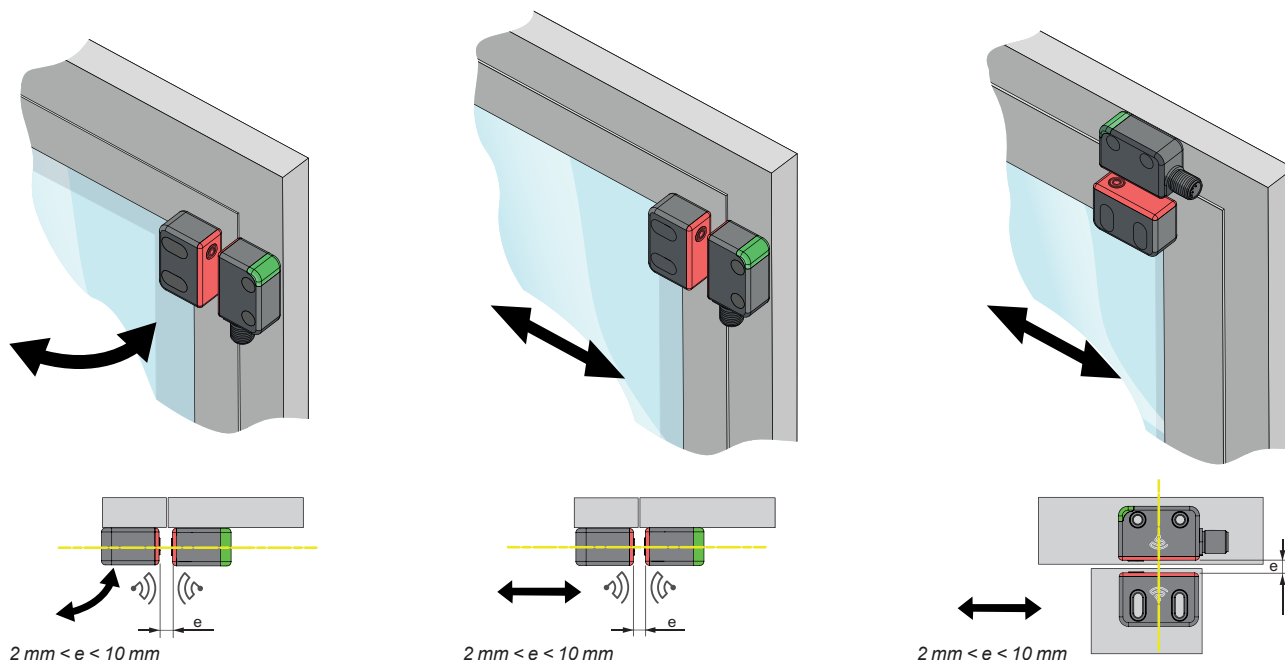
Mounting support for switch and actuator

XCSRZSTK1



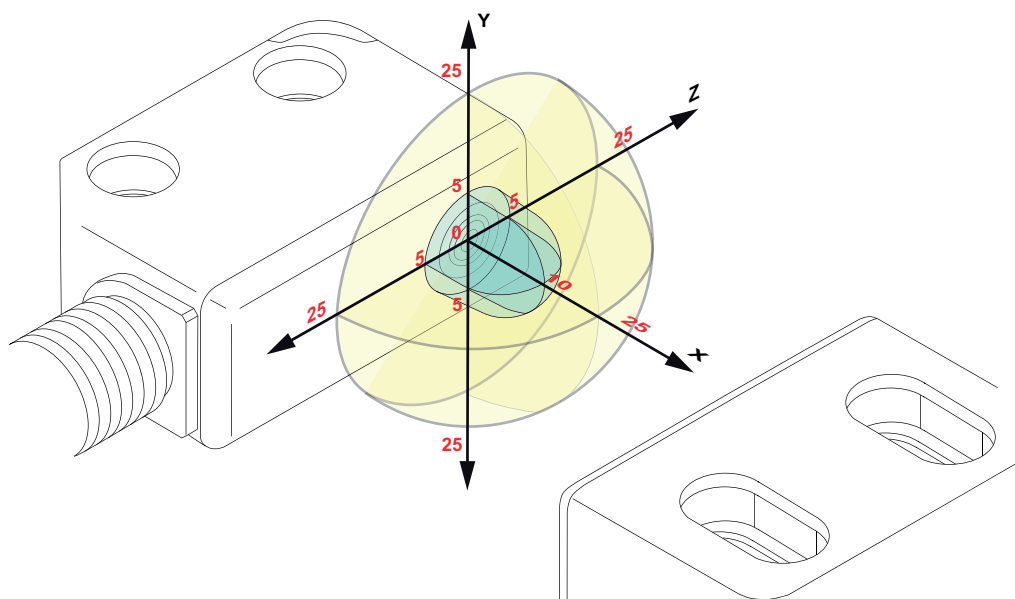
Mounting

Examples of face-to-face mounting configurations (recommended)



