



Your future's safe!



SENSORS

safety contactless sensors and devices

product catalogue

π S PI-Safe

Fail-safe inductive sensors. See page 4



R-SAFE

Contactless RFID Safety Switches. See Page 9



22 mm interaxis

Highly visible status LED

3 different coding levels

Models

- R-SAFE RFID Plus (with M12 8 poles)
- R-SAFE RFID Pro (with M12 8 poles)
- R-SAFE RFID Basic (with M12 5 poles)

M12 connector,
Pigtail with M12 connector,
1, 3, 5 or 10 metres cable

IP67 and IP69K

Anti-tampering protection caps

Magnus MG

Magnetic safety switches. See page 15



Ilion

Type 2 safety photocells. See page 17



Ulisse

Type 2 safety photocells. See page 18



SAFECODER

Safety Sin/Cos incremental encoder. See page 19



SAFELOCK

Safety switch with guard locking. See page 21





Fail-safe inductive sensors

A complete range of sensors for position detection

- Certification to EN 60947-5-3 for electromechanical control gear
- Ensuring operator and machine safety
- No special actuator for electronic fail-safe sensors required
- Connection to safety interface, safety controller or safety PLC (i.e. SR ONE, Mosaic)

APPLICATIONS

- Door or flaps detection at closed position
- Cylinder shaft detection
- Treads up detection
- Bolster detection at a truck crane
- Robot cell working limitation of the working area
- Door detection
- Wind turbine lock / endposition of the blade

APPROVALS

- 2006/42/EC "Machine Directive"
- 2014/30/EC "Electromagnetic Compatibility Directive"
- 2014/35/EC "Low Voltage Directive"
- EN 60947-5-3 "Low-voltage switchgear and controlgear - Part 5-3: Control circuit devices and switching elements - Requirements for proximity devices with defined behaviour under fault conditions (PDDB)"
- IEC 61508 "Functional safety of electrical / electronic / programmable electronic safety related systems"
- ISO 13849 "Safety of machinery - Safety-related parts of control systems"



OVERVIEW

The operating principle and thus the advantages of inductive sensors can be used for safety applications.

Inductive safety applications are special applications which require a non-contact and safe detection of a metal object.

A wear-free function due to the non-contact principle together with a high protection rating, guarantee a high uptime of machines and installations.

The PI-Safe sensor increases the uptime and safety of installations and can be connected to approved evaluation units without cross-fault monitoring.

Faults such as coil break or coil short circuit are diagnosed and the sensor passes into the defined safe state. Even a cross fault between the supply voltage and one of the two outputs does not affect the safety function of the sensor.

Applications include reliable positioning on rotary indexing tables and machine tools, safe triggering of slow travel or switching off in end positions for presses, gantry robots and actuators or safe area monitoring for robots.

MAIN FEATURES

Operating voltage (VDC)	19,2 ... 30
Switching current (mA)	Max. 100
Safety output	2 OSSD
Electrical design	DC PNP
Connection	M12 4-pole connector
Signalling	LED yellow (signal), LED green (power)
Protection class	III

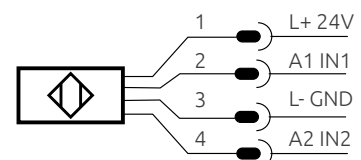
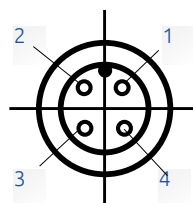


Operating temperature: -25 ... +70 °C



IP65 and IP67 protection rating
IP69K (PI M30 NF K model only)

CONNECTOR





SAFETY LEVEL

SIL 2

PL d

PART NUMBER

PI M12 NF:1293000



SAFETY LEVEL

SIL 2

PL d

PART NUMBER

PI M18 NF:1293001



SAFETY LEVEL

SIL 2

PL d

PART NUMBER

PI M18 F:1293002

PI M12 NF

METAL THREAD M12 X 1 / L = 70 MM

TECHNICAL FEATURES

Mounting	Non-flush mountable
Housing material	Body: stainless steel; Head: PBT
Enable zone (mm)	0,5 ... 4
Operating voltage (VDC)	19,2 ... 30
Current consumption (mA)	< 20
Max. capacitive load (nF)	20
Short-circuit protection	yes
Response time (ms)	≤ 1

ACCESSORIES

- M12 angle bracket or M12 mounting clamp. See [page 8](#)
- M12 5-pole straight connectors. See [page 26](#)

PI M18 NF

METAL THREAD M18 X 1 / L = 70,5 MM

TECHNICAL FEATURES

Mounting	Non-flush mountable
Housing material	Body: stainless steel; Head: PBT
Enable zone (mm)	1 ... 8
Operating voltage (VDC)	19,2 ... 30
Current consumption (mA)	< 30
Max. capacitive load (nF)	20
Short-circuit protection	yes
Response time (ms)	≤ 1

ACCESSORIES

- M18 angle bracket or M18 mounting clamp. See [page 8](#)
- M12 5-pole straight connectors. See [page 26](#)

PI M18 F

METAL THREAD M18 X 1 / L = 70 MM

TECHNICAL FEATURES

Mounting	Flush mountable
Housing material	Body: Brass white bronze coated; Head: PBT
Enable zone (mm)	1 ... 5
Operating voltage (VDC)	19,2 ... 30
Current rating (mA)	100
Current consumption (mA)	< 30
Max. capacitive load (nF)	20
Short-circuit protection	yes
Response time (ms)	≤ 1

ACCESSORIES

- M18 angle bracket or M18 mounting clamp. See [page 8](#)
- M12 5-pole straight connectors. See [page 26](#)



SAFETY LEVEL

SIL 2

PL d

PART NUMBER
PI M18 FR:1293003



SAFETY LEVEL

SIL 2

PL d

PART NUMBER
PI M30 NF:1293004



SAFETY LEVEL

SIL 2

PL d

PART NUMBER
PI M30 F:1293005

PI M18 FR

METAL THREAD M18 X 1 / L = 86,5 MM

TECHNICAL FEATURES

Mounting	Flush mountable
Housing material	Body: Brass white bronze coated; Head: PBT
Enable zone (mm)	> 10
Operating voltage (VDC)	10 ... 30
Current rating (mA)	50
Current consumption (mA)	< 30
Max. capacitive load (nF)	20
Short-circuit protection	yes
Response time (ms)	≤ 5

ACCESSORIES

- M18 angle bracket or M18 mounting clamp. See [page 8](#)
- M12 5-pole straight connectors. See [page 26](#)

PI M30 NF

METAL THREAD M30 X 1,5 / L = 70 MM

TECHNICAL FEATURES

Mounting	Non-flush mountable
Housing material	Body: stainless steel; Head: PBT
Enable zone (mm)	1 ... 15
Operating voltage (VDC)	19,2 ... 30
Current rating (mA)	100
Current consumption (mA)	< 30
Max. capacitive load (nF)	20
Short-circuit protection	yes
Response time (ms)	≤ 10

ACCESSORIES

- M30 angle bracket or M30 mounting clamp. See [page 8](#)
- M12 5-pole straight connectors. See [page 26](#)

PI M30 F

METAL THREAD M30 X 1,5 / L = 70 MM

TECHNICAL FEATURES

Mounting	Flush mountable
Housing material	Body: Brass white bronze coated; Head: PBT
Enable zone (mm)	1 ... 10
Operating voltage (VDC)	19,2 ... 30
Current rating (mA)	100
Current consumption (mA)	< 30
Max. capacitive load (nF)	20
Short-circuit protection	yes
Response time (ms)	≤ 10

ACCESSORIES

- M30 angle bracket or M30 mounting clamp. See [page 8](#)
- M12 5-pole straight connectors. See [page 26](#)



SAFETY LEVEL

SIL 3

PL e



High protection class IP69K for use in harsh environments.

PART NUMBER

PI M30 NF K:1293006



SAFETY LEVEL

SIL 3

PL e

PART NUMBER

PI SQ F NF:1293007



SAFETY LEVEL

SIL 3

PL e

PART NUMBER

PI SQ NF:1293008

PI M30 NF K

METAL THREAD M30 X 1,5 / L = 80 MM

TECHNICAL FEATURES

Mounting	Non-flush mountable
Response time (ms)	≤ 10
Enable zone (mm)	6 ... 12
Operating voltage (VDC)	19,2 ... 30
Current rating (mA)	100
Current consumption (mA)	< 30
Max. capacitive load (nF)	20
Short-circuit protection	yes
Housing material	Body: stainless steel; Head: PBT

ACCESSORIES

- M30 angle bracket or M30 mounting clamp. See [page 8](#)
- M12 5-pole straight connectors. See [page 26](#)

PI SQ F-NF

RECTANGULAR 40X40X66 MM

TECHNICAL FEATURES

Mounting	Non-flush or flush mountable
Housing material	Body: diecast zinc; Head: PPE;
Enable zone (mm)	10 ... 15
Operating voltage (VDC)	19,2 ... 30
Current consumption (mA)	< 15
Max. capacitive load (nF)	20
Short-circuit protection	yes
Response time (ms)	≤ 50

ACCESSORIES

- M12 5-pole straight connectors. See [page 26](#)

PI SQ NF

RECTANGULAR 40X40X66 MM

TECHNICAL FEATURES

Mounting	Non-flush mountable
Housing material	Body: diecast zinc; Head: PPE;
Enable zone (mm)	4 ... 20
Operating voltage (VDC)	19,2 ... 30
Current consumption (mA)	< 30
Max. capacitive load (nF)	20
Short-circuit protection	yes
Response time (ms)	≤ 50

ACCESSORIES

- M12 5-pole straight connectors. See [page 26](#)

ACCESSORIES

ANGLE BRACKET

- For mounting cylindrical sensors
- Easy, quick and inexpensive fixing
- Robust stainless steel design for use in harsh industrial environments
- Reliable mounting on a surface by means of two screws

	Ordering code	Model
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1293100

M12 bracket

CLAMPS WITH END STOP

- End stop for defined installation position
- Safe fixing of the sensor with click-fit mounting
- Easy, quick and inexpensive fixing
- Reliable mounting on a surface by means of two screws

	Ordering code	Model
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1293103

M12 mounting clamp



1293101

M18 bracket



1293104

M18 mounting clamp



1293102

M30 bracket



1293105

M30 mounting clamp

CABLES NEEDED

- M12 straight connector 5-pole for all models. See [page 26](#)



R-Safe RFID Basic (with M12 5 poles)

R-Safe RFID Pro (with M12 8 poles)

R-Safe RFID Plus (with M12 8 poles)

Safety switches for position control of movable guards.

