

PI-Safe



Fail-safe inductive sensors. See page 4



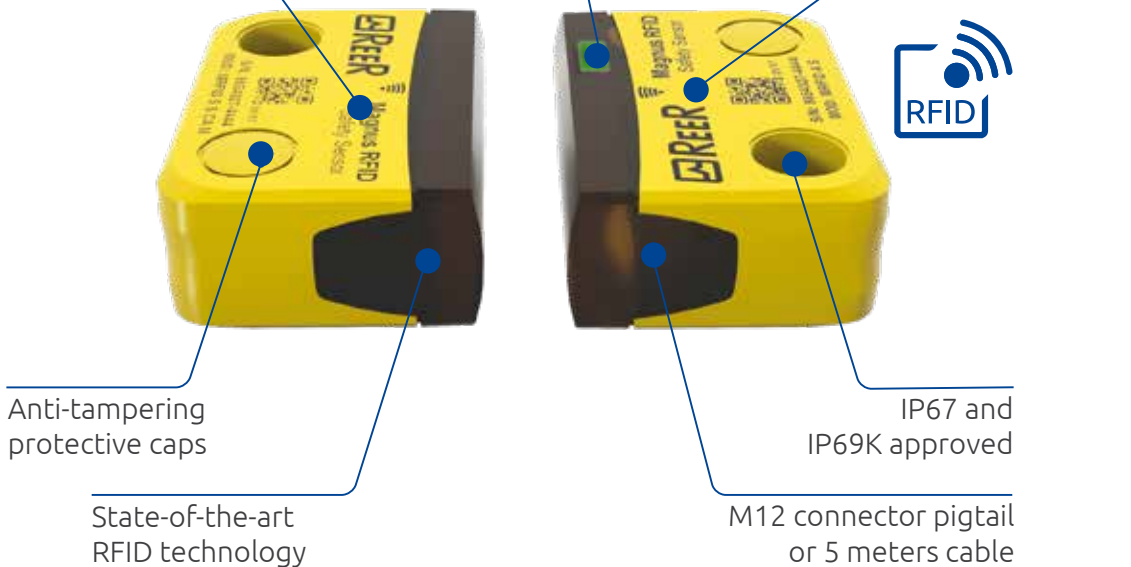
Magnus RFID

Next generation sensors for machine safety. See page 11

Available with
22 or 78 mm interaxis

Status LED

3 different
coding levels



Magnus MG

Magnetic safety switches. See page 18



Ilion

Type 2 safety photocells. See page 22



Ulisse

Type 2 safety photocells. See page 24



SAFECODER

Safety Sin/Cos incremental encoder. See page 26



SAFELOCK

Safety switch with guard locking. See page 28





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. AD SR1, 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

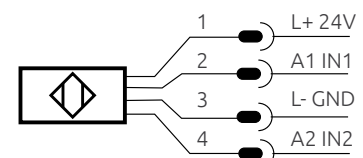
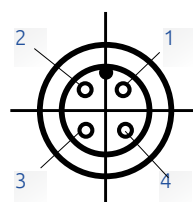


Operating temperature: -25 ... +70 °C



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 28](#)

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 28](#)

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 28](#)



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 28](#)

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 28](#)

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 28](#)



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 28](#)

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 28](#)

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 28](#)

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
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	1293101	M18 bracket
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	1293102	M30 bracket
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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
--	---------	--------------------



	1293104	M18 mounting clamp
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	1293105	M30 mounting clamp
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CABLES NEEDED

- M12 straight connector 5-pole for all models. See [page 28](#)



The best in cost-effectiveness

- Wear-free technology allows for longer life time
- Status LED and diagnostic output
- Smallest design of RFID safety sensors
- Full mechanical compatibility with Magnus MG S and MG B
- Can be used as a stand-alone

The best in safety

- Tampering protection in accordance with DIN EN 14119, the highest in its class
- Screw covers prevent easy removal
- Series connection up to PL e / SIL 3

The best in versatility

- Dual mounting options
- M12 connector or cable
- IP67 and IP6K9K protection grade for use in harsh environments
- Complies with the strict hygiene and cleaning requirements of the food and packaging industry
- 3 different coding levels
- Extension cables for series connection



Operating temperature:
-25 ... +70 °C



High protection classes IP67 and IP6K9K for use in harsh environments



Resistant to aggressive media, e.g. cleaning agents used in the food industry



Vibration resistance:
10...55 Hz, amplitude 1 mm

OVERVIEW

The application of Magnus RFID sensors can be extremely wide thanks to the compact and versatile design.

The different design and technology options and the complete mechanical compatibility with Magnus MG series make this product extremely valuable for users.

The RFID technology enables Magnus RFID sensors to be individually coded in three different ways to allow the appropriate tampering protection in all applications. The highest configurations allow each sensor to be paired with one only assigned actuator.

The RFID technology used allows to reach safety levels up to PL e / SIL 3 also when connecting the sensors in series.