e: minimum recommended mounting distance between actuator and switch

Curves

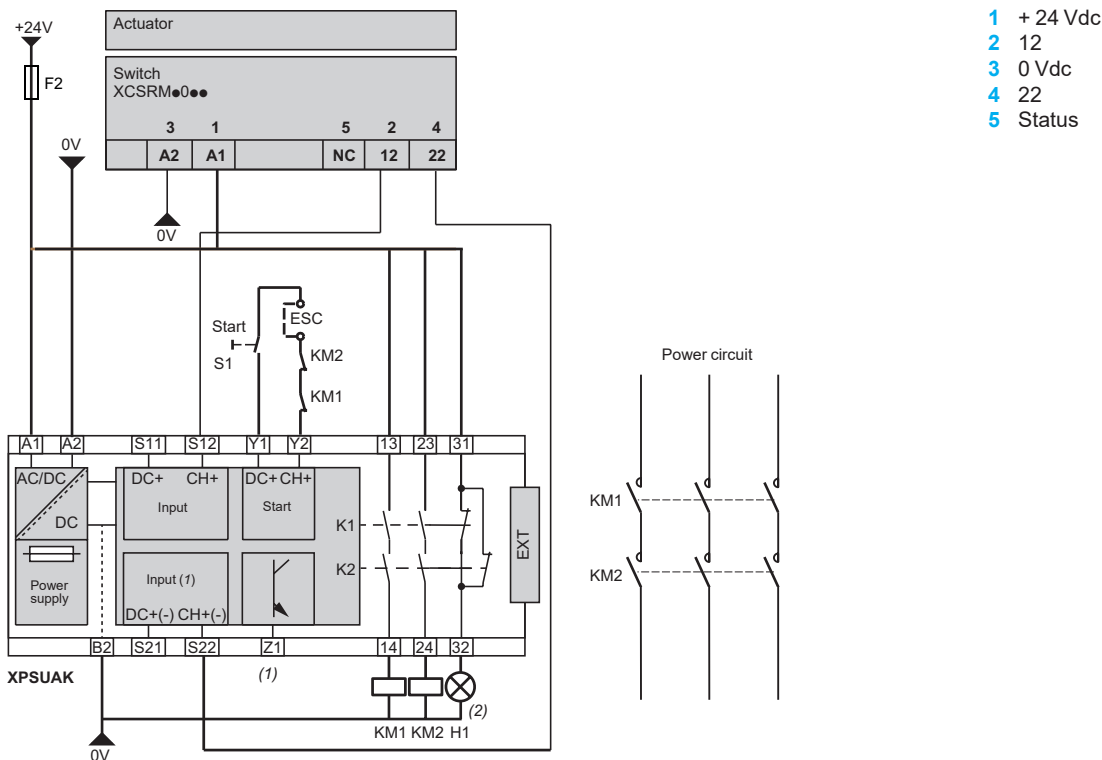


X axis: Sao = 10 mm ; Sar = 25 mm
Y axis: Sao = 5 mm ; Sar = 25 mm
Z axis: Sao = 5 mm ; Sar = 25 mm

Schemes Note: these schemes are given as examples only, the designer should refer to the relevant safety standards for guidance.

Single Model - Connecting with a XPSUAK module

Example of Category 4/PL = e/SIL 3 connection

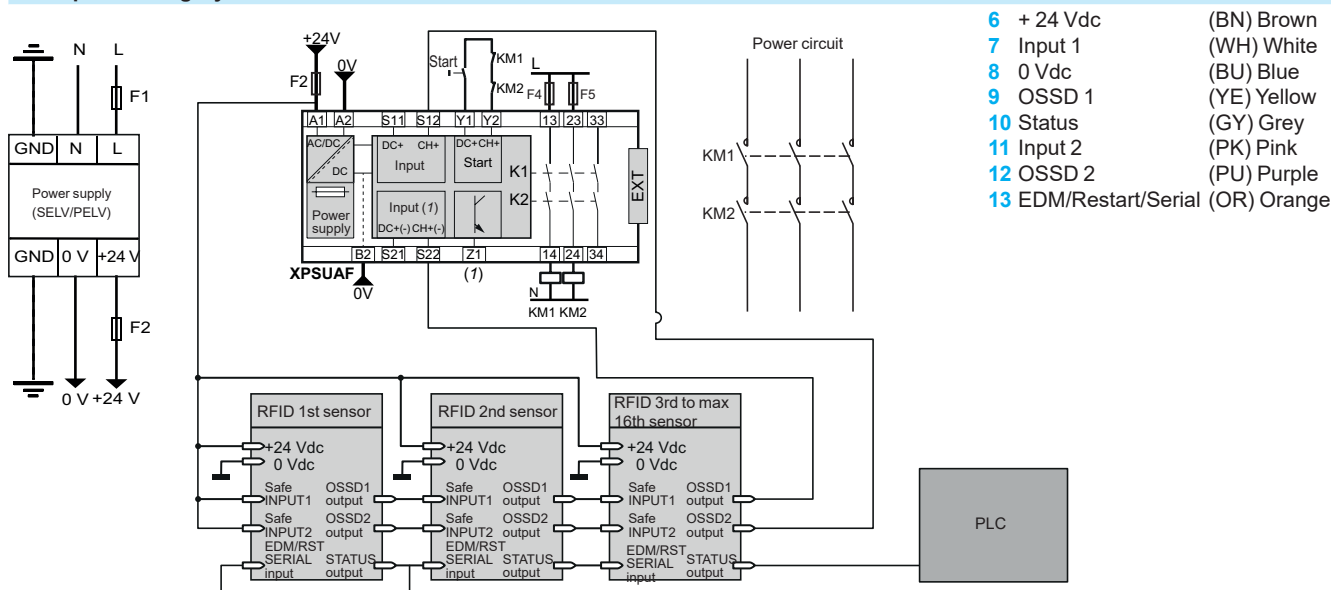


(1) Pulsed output for diagnostics

(2) XCSRМ RFID safety switch indicator light deactivated

Advanced model - Series Connecting with a XPSUAF module

Example of Category 4/PL = e/SIL 3 series connection



(1) Pulsed output for diagnostic