- RFID technology
- 22 mm interaxis
- IP65, IP67 and IP69K protection degree
- Three types of connections:
 - integrated M12
 - connector, Pigtail with M12 connector
 - cable (different lengths)
- Series connection with status information (R-Safe Plus models)
- Highly visible status LED
- Anti-tampering protection caps

APPROVALS

PL e	ISO 13849-1
Category 4	ISO 13849-1
PFHd 3,58E-9	IEC 61508-1
SFF 90% ... 99%	IEC 61508-1
SIL 3	IEC 61508-1

SAFETY LEVEL

Cat. 4

SIL 3 - SILCL 3
PL e



TECHNICAL CHARACTERISTICS

Electrical specifications

Supply voltage (VDC)	24 ± 20%
Power consumption (W)	0,5
Switching current safety output (mA)	Max. 300
Switching current status output (mA)	Max. 100
Safety outputs	2 OSSD active high
Safety inputs	2 inputs active high
Status output	1 output active high
Restart	Monitored normally open Restart input in series with EDM

Operating characteristics

Functioning operating distance (mm)	12 mm
Assured release distance - Sar (mm)	25 mm
Operating temperature (°C)	-25 ... +70
Storage temperature (°C)	-25 ... +70
Humidity	0% @ 70 °C ... 90% @ 20 °C
Protection class	IP65/IP67 (IP69K version with cable)
Shock resistance	30g / 11ms IEC 60068
Vibration resistance	10 ... 55 Hz, amplitude 1 mm
Switch-on delay (s)	10 typical, 15 max.
Standalone Risk time (ms)	Δ Rt ≤ 55
Operating direction	Any direction
Switching principle	Electronic
Series connection	Max. 16 sensors
Technology	RFID

Mechanical data

Material	Nylon
Housing	Rectangular
Connector type	M12 8 or 5 poles
Cable	PVC 8 or 5 wires
Cross-section of wire (mm ²)	0,25
Temp. range cable (°C)	-25 ... 80
Dimensions h x w x d (mm)	28,5 x 57 x 18
Mounting type	M4 screws (countersunk)

Multiple options of actuation technology

Generic coding (low level coding)

The actuator is free and not specifically assigned to the sensor (one actuator can work with multiple generic sensors)

Teach-in coding (high level coding Plus and Pro models only)

The actuator is programmed via teach-in and permanently assigned to the sensor during set-up (the process can be repeated if necessary)

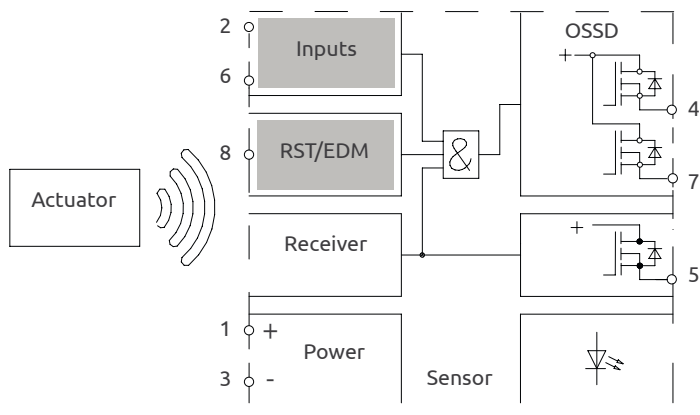
Unique coding (high level coding)

The actuator is permanently assigned to the sensor during manufacturing (it cannot be replaced with another actuator)

MODELS

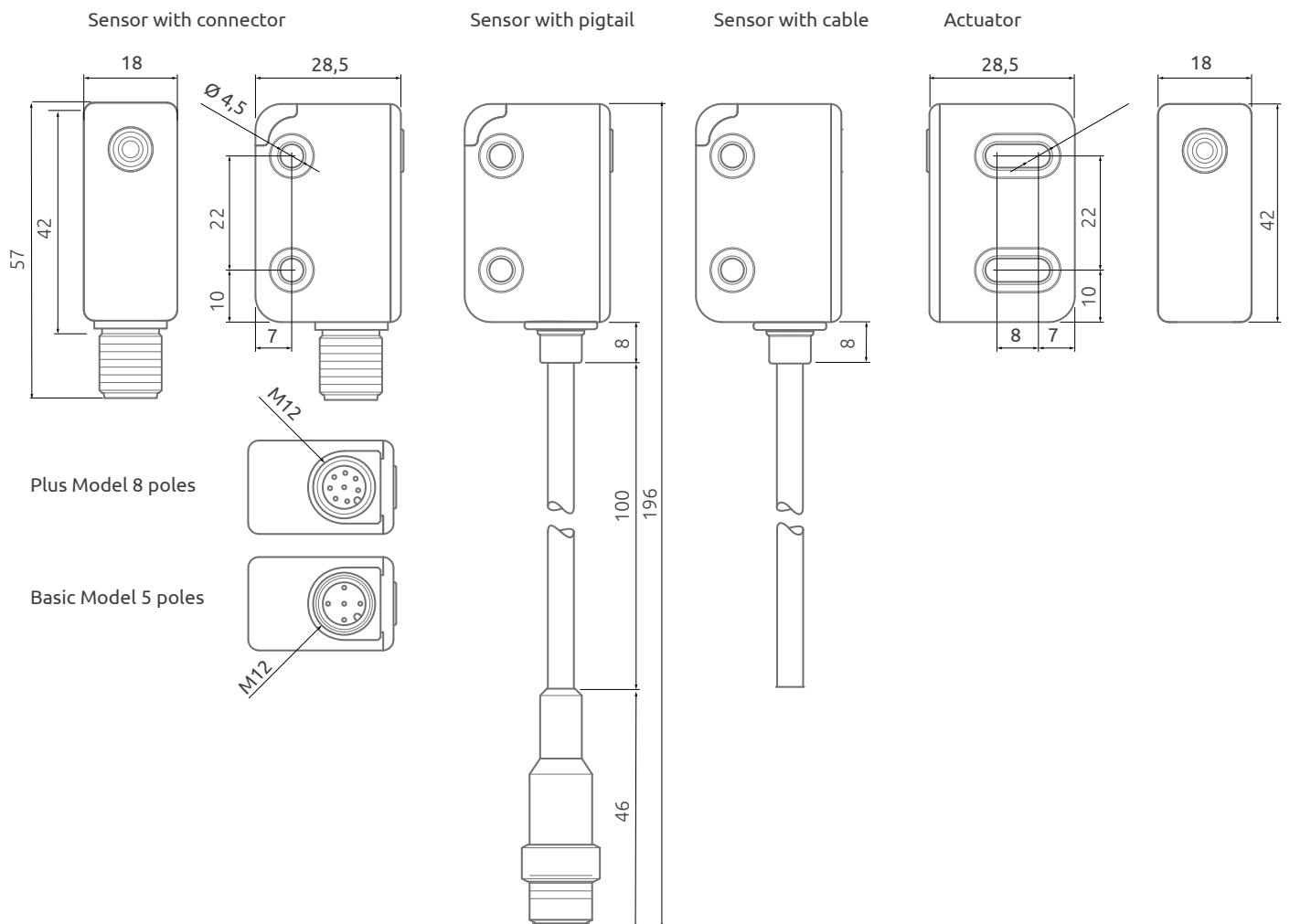
Basic models	Pro models	Plus models
Automatic restart without EDM	Automatic restart with EDM	Selectable Automatic/Manual restart with EDM
	Automatic restart without EDM	Selectable Automatic/manual restart without EDM
	Digital inputs for series connection, thought OSSD outputs	Digital inputs for series connection, thought OSSD outputs
	Individual status signal for each sensor (not serialisable)	Serialisable status signal with individual status indication for each sensor

Note: operating mode is selected by different wiring configurations.

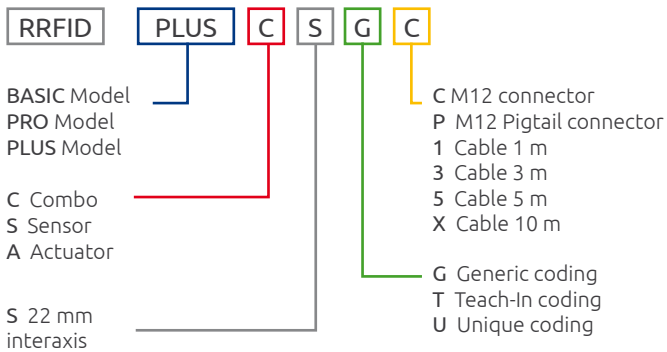


Inputs available on R-Safe Plus and R-Safe Pro models only
 * EDM input for R-Safe Pro model
 EDM/Restart/serial input for R-Safe Plus model

MECHANICAL DATA



CODE LEGEND (ORDERING INFORMATION)

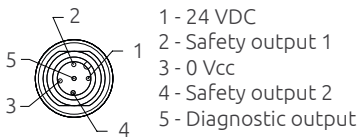


Watch the video!

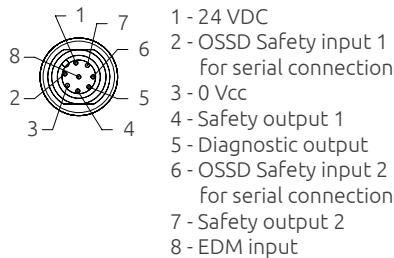


CONNECTION

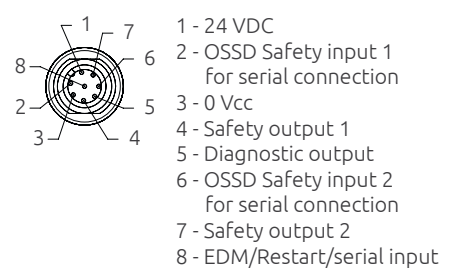
Basic model pin-out



Pro model pin-out



Plus model pin-out



CONNECTIVITY



WATERPROOF HOUSING

Compliant with ip67 and ip69k* requirements



Unique mechanical characteristics allow protection against cleaning agents and washdown processes, a typical requirement of the food industry.