As a result, Magnus RFID sensors can be simply integrated in existing safety scenarios, offering a cost-effective solution for modifying and upgrading machines.



Multiple options of actuation technology

- **Individual coding**
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**
The actuator is permanently assigned to the sensor during manufacturing (it cannot be replaced with another actuator)
- **Actuator coded**
The actuator is free and not specifically assigned to the sensor (one actuator can work with multiple sensors)

Ideal also in the most demanding applications

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



S series



B series



Mechanical data

	S series	B series
Housing material	PBT / PC	
Housing	Rectangular	
Connector type	Pigtail M12 / 8-pole / 150mm	
Cable	5 m PVC / 8 wires	
Cross-section of wire (mm ²)	0,25	
Dimensions h x w x d (mm)	26 x 36 x 13	26 x 88 x 13
Fastening	M4 screws (countersunk)	

Environmental features

	S series / B series	
Protection class	IP67 (all versions) IP6K9K (cable versions only)	
Operating temperature	- 25 ... +70 °C	
Shock resistance	30 g / 11 ms	
Vibration resistance (Hz)	10 ... 55, amplitude 1 mm	

APPROVALS

- 2006/42/EC "Machine Directive"
- 2014/30/EC "Electromagnetic Compatibility Directive"
- 2014/35/EC "Low Voltage Directive"
- IEC 61508-1 (ed. 2) (SIL3) "Functional safety of electrical/electronic programmable electronic safety related systems - General requirements"
- IEC 61508-2 (ed. 2) (SIL3) "Functional safety of electrical/electronic/programmable electronic safety related systems - Requirements for electrical/electronic/programmable electronic safety-related systems"
- IEC 61508-3 (ed. 2) (SIL3) "Functional safety of electrical/electronic programmable electronic safety related systems: Software requirements"
- IEC 62061: "Safety of machinery - Functional safety of safety-related electrical, electronic and programmable electronic control systems"
- ISO 13849-1:2015 "Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design"

TECHNICAL FEATURES

Electrical specifications

	S series / B series
Supply voltage (VDC)	24 ± 10%
Max. switching voltage (V)	Supply voltage ± 0,2 V
Switching current safety output (mA)	Max. 400
Switching current control output (mA)	Max. 50
Response time (ms)	Input-Output: 3 Sensor-Actuator: 75
Contact form	OSSD
Switching frequency (Hz)	3
No. of safety outputs electronic	2
No. of diagnostic outputs electronic	1
Number of safety inputs	2
EDM input	Yes
Start button	Yes
Functional category	DC-12 / DC-13
Assured switching distance (mm)	8
Safe distance for switching off (mm)	18
Minimum air-gap (mm)	0,5
Misalignment actuator max. (mm)	Max. 8
Reverse polarity protection	Yes
Short-circuit proof outputs	Yes
Current consumption per input (mA)	2,75
Indication LED	Three-colour
Operating direction	Any direction
Switching principle	Electronic
Repeating accuracy R (mm)	< 0,5
Hysteresis (mm)	2
Series connection	Max. 30 sensors
Technology	RFID

SAFETY LEVEL

Cat. 4

SIL 3 - SILCL 3
PL e



SERIES CONNECTION WITH MAXIMUM SAFETY

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

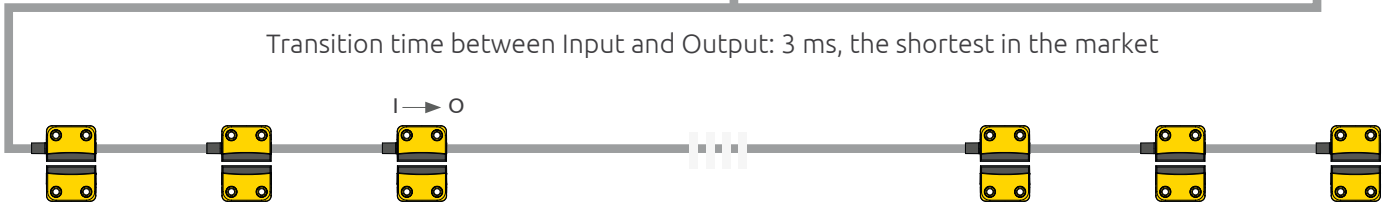
Reliable evaluation,
e.g. with the modular safety controller
MOSAIC



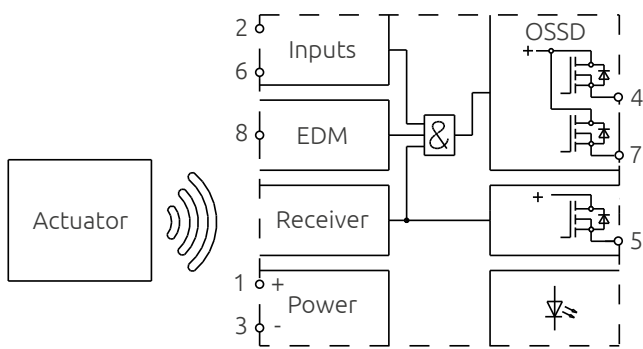
...or with the AD SR1
safety control unit