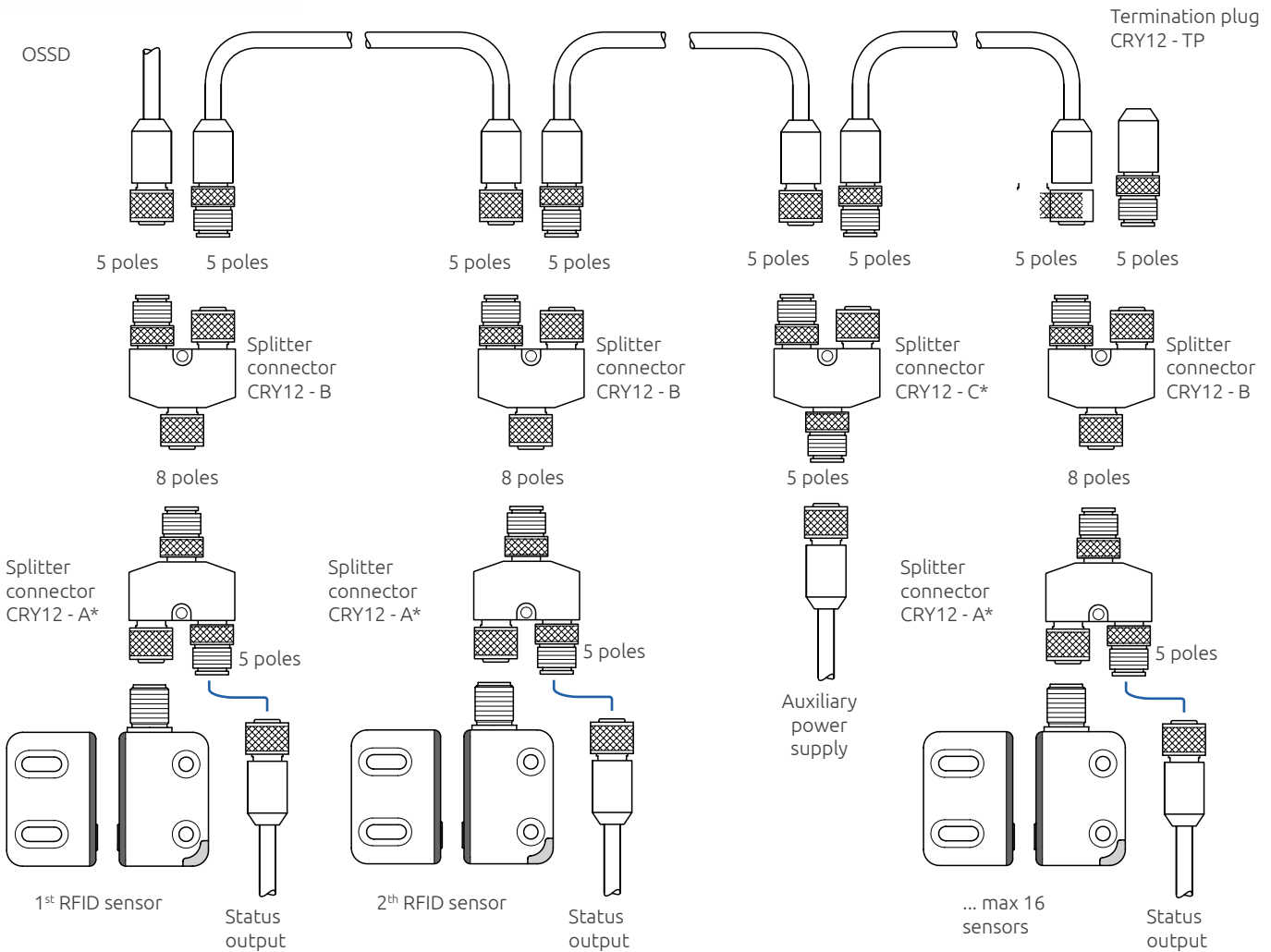
* Cable versions only

SERIES CONNECTION PRO MODELS

Up to PL e
Performance Level according to EN ISO 13849-1



MOSAIC or PLC or safety interfaces



ACCESSORIES (for series connection)

CRY12 - A [1292404]
Used to connect the status signal

CRY12 - B [1292403]
for the last sensor of the serie

CRY12 - C [1292405]
Used for auxiliary power supply

CRY12 - TP [1292402]
Termination plug

* In a serial connection where the use of the "Status" signal or external relay control (EDM) is required, the use of the CRY12 - A, CRY12 - B, CRY12 - TP splitter connectors is recommended.

If the length of the serial chain and individual connections is between 160 m and 260 m, an auxiliary power supply must be provided using the splitter connector CRY12 - C.

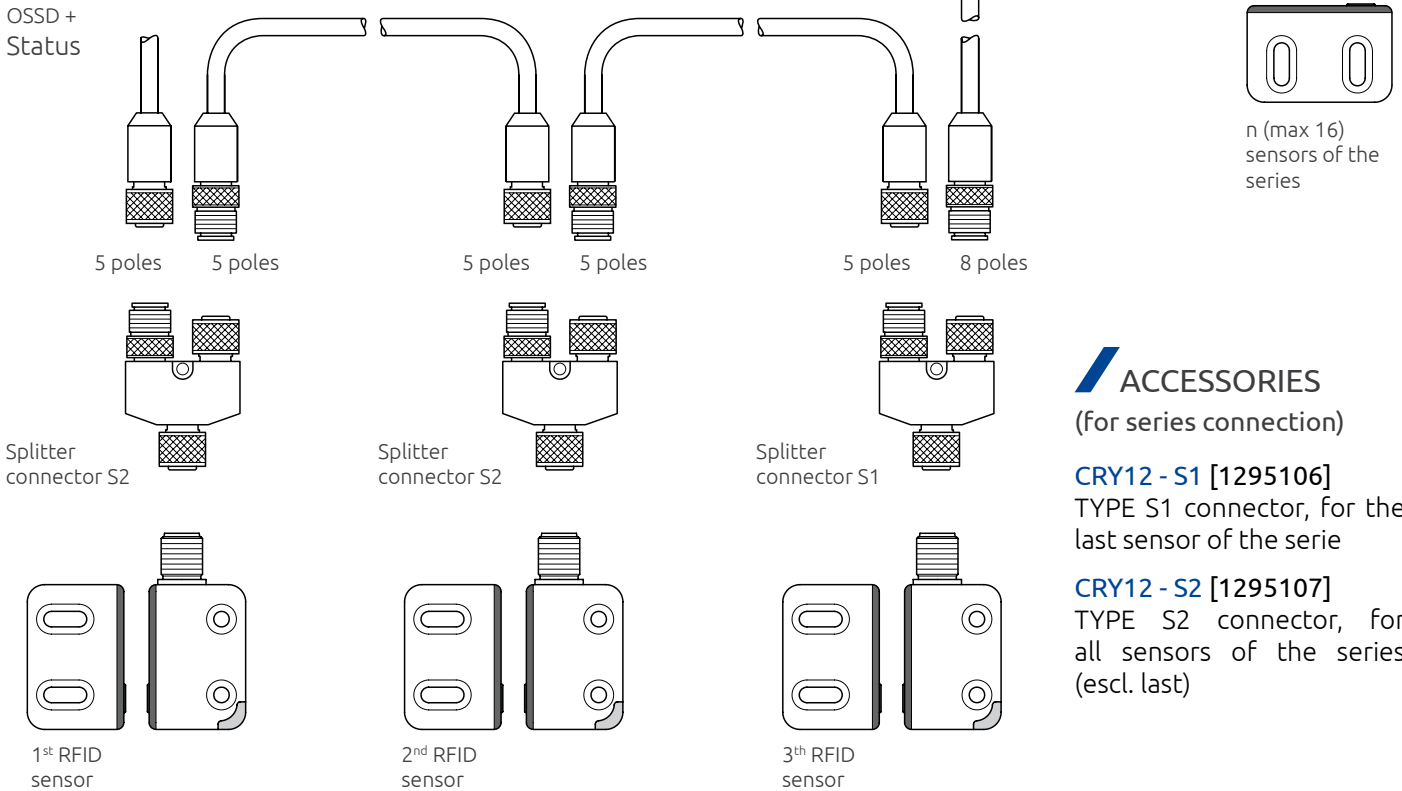
SERIES CONNECTION PLUS MODELS

Up to PL e Performance Level according to EN ISO 13849-1



MOSAIC or PLC or safety interfaces

OSSD + Status



ACCESSORIES (for series connection)

- CRY12 - S1 [1295106]**
TYPE S1 connector, for the last sensor of the serie
- CRY12 - S2 [1295107]**
TYPE S2 connector, for all sensors of the series (escl. last)

Example of connection with Mosaic

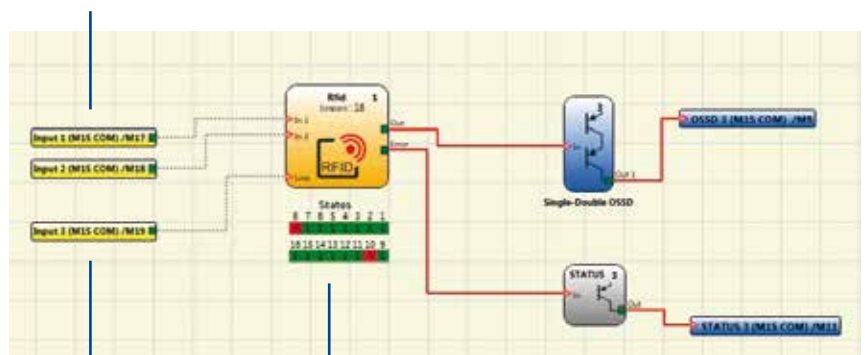
Allows individual status reading without individual status output wiring

The signal status contains the individual status of each sensor in the series.

A simple logic signal readable by any PLC or directly with Mosaic M15 or Mosaic M15 COM.

The status of each single sensor is also available on fieldbus data information.

OSSD outputs from the first sensor of the series



Status output from first sensor of the series

Status of each single sensor

PART NUMBERS

Combo¹ (Sensor + Actuator)

Model	Part number	Connection	Coding	Operative modes	
RRFID PLUS C S G 1	1295047	Cable 1 m	Generic coding	Manual restart	
RRFID PLUS C S G 3	1295057	Cable 3 m			
RRFID PLUS C S G 5	1295000	Cable 5 m			
RRFID PLUS C S G X	1294020	Cable 10 m			
RRFID PLUS C S T 1	1295048	Cable 1 m	Teach-In coding	Automatic restart	
RRFID PLUS C S T 3	1295058	Cable 3 m			
RRFID PLUS C S T 5	1295001	Cable 5 m			
RRFID PLUS C S T X	1294023	Cable 10 m			
RRFID PLUS C S U 1	1295049	Cable 1 m	Unique coding	Automatic restart (without EDM)	
RRFID PLUS C S U 3	1295059	Cable 3 m			
RRFID PLUS C S U 5	1295002	Cable 5 m			
RRFID PLUS C S U X	1294026	Cable 10 m			
RRFID PLUS C S G P	1295003	M12 pigtail	Generic coding	Serial status output	
RRFID PLUS C S T P	1295004	M12 pigtail	Teach-In coding		
RRFID PLUS C S U P	1295005	M12 pigtail	Unique coding		
RRFID PLUS C S G C	1295006	M12 connector	Generic coding		
RRFID PLUS C S T C	1295007	M12 connector	Teach-In coding	Serial connection	
RRFID PLUS C S U C	1295008	M12 connector	Unique coding		
RRFID PRO C S G 1	1295051	Cable 1 m	Generic coding		Automatic restart
RRFID PRO C S G 3	1295065	Cable 3 m			
RRFID PRO C S G 5	1295028	Cable 5 m			
RRFID PRO C S G X	1295025	Cable 10 m			
RRFID PRO C S T 1	1295056	Cable 1 m	Teach-In coding	Automatic restart (without EDM)	
RRFID PRO C S T 3	1295066	Cable 3 m			
RRFID PRO C S T 5	1295029	Cable 5 m			
RRFID PRO C S T X	1295026	Cable 10 m			
RRFID PRO C S U 1	1295061	Cable 1 m	Unique coding	Serial connection	
RRFID PRO C S U 3	1295067	Cable 3 m			
RRFID PRO C S U 5	1295030	Cable 5 m			
RRFID PRO C S U X	1295027	Cable 10 m			
RRFID PRO C S G P	1295031	M12 pigtail	Generic coding	Individual status output	
RRFID PRO C S T P	1295032	M12 pigtail	Teach-In coding		
RRFID PRO C S U P	1295033	M12 pigtail	Unique coding		
RRFID PRO C S G C	1295034	M12 connector	Generic coding		
RRFID PRO C S T C	1295035	M12 connector	Teach-In coding	Automatic restart	
RRFID PRO C S U C	1295036	M12 connector	Unique coding		
RRFID BASIC C S G 1	1295050	Cable 1 m	Generic coding		Automatic restart
RRFID BASIC C S G 3	1295060	Cable 3 m			
RRFID BASIC C S G 5	1295010	Cable 5 m			
RRFID BASIC C S G X	1294029	Cable 10 m			
RRFID BASIC C S U 1	1295252	Cable 1 m	Unique coding	Automatic restart	
RRFID BASIC C S U 3	1295262	Cable 3 m			
RRFID BASIC C S U 5	1295012	Cable 5 m			
RRFID BASIC C S U X	1294032	Cable 10 m			
RRFID BASIC C S G P	1295013	M12 pigtail	Generic coding	Serial connection	
RRFID BASIC C S U P	1295015	M12 pigtail	Unique coding		
RRFID BASIC C S G C	1295016	M12 connector	Generic coding		
RRFID BASIC C S U C	1295018	M12 connector	Unique coding		

Note 1

Each Combo set is provided with a Sensor and the corresponding Actuator. Sensors and Actuators can be also ordered separately

Sensor only

Model	Part number	Connection	Coding	Operative modes
RRFID PLUS S S G 1	1295043	Cable 1 m	Generic coding	Manual restart
RRFID PLUS S S G 3	1295053	Cable 3 m		
RRFID PLUS S S G 5	1294000	Cable 5 m		
RRFID PLUS S S G X	1294010	Cable 10 m		
RRFID PLUS S S T 1	1295044	Cable 1 m	Teach-In coding	Automatic restart
RRFID PLUS S S T 3	1295054	Cable 3 m		
RRFID PLUS S S T 5	1294001	Cable 5 m		
RRFID PLUS S S T X	1294013	Cable 10 m		
RRFID PLUS S S G P	1294003	M12 pigtail	Generic coding	Serial connection
RRFID PLUS S S T P	1294004	M12 pigtail	Teach-In coding	
RRFID PLUS S S G C	1294006	M12 connector	Generic coding	
RRFID PLUS S S T C	1294007	M12 connector	Teach-In coding	
RRFID PRO S S G 1	1295037	Cable 1 m	Generic coding	Automatic restart
RRFID PRO S S G 3	1295063	Cable 3 m		
RRFID PRO S S G 5	1295011	Cable 5 m		
RRFID PRO S S G X	1295023	Cable 10 m		
RRFID PRO S S T 1	1295046	Cable 1 m	Teach-In coding	Automatic restart (without EDM)
RRFID PRO S S T 3	1295064	Cable 3 m		
RRFID PRO S S T 5	1295014	Cable 5 m		
RRFID PRO S S T X	1295024	Cable 10 m		
RRFID PRO S S G P	1295017	M12 pigtail	Generic coding	Serial connection
RRFID PRO S S T P	1295020	M12 pigtail	Teach-In coding	
RRFID PRO S S G C	1295021	M12 connector	Generic coding	
RRFID PRO S S T C	1295022	M12 connector	Teach-In coding	
RRFID BASIC S S G 1	1295045	Cable 1 m	Generic coding	Automatic restart
RRFID BASIC S S G 3	1295055	Cable 3 m		
RRFID BASIC S S G 5	1294009	Cable 5 m		
RRFID BASIC S S G X	1294016	Cable 10 m		
RRFID BASIC S S G P	1294012	M12 pigtail	Generic coding	Automatic restart
RRFID BASIC S S G C	1294015	M12 connector		

Actuator only

Model	Part number	Coding
RRFID A S G	1294050	Generic coding
RRFID A S T	1294051	Teach-In coding

CABLES NEEDED

- Models with M12 connector and M12 Pigtail - Cables CDx and CF8x. [See page 46.](#)
- Extension cables for series connection - Cable CFM5Px and CFM8Px. [See page 46.](#)

MECHANICAL ADAPTER INTERAXIS 22 / 78

22T078 [1295110] for the installation of R-Safe switches with 22 mm interaxis distance on holders with holes of 78 mm interaxis distance. **[1295111]** Kit 10 adapter

FIXING SCREWS KIT

AF 4.2x25 T15 INOX			M4x20 T20 INOX		
1295112	1295113	1295114	1295115	1295116	1295117
4 + insert	20 + insert	40 + insert	4 + insert	20 + insert	40 + insert



- Compact and robust thermoplastic enclosure (PBT)
- 22 mm fixing
- Coded magnetic operation – Tamper resistant
- Switching distance: 3 - 10 mm
- Sensor with 4 wires: 2 NO contacts.



- Robust thermoplastic enclosure (PBT)
- 78 mm fixing
- Coded magnetic operation – Tamper resistant
- Switching distance:
 - 4 - 16 mm
 - 7 - 18 mm with magnet MG B M+
- Sensor with 4 wires: 2 NO contacts



- Robust cylindrical thermoplastic enclosure
- 30 mm diameter
- Coded magnetic operation – Tamper resistant
- Switching distance:
 - 4 - 16 mm
 - 7 - 20 mm with magnet MG M M+
- Sensor with 4 wires: 2 NO contacts

MG S RECTANGULAR COMPACT HOUSING

TECHNICAL FEATURES

Operating voltage (VDC)	24
Switching current (mA)	Max. 100
Series resistance (Ohm)	22
Switching power (W)	3
Shock resistance (Hz/g)	10 - 2000/35
Possible actuation magnets	MG S M to be ordered separately

PART NUMBERS

MG S 20: 1291000 MG S M: 1291001

MG B RECTANGULAR HOUSING

TECHNICAL FEATURES

Operating voltage (VDC)	24
Switching current (mA)	Max. 100
Series resistance (Ohm)	22
Switching power (W)	3
Shock resistance (Hz/g)	10 - 2000/35
Possible actuation magnets	MG B M to be ordered separately MG B M+ to be ordered separately
Possible actuation reinforced magnets	(only use reinforced actuation magnets if a gap of more than 4 mm is unavoidable)

PART NUMBERS

MG B 20: 1291010 MG B M: 1291011
MG B M+: 1291012

MG M 20 CYLINDRICAL HOUSING

TECHNICAL FEATURES

Operating voltage (VDC)	24
Switching current (mA)	max. 100
Series resistance (Ohm)	22
Switching power (W)	3
Shock resistance (Hz/g)	10 - 2000/35
Possible actuation magnets	MG M M to be ordered separately MG M M+ to be ordered separately
Possible actuation reinforced magnets	(only use reinforced actuation magnets if a gap of more than 4 mm is unavoidable)

PART NUMBERS

MG M 20: 1291020 MG M M: 1291021
MG M M+: 1291022

APPROVALS

- 2006/42/EC: "Machine Directive"
- 2014/30/EU: "Electromagnetic Compatibility Directive"
- 2014/35/EU: "Low Voltage Directive"
- EN 61508-1:1998 "Functional safety of electrical/electronic programmable electronic safety related systems - General requirements"
- EN 61508-2:2000 "Functional safety of electrical/electronic/programmable electronic safety related systems - Requirements for electrical/electronic/programmable electronic safety-related systems"
- EN 61508-3:1998 "Functional safety of electrical/electronic programmable electronic safety related systems: Software requirements"
- ISO 13849-1:2008 "Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design"
- IEC 62061: "Safety of machinery - Functional safety of safety-related electrical, electronic and programmable electronic control systems"



Operating temperature: -25 ... +75 °C



IP67 protection rating

CONNECTIONS

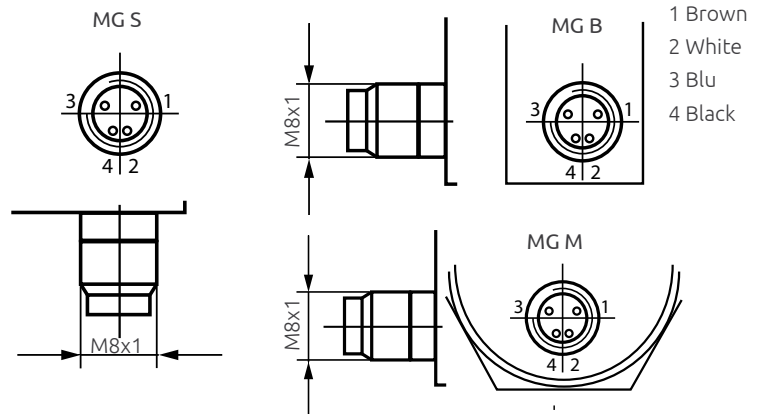
Magnus MG magnetic sensors must be connected to Mosaic safety configurable controller (see Mosaic catalogue). Connected to Mosaic safety controller form a certified PL e safety system. Can be also connectet to safety interfaces for emergency stop and safety switches

- Connected to AD SRE3 - AD SR3C form a certified PL d safety system
- Connected to SR E4 - SR 4C form a certified PL e safety system

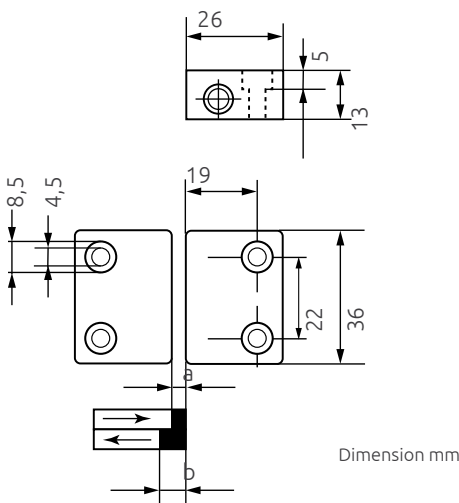
CABLES NEEDED

M8 4-pole. See [page 27](#) (C8Gx, C8G9x)

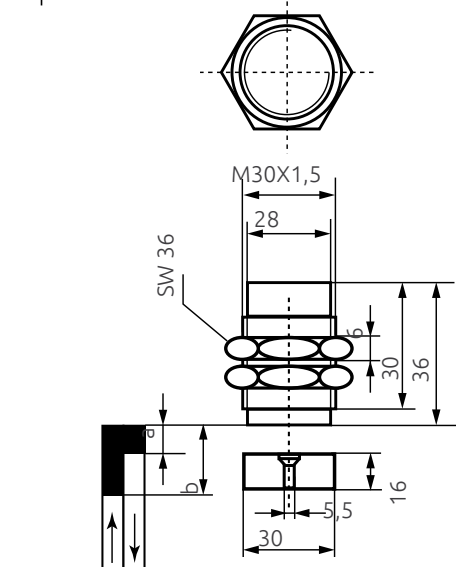
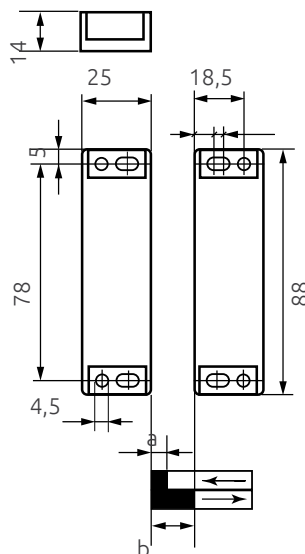
CONNETTORS



MECHANICAL DATA



Dimension mm



Gaps for safe switching function (mm)

Minimum gap	0,5
a - ON	3
b- OFF	10

Gaps for safe switching function (mm)

	Normal	Con + magnet
Minimum	0,5	3
a - ON	4	7
b- OFF	16	18



Ilion is a Type 2 safety photocell with M18 cylindrical metal body.

The photocells must be connected to control unit for example: AU SX or AU SXM control unit with Muting to form a protection system that can be composed of 1, 2, 3 or 4 single beam photocells or Mosaic. For details on the interface see AU SX, AU SXM and Mosaic control units.

The compact size of the photocells makes it possible to fit the protection system into very small spaces, while the possibility to use more photocells provides the maximum flexibility in positioning the protective beams.

All connections through M12 5-pole connectors. Unshielded cables up to 50 meter long (between sensor and control unit).



Operating temperature:
0 ... +55 °C



IP67 protection rating

APPROVALS

Safety level (with a control unit AU XS, AU SXM or Mosaic): Type 2 – SIL CL 1 – PL c – Cat. 2

- 2006/42/EC: "Machine Directive"
- 2014/30/EU: "Electromagnetic Compatibility Directive"
- 2014/35/EU: "Low Voltage Directive"
- IEC 61496-1 (ed.3) "Safety of machinery - Electro sensitive protective equipment - General requirements and tests"
- IEC 61496-2 (ed.3) "Safety of machinery - Electro-sensitive protective equipment - Particular requirements for equipment using active opto-electronic protective devices (AOPDs)"
- ISO 13849-1:2006 "Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design"
- IEC 62061 (ed.1) "Safety of machinery - Functional safety of safety-related electrical, electronic and programmable electronic control systems"
- EN 50178:1997 "Electronic equipment for use in power installations"
- EN 55022:2110 "Information Technology Equipment - Radio Disturbance Characteristics - Limits and Methods of Measurement"



SAFETY LEVEL
TYPE 2
SILCL 1
PL c - Cat. 2

ILION

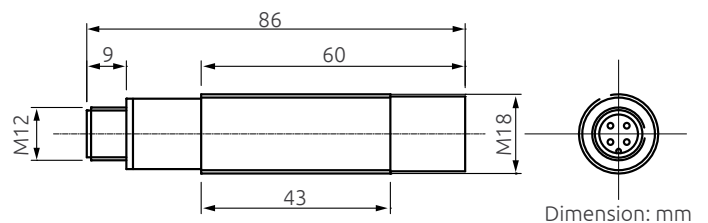
TECHNICAL FEATURES

Minimum detectable object (mm)	12
Max. range (m)	8 IL 10 20 IL 20
Number of photocells per control unit	1 ... 4 with AU SX and AU SXM control units In case of connection with Mosaic safety controller the number of photocells depends to the number available input of the system.
Response time for each photocell (ms)	7
Output	PNP - 100 mA
Signalling	Status led
Power supply (VDC)	24 ± 20%
Electrical connections	M12 4-pole
Dimensions (mm)	Ø 18 x 85

PART NUMBERS

IL 10: 1200201 IL 20: 1200202

DIMENSIONS



ACCESSORIES

- Safety interface SR X. See [page 24](#)
- Safety interface SR XM. See [page 24](#)
- The IL FB bracket allows both vertical and horizontal adjustment of the optical axis of the photocell

Part number: 1200090 (Set of 2 adjustable brackets)



CABLES NEEDED

M12 5-pole. Pin 5 not connected
See [page 26](#) (CDx, CD 9x, CDM 9", CDM 99)



Ulisse is a Type 2 safety photocell with metal body and M8 3-pole connector.

The photocells must be connected to control unit for example: standard AU SX or AU SXM control unit with Muting or Mosaic to form a protection system that can be composed of 1, 2, 3 or 4 single beam photocells. For details on the interface see AU SX, AU SXM and Mosaic control units.

Thanks to the very small size, the anodised aluminium case and the glass lenses free from electrostatic dust attraction, Ulisse is the ideal solution for the protection of weaving machines as well as of other applications characterised by high levels of mechanical stress or very restricted spaces.

All connections through M8 3-pole connectors. Unshielded cables up to 50 meter long (between sensor and control unit).



Operating temperature:
0 ... +55 °C



IP67 protection rating

APPROVALS

Safety level (with a control unit AU XS, AU SXM or Mosaic): Type 2 – SIL CL 1 – PL c – Cat. 2

- 2006/42/EC: "Machine Directive"
- 2014/30/EU: "Electromagnetic Compatibility Directive"
- 2014/35/EU: "Low Voltage Directive"
- IEC 61496-1 (ed.3) "Safety of machinery - Electro sensitive protective equipment - General requirements and tests"
- IEC 61496-2 (ed.3) "Safety of machinery - Electro-sensitive protective equipment - Particular requirements for equipment using active opto-electronic protective devices (AOPDs)"
- ISO 13849-1:2006 "Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design"
- IEC 62061 (ed.1) "Safety of machinery - Functional safety of safety-related electrical, electronic and programmable electronic control systems"
- EN 50178:1997 "Electronic equipment for use in power installations"
- EN 55022:2110 "Information Technology Equipment - Radio Disturbance Characteristics - Limits and Methods of Measurement"



SAFETY LEVEL

TYPE 2

SIL CL 1
PL c - Cat. 2

ULISSE

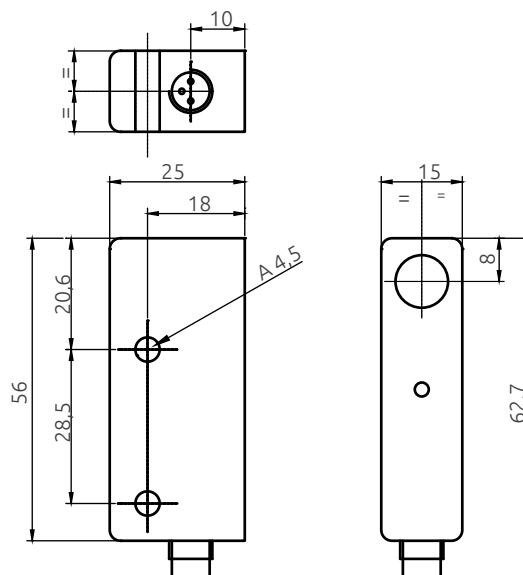
TECHNICAL FEATURES

Minimum detectable object (mm)	8
Max. range (m)	6
Number of photocells per control unit	1 ... 4 In case of connection with Mosaic safety controller the number of photocells depends to the number available input of the system.
Response time for each photocell (ms)	7
Output	PNP - 100 mA
Signalling	Status led
Power supply (VDC)	24 ± 20%
Electrical connections	M8 3-pole
Max. cable length (m)	50 (between sensor and control unit)
Dimensions h x w x d (mm)	58 x 15 x 25

PART NUMBERS

UPC: 1200300

DIMENSIONS



Dimension: mm

CABLES NEEDED

M8 3-pole. See [page 27](#) (C8x, C 895)

ACCESSORIES

- Safety interface SR X. See [page 24](#)
- Safety interface SR XM. See [page 24](#)



Shaft version



Hollow shaft version

APPROVALS

- 2006/42/EC "Machinery Directive"
- 2004/108/EC "Electromagnetic Compatibility (EMC)"
- EN ISO 13849-1 "Safety of machinery: Safety-related parts of control systems. Part 1: General principles for design"
- EN ISO 13849-2 "Safety of machinery: Safety-related parts of control systems. Part 2: Validation"
- IEC 61508 "Functional safety of electrical, electronic and programmable electronic safety-related systems"
- EN ISO 61800-5-2 "Adjustable speed electrical power drive systems". Part 5-2 Safety requirements - Functional
- UL (C+US) mark for USA and Canada
- BGIA - Institute for Occupational Safety and Health - Germany



SAFETY LEVEL

SIL 3

SIL3 - SILCL 3
PL e - Cat. 4

Safety Sin/Cos incremental encoder. Together with Mosaic, it forms a SIL 3 certified safety function for speed monitoring. Available in two models: Shaft or Hollow shaft.

APPLICATION EXAMPLE

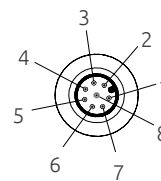
Any applications requiring speed monitoring of a rotating axis.

Features a robust and reliable interface and the ability to handle high mechanical loads.

TECHNICAL FEATURES

Shaft type	Hollow shaft version Ø 12 mm Shaft version Ø 10 mm with flat surface
Fastening	Safety-Lock™ Allow high rotational speed and high shaft load capacity
Protection rate	Housing and flange side IP67, shaft IP65 (optional IP67)
Immunity to interference	Shock and vibration resistant Insensitive to strong magnetic fields
Resolution	2048 pulse rate
Power supply	SC3 24D2048R - 24 VDC SC3 05D2048R - 5 VDC SC3 24B2048R - 24 VDC SC3 05B2048R - 5 VDC
Connector	Radial M12 8-pole

CONNECTORS



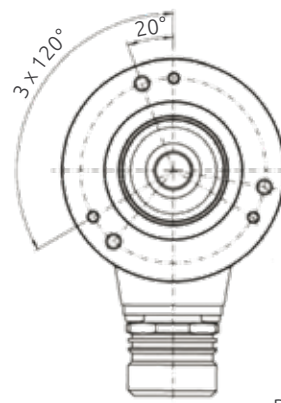
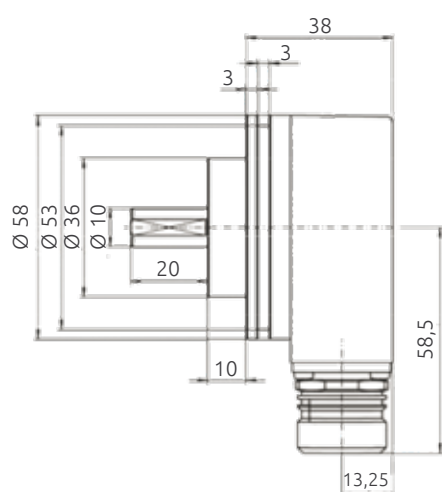
M12 8-pole

- 1 - GND
- 2 - +V
- 3 - A: Sine output
- 4 - Ā: Sine output
- 5 - B: Cosine output
- 6 - B̄: Cosine output
- 7 - N.C.
- 8 - N.C.
- shield - PH

PART NUMBERS

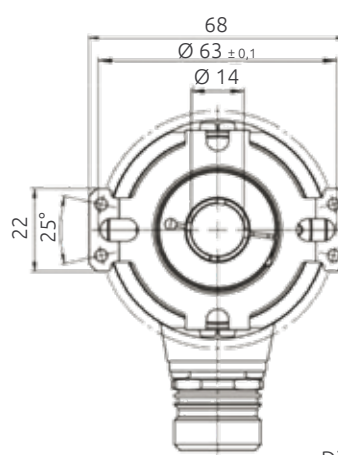
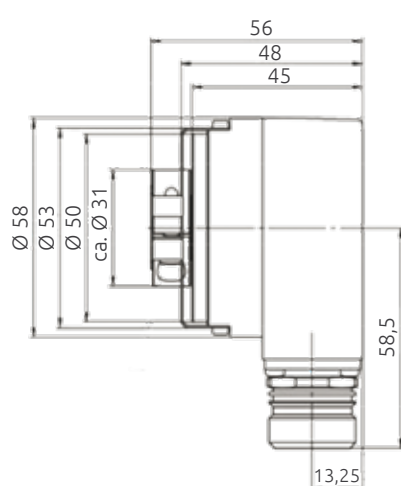
Ordering code	Description
1100102	SC3 24D2048R - 24 VDC Hollow Shaft version Ø 12 mm
1100103	SC3 05D2048R - 5 VDC Hollow Shaft version Ø 12 mm
1100104	SC3 24B2048R - 24 VDC Shaft version Ø 10 mm with flat surface
1100105	SC3 05B2048R - 5 VDC Shaft version Ø 10 mm with flat surface

DIMENSIONS



Dimension: mm

Encoder, shaft version with flat surface



Dimension: mm

Hollow shaft version

CABLES NEEDED

M12 8-pole shielded. See [page 29](#)
(C8Dx SH, C8D9x SH)

NOTE: cables supplied with M12 8-pole connector at one end only. The other side must be cut off at correct length and crimped with RJ45 connector (not included).



Safelock is a safety switch utilised for the protection of personnel when opening doors leading to dangerous areas. It acts by monitoring and interrupting the safety circuit during dangerous scenarios.

The solenoid locks and unlocks access to the dangerous area, guaranteeing safety until the danger has stopped. Available models

SLK-M

Retention mechanism actuated by a spring and unlocked by ON current. Guard locking by spring force, release by applying voltage to the guard locking solenoid.

SLK-E

Retention mechanism actuated by ON current and unlocked by spring. Guard locking by applying voltage to the guard locking solenoid, release by spring force.

- Actuating head made of plastic or metal
- Auxiliary release on the front. Used for releasing the guard locking with the aid of a tool. To protect against tampering, the auxiliary release is sealed with sealing lacquer
- Approach direction: horizontal and vertical. Can be adjusted in 90° steps
- Any installation position



Operating temperature: -20 ... +55 °C



IP67 protection rating

SAFETY SWITCH WITH GUARD LOCKING

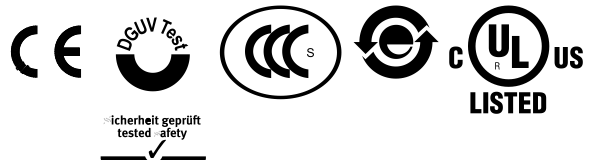
LOCK AND INTERLOCK SAFETY FUNCTIONS

TECHNICAL FEATURES

Housing material	Reinforced thermoplastic
Contact material	Silver alloy, gold flashed
Switching principle	Slow-action switching contact
Number of door position positively driven contacts	2
Number of guard lock monitoring positively driven contacts	1
Approach speed	Max. 20 m/min
Actuation frequency	1200 1/h
Guard locking principle	Closed-circuit current principle
Force	Locking force (Fmax): ≥1 kN (plastic), ≥2 kN (metal)
	Locking force (FZh): 1,5 kN 0,7 kN (plastic), 1,5 kN (metal)
	Retention force: 20 N
	Extraction force: 30 N Actuating force: 35 N
Solenoid operating voltage	AC/DC 24 V -15% ... +10%
Short circuit protection	4 A
Switching voltage	12 V Min at 10 mA
Switching current	1 mA Min at 24 V
Power consumption	6 W

APPROVALS

- 2006/42/EC: "Machine Directive"
- EN 60947-5-1:2004/A1:2009 Low-voltage switchgear and controlgear. Control/circuit devices and switching elements. Electromechanical control circuit devices
- EN 60947-5-1:2004/A1:2009 Annex K
- EN ISO 14119:2013 Safety of machinery - Interlocking devices associated with guards - Principles for design and selection







PART NUMBERS

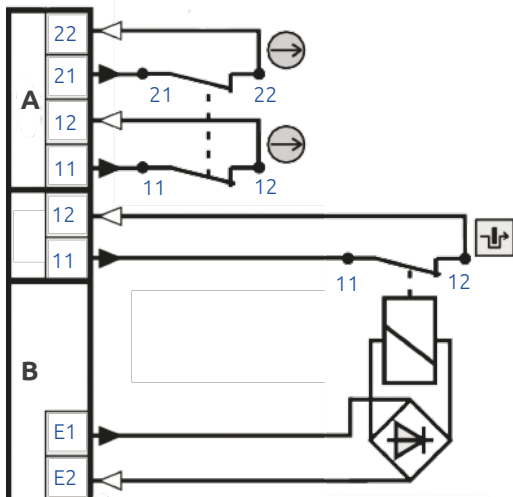
Ordering code	Model	Guard lock	Description
1290100	SLK-M-P-2NC-24	Mechanical	Safelock with mechanical guard lock and plastic actuating head. Switching element: 2 NC, feedback 1 NC
1290102 *	SLK-M-M-2NC-24		Safelock with mechanical guard lock and metal actuating head. Switching element: 2 NC, feedback 1 NC
1290104	SLK-E-P-2NC-24	Electrical	Safelock with electrical guard lock and plastic actuating head. Switching element: 2 NC, feedback 1 NC
1290106 *	SLK-E-M-2NC-24		Safelock with electrical guard lock and metal actuating head. Switching element: 2 NC, feedback 1 NC

* Contact ReeR to check availability

ACTUATORS

Model		Ordering code	Description
ACT-S-S-RB		1290302	Actuator standard, straight with rubber bush Two stainless safety screws per actuator Actuators with rubber bushings
ACT-S-A-RB		1290303	Actuator standard, angled with rubber bush Two stainless safety screws per actuator
ACT-S-H-TB		1290304	Actuator standard, hinged, top-bottom Actuators made of stainless steel Two stainless safety screws per actuator For doors hinged at top and bottom
ACT-S-H-LR		1290305	Actuator standard, hinged, left-right Actuators made of stainless steel Two stainless safety screws per actuator For doors hinged on right and left

BLOCK DIAGRAM



2NC Model
For monitoring the guard locking
(built-in solenoid) slow-action
switching contact 2 NC

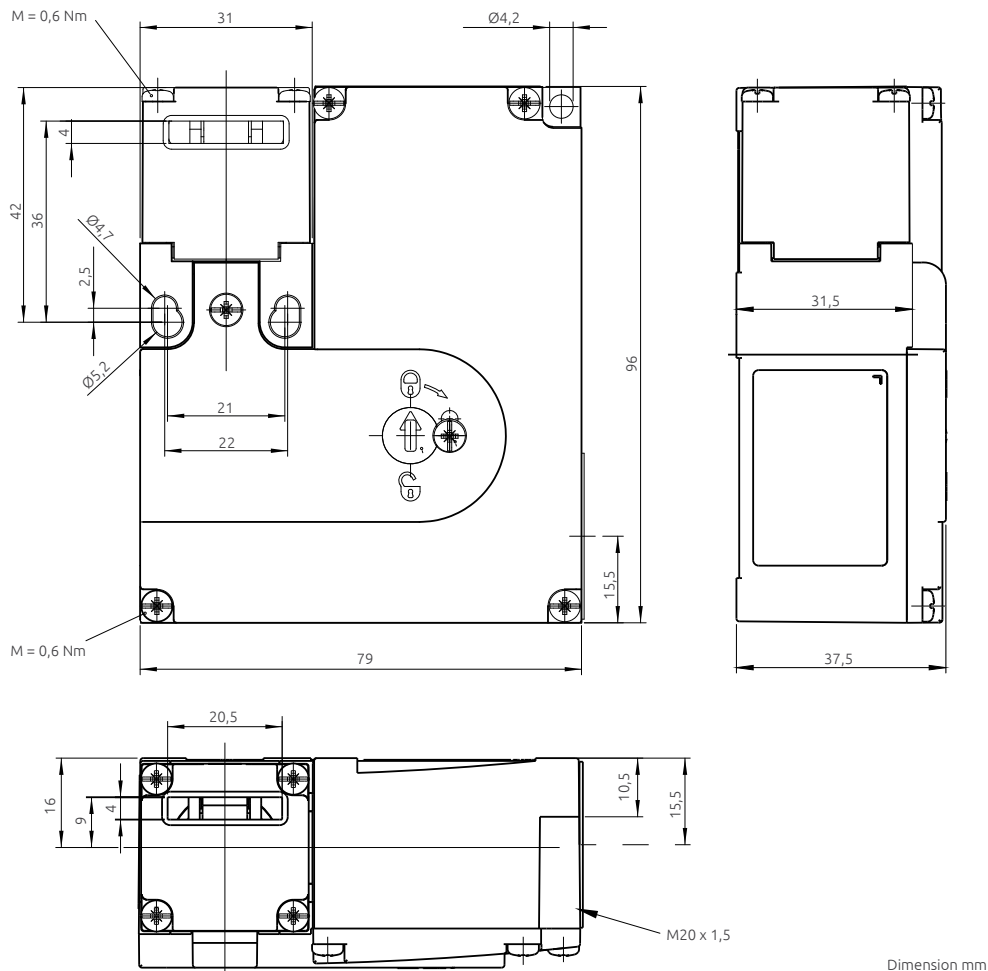
SAFETY LEVELS

3 different safety levels according to the EN ISO 13849-1 standard

Lock function Category / Safety level	Interlock function Category / Safety level	Code	Devices
Up to Cat. 1 / PL c (Note)	Up to Cat. 1 / PL c	Low	Safelock + 1 Mosaic input or PL d safety interfaces for emergency stop buttons and safety switches ADSR3
Up to Cat. 1 / PL c (Nota)	Up to Cat. 3 / PL d	Low	Safelock + 2 Mosaic inputs or PL d safety interfaces for emergency stop buttons and safety switches ADSR3 + Fault exclusion(See note)
Up to Cat. 1 / PL c (Nota)	Up to Cat. 4 / PL e	Low	Safelock + Magnus + 4 Mosaic inputs or 1 PL e safety interfaces for emergency stop buttons and safety switches ADSR4 and 1 interface with limited test current for magnetic switches
Up to Cat. 1 / PL c (Nota)	Up to Cat. 4 / PL e	High	Safelock + Magnus RFID + 2 Mosaic inputs (only for Magnus) or Safety relay SR ONE
Up to Cat. 4 / PL e	Up to Cat. 3 / PL d	Low	2 Safelock + 2 + 1 Mosaic inputs (FBK needed) or PL d safety interfaces for emergency stop buttons and safety switches ADSR3
Up to Cat. 4 / PL e	Up to Cat. 4 / PL e	Low	2 Safelock + 4 + 2 Mosaic inputs (FBK needed) or 2 PL e safety interfaces for emergency stop buttons and safety switches ADSR4

NOTE Cat. 3 / PL d can be reached through fault exclusion. The exclusion of faults is allowed according to point 7.3 of EN ISO 13849-1 of which an extract is reported.

MECHANICAL DATA



ACCESSORIES

SAFETY INTERFACES

SAFETY INTERFACES

SAFETY LEVEL

SIL 3

SIL 3 - SIL CL 3
PL e - Cat. 4



SR ZERO: 1330801 - SR ZERO A: 1330802
SR ZERO C: 1330806 - SR ZERO A C: 1330807
FOR DEVICES WITH INTEGRATED EDM



Guided-contact safety relays.
Can only be connected to safety sensors equipped with feedback input for monitoring external relays (EDM).
Additional NC contact line for the monitoring by light curtain EDM (input and output).

Power Supply (VDC)
Safety relay output
Response time (ms)
Dimensions h x w x d (mm)

24 ± 20%
SR ZERO: 2 NO + 1 NC (2 A, 250 VAC)
SR ZERO A: 2 NO (2 A, 250 VAC)
≤ 20
99 x 22,5 x 114,5

SR T: 1330805
SR T C: 1330810
FOR TWO-HAND CONTROLS



Guided-contact safety relays.
Input with 3 or 4 contacts for two-hand control unit.
Certified as Type III C according to the EN 574 standard, monitors the simultaneity between the two inputs (< 0.5 sec).
EDM feedback input.

24 ± 20%
2 NO (6 A 240 VAC / 24 VDC)
≤ 30
99 x 22,5 x 114,5

SAFETY LEVEL

PL e

Cat. 4
Type III C (EN 574)

TYPE 4 INTERFACES FOR OSSD OUTPUT SAFETY DEVICES

SAFETY LEVEL

TYPE 4

SIL CL 3
PL e - Cat. 4



SR ONE: 1330900 - SR ONE C: 1330811



Guided-contact safety relays.
Manual or automatic Start/Restart.
EDM feedback input.

Power Supply (VDC)
Safety relay output
Status output
Response time (ms)
Dimensions h x w x d (mm)

24 ± 20%
2 NO - 6 A 250 VAC
PNP - 100 mA at 24 VDC
≤ 20
99 x 22,5 x 114

SR ONE M: 1330904 - SR ONE M C: 1330812
WITH INTEGRATED MUTING FUNCTIONS



Sensor logic integrated Muting (0 or 24 VDC - PNP or relay - dark-on).
Input for Muting enable (0 or 24 VDC - PNP or relay).
Muting Time-out: 30 sec. or infinite.
Override (max. 15 min.).

24 ± 20%
2 NO - 6 A 250 VAC
PNP - 100 mA at 24 VDC
≤ 20
99 x 35 x 114

INTERFACES FOR EMERGENCY STOP BUTTONS AND SAFETY SWITCHES

SAFETY LEVEL

PL e

SIL 3 - SIL CL 3
Cat. 4



SR E4: 1330803 - SR E4 C: 1330808



Guided-contact safety relays.
Manual or automatic Start/Restart.
EDM feedback input.

Power Supply (VDC)
Safety relay output
Response time (ms)
Dimensions h x w x d (mm)

24 ± 10%
2 NO (6 A 240 VAC / 24 VDC)
≤ 20
99 x 22,5 x 114

SR E4R: 1330804 - SR E4R C: 1330809



Guided-contact safety relays.
Manual monitored Start/Restart.
EDM feedback input.

24 ± 10%
2 NO (6 A 240 VAC / 24 VDC)
≤ 20
99 x 22,5 x 114

INTERFACES FOR SAFETY ILION AND ULISSE PHOTOCELLS

SAFETY LEVEL

TYPE 2

SIL CL 1
PL c - Cat. 2



SR X: 1201710 - SR X C: 1201714



Guided-contact safety relays.
Self test every 5 sec.
Manual or automatic Start/Restart.
EDM feedback input.

Power Supply (VDC)
Safety relay output
Response time (ms)
Dimensions h x w x d (mm)

24 ± 20%
2 NO - 6 A 250 VAC
≤ 30
99 x 22,5 x 114

SR X M: 1201711 - SR X M C: 1201715
WITH INTEGRATED MUTING FUNCTIONS



Sensor logic integrated Muting (0 or 24 VDC - PNP or relay - dark-on).
Input for Muting enable (0 or 24 VDC - PNP or relay).
Muting Time-out: 30 sec. or infinite.
Override (max. 15 min.).

24 ± 20%
2 NO - 6 A 250 VAC
≤ 30
99 x 35 x 114

Note: C version with clamp terminals



The new SR SELECT allows four different operating modes offering the possibility to connect and control different types of safety devices, including: Safety Light Curtains, Solid-State-Output Devices (i.e. RFID safety switches), Dual-Channel Emergency Stops, Two-Hand Controls and Type 2 Safety Photocells.

- Different safety functions selectable via rotary switch
- Selectable manual or automatic restart
- 2 N.O. outputs with guided contact safety relays
- 1 system monitor PNP output
- 1 external contactors feedback input
- 1 system test input (for Type 2 light curtains)

PART NUMBER

SR SELECT: 1330941 with screw terminal
SR SELECT C: 1330813 with clamp terminal



Technical CHARACTERISTICS

Power supply (VDC)	24 ± 20%
Power requirement (W)	5 max.
Relay output	2 NA - 6A; 250 Vca
System status output	PNP - 100 mA; 24 Vcc
Response time (ms)	≤ 20
Operating modes	Automatic, Monitored or Manual (selectable via rotary switch)
External relay control EDM	Series of contacts NC (20 mA; 24 VDC)
Connections	Terminal block with protection against reversal of polarity
LED status indicators	Input – Output – Fail
Length of connections (m)	100 Max.
Operating temperature (°C)	-30 ... +55
Protection rating	Enclosure IP 20 Terminal block IP 2X
Fastening	Fast attachment to rail according to EN 50022-35
Dimensions (h x w x d) (mm)	99 x 22,5 x 114,5
Weight (g)	150
B10d	800.000
Device lifetime (years)	20

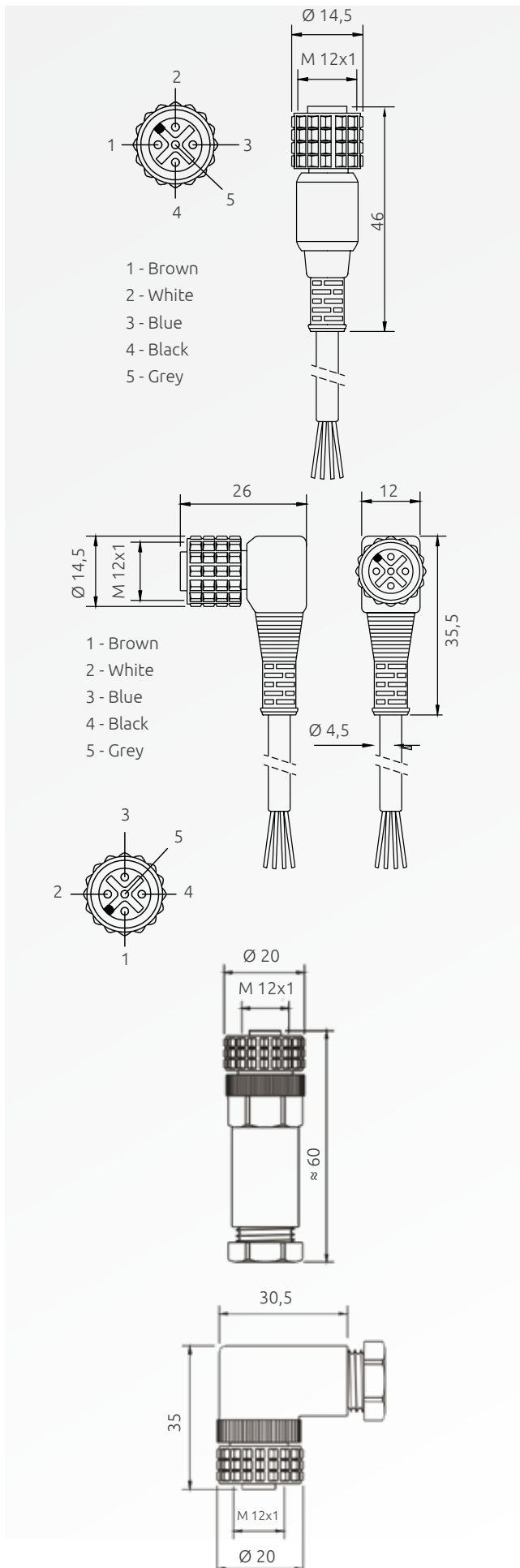
OPERATING MODES

- Type 4 interface for OSSD output devices
- Safety relay for emergency stop and safety switches.
- Safety relay for two-hand control
- Type 2 control unit for safety photocells

Selectable via the Rotary Switch.

Rotary Switch position	Operating mode	Operating function
0	Prog.	Programming mode start
1	1A	OSSD double input, automatic restart mode
2	1C	OSSD double input, monitored restart mode
3	2A	Gate monitoring/Emergency stop function, automatic restart mode
4	2M	Gate monitoring/Emergency stop function, manual restart mode (not monitored)
5	2C	Gate monitoring/Emergency stop function, monitored restart mode
6	3A	Two-hand control 2 NO contacts, automatic restart mode
7	3C	Two-hand control changeover contact, monitored restart mode
8	4A	Type 2 photocells control, automatic restart mode
9	4C	Type 2 photocells control, monitored restart mode





CDx M12 STRAIGHT CONNECTOR 5-POLE

Model	Code	Description
CD5	1330950	Pre-wired cable 5 m
CD10	1330956	Pre-wired cable 10 m
CD15	1330952	Pre-wired cable 15 m
CD20	1330957	Pre-wired cable 20 m
CD25	1330949	Pre-wired cable 25 m
CD40	1330907	Pre-wired cable 40 m
CD50	1330965	Pre-wired cable 50 m
CD80	1330936	Pre-wired cable 80 m

Cables for PI-SAFE

Cables for R-Safe Basic with M12 connector and M12 Pigtail connector

Cables for Ilion photocells.

Note: photocells Pin 5 not connected

CD9x M12 90° ANGLE CONNECTOR 5-POLE

Model	Code	Description
CD95	1330951	Pre-wired cable 5 m
CD910	1330958	Pre-wired cable 10 m
CD915	1330953	Pre-wired cable 15 m

Cables for Ilion photocells.

Note: Pin 5 not connected

CDM9 M12 STRAIGHT CONNECTOR 5-POLE SCREW TERMINAL, PG9 CABLE GLAND

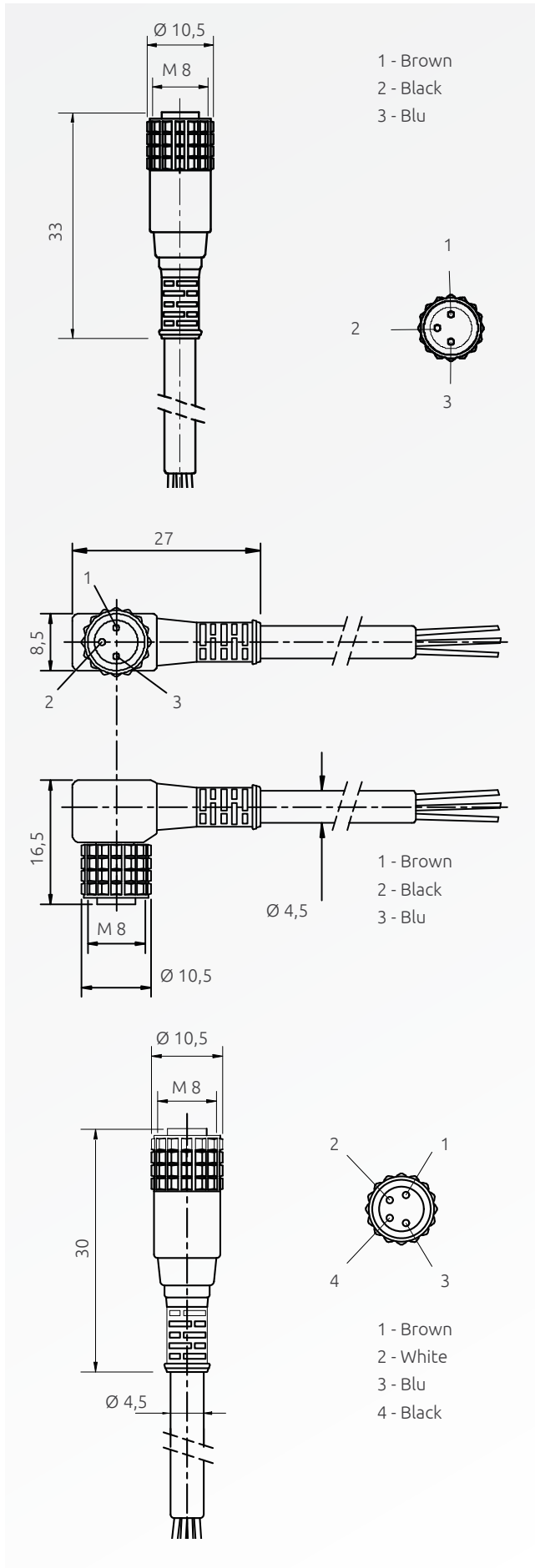
Model	Code
CDM9	1330954

Cables for Ilion photocells.

CDM99 M12 STRAIGHT CONNECTOR 5-POLE SCREW TERMINAL, PG9 CABLE GLAND

Model	Code
CDM99	1330955

Cables for Ilion photocells.



C8X M8 STRAIGHT CONNECTOR 3-POLE

Model	Code	Description
C 85	1200217	Pre-wired cable 5 m
C 815	1200219	Pre-wired cable 15 m

Cables for Ulisse photocells.

C895 M8 90° ANGLE CONNECTOR 3-POLE

Model	Code	Description
C895	1200216	Pre-wired cable 5 m

Cable for Ulisse photocells.

C8Gx M8 STRAIGHT CONNECTOR 4-POLE

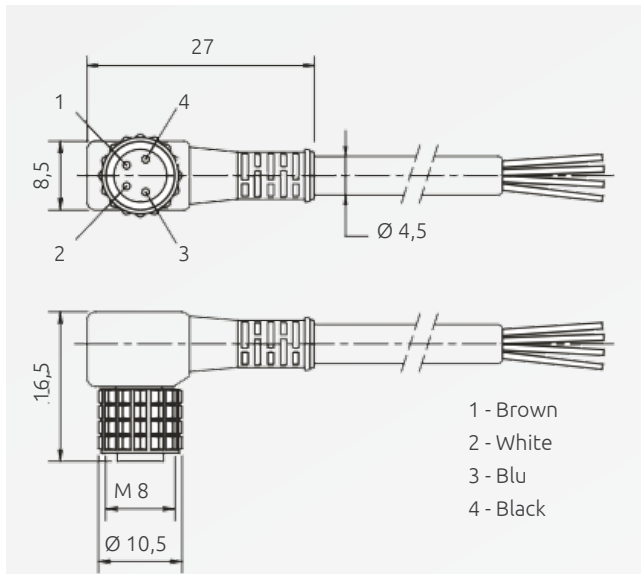
Model	Code	Description
C8G3	1291070	Pre-wired cable 3 m
C8G5	1291072	Pre-wired cable 5 m

Cables for Magnus MG magnetic sensors.

C8G9x M8 90° ANGLE CONNECTOR 4-POLE

Model	Code	Description
C8G93	1291071	Pre-wired cable 3 m
C8G95	1291073	Pre-wired cable 5 m

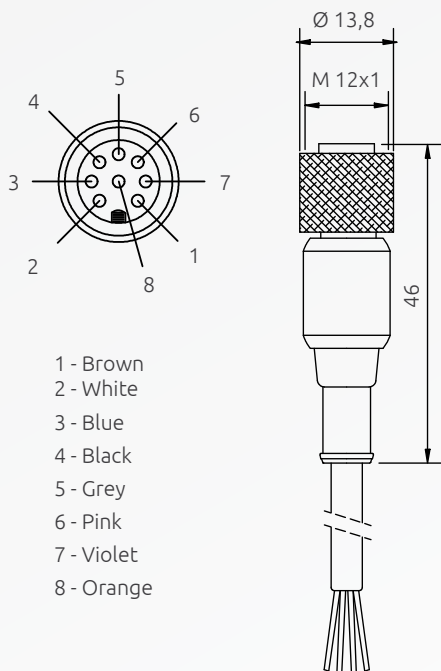
Cables for Magnus MG magnetic sensors.

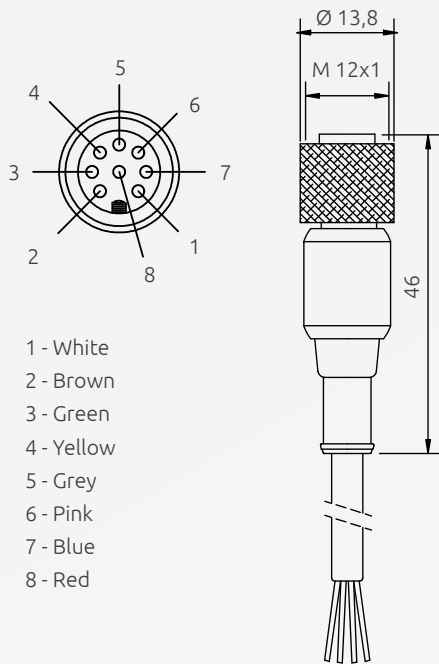


CF8Px M12 FEMALE STRAIGHT CONNECTOR 8-POLE

Model	Code	Description
CF8P3	1295103	Pre-wired cable 3 m
CF8P5	1295104	Pre-wired cable 5 m
CF8P10	1295105	Pre-wired cable 10 m

Cables for R-Safe Plus sensors





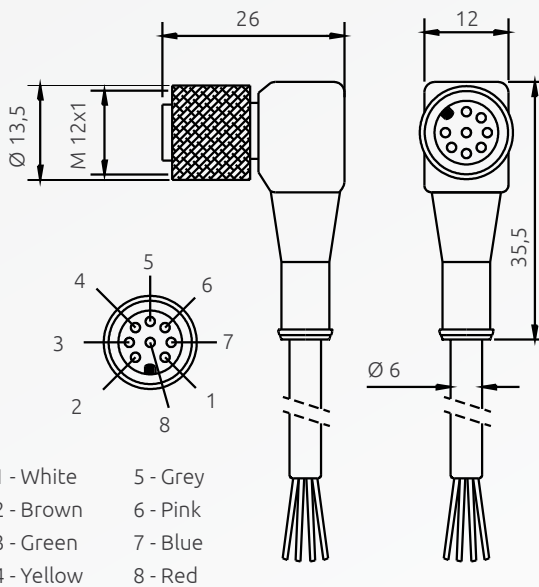
- 1 - White
- 2 - Brown
- 3 - Green
- 4 - Yellow
- 5 - Grey
- 6 - Pink
- 7 - Blue
- 8 - Red

C8Dx SH

M12 STRAIGHT CONNECTOR, 8-POLE, SHIELDED

Model	Code	Description
C8D5 SH	1330930	Pre-wired shielded cable 5 m
C8D10 SH	1330931	Pre-wired shielded cable 10 m
C8D15 SH	1330932	Pre-wired shielded cable 15 m

Cables for Safecoder.



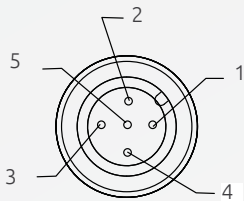
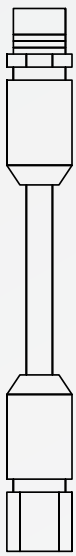
- 1 - White
- 2 - Brown
- 3 - Green
- 4 - Yellow
- 5 - Grey
- 6 - Pink
- 7 - Blue
- 8 - Red

C8D9x SH

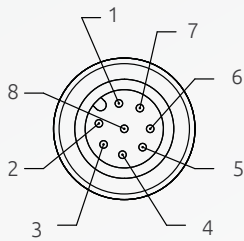
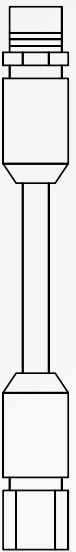
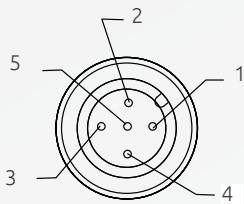
M12 90° ANGLE CONNECTOR, 8-POLE, SHIELDED

Model	Code	Description
C8D95 SH	1330933	Pre-wired shielded cable 5 m
C8D910 SX	1330934	Pre-wired shielded cable 10 m
C8D915 SH	1330935	Pre-wired shielded cable 15 m

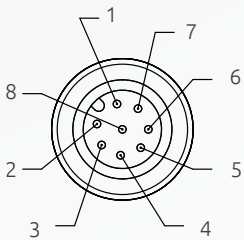
Cables for Safecoder.



- 1 - Brown
- 2 - White
- 3 - Blue
- 4 - Black
- 5 - Grey



- 1 - Brown
- 2 - White
- 3 - Blue
- 4 - Black
- 5 - Grey
- 6 - Pink
- 7 - Violet
- 8 - Orange



CFM5PX MALE-FEMALE M12 STRAIGHT CONNECTOR 5-POLE

Model	Code	Description
CFM5P3	1390908	Pre-wired cable 3 m
CFM5P5	1390909	Pre-wired cable 5 m
CFM5P10	1390911	Pre-wired cable 10 m

Extension cables 5 poles for R-Safe Basic sensors

CFM8Px FEMALE M12 STRAIGHT CONNECTOR 8-POLE

Model	Code	Description
CFM8P3	1295100	Pre-wired cable 3 m
CFM8P5	1295101	Pre-wired cable 5 m
CFM8P10	1295102	Pre-wired cable 10 m

Extension cable for R-Safe Plus sensors.



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