Transition time between Input and Output: 3 ms, the shortest in the market

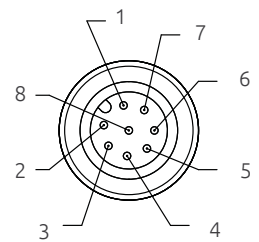


CIRCUIT DIAGRAM



PIN-OUT

Pin	Function
1	VDC
2	Safety input 1
3	GND
4	Safety output 1
5	Diagnostic output
6	Safety input 2
7	Safety output 2
8	EDM input



MODELS AVAILABLE

S series 22 mm interaxis



Dimensions compatible
with Magnus MG S series

B series 78 mm interaxis



Dimensions compatible
with Magnus MG B series

CONNECTIVITY

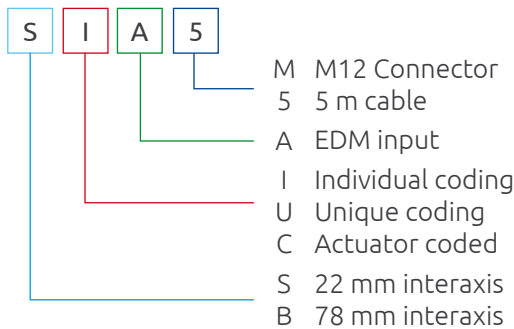
Cable or M12 Connector

Magnus RFID satisfies all requirements with regard to connectivity.

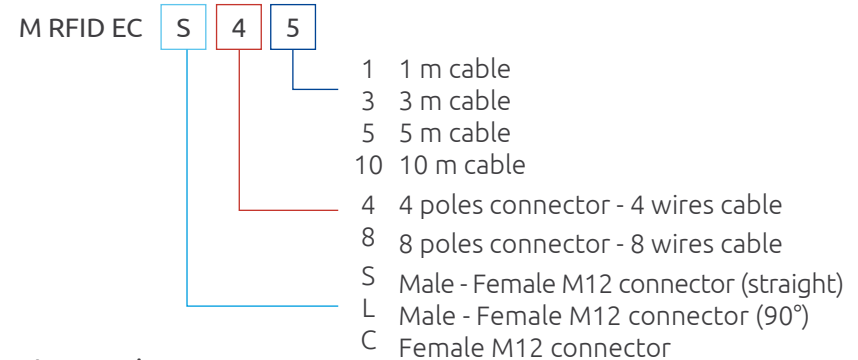


CODE LEGEND (ORDERING INFORMATION)

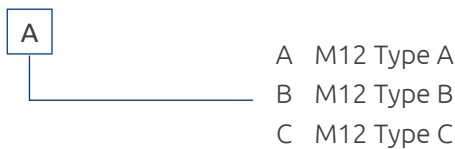
Combo (Sensor + Actuator)¹



Extension cable (for series connection)



T Connectors (for series connection)



Accessories

- M RFID SP** Spacers available for S or B series (recommended for mounting on metal surfaces)
- M RFID TP** Termination plug (to close the last Type B connector in series connections of 2 or more sensors)

- Each Combo set is provided with a Sensor and the corresponding Actuator. Sensors and Actuators can be also ordered separately, please enquire within
- 4-pole version available only

PART NUMBERS

Combo (Sensor + Actuator) 22 mm interaxis

Ordering code	Model	Connection	Description
1292000	MRFID C S CA M	Connettore M12	Actuator coded
1292003	MRFID C S CA 5	Cavo da 5 m	
1292010	MRFID C S IA M	Connettore M12	Individual coding
1292013	MRFID C S IA 5	Cavo da 5 m	
1292020	MRFID C S UA M	Connettore M12	Unique coding
1292023	MRFID C S UA 5	Cavo da 5 m	

Combo (Sensor + Actuator) 78 mm interaxis

Ordering code	Model	Connection	Description
1292100	MRFID C B CA M	Connettore M12	Actuator coded
1292103	MRFID C B CA 5	Cavo da 5 m	
1292110	MRFID C B IA M	Connettore M12	Individual coding
1292113	MRFID C B IA 5	Cavo da 5 m	
1292120	MRFID C B UA M	Connettore M12	Unique coding
1292123	MRFID C B UA 5	Cavo da 5 m	

Individual sensors 22 mm interaxis

Ordering code	Model	Connection	Description
1292200	MRFID S S CA M	Connettore M12	Actuator coded
1292203	MRFID S S CA 5	Cavo da 5 m	
1292210	MRFID S S IA M	Connettore M12	Individual coding
1292213	MRFID S S IA 5	Cavo da 5 m	

Individual sensors 78 mm interaxis

Ordering code	Model	Connection	Description
1292300	MRFID S B CA M	Connettore M12	Actuator coded
1292303	MRFID S B CA 5	Cavo da 5 m	
1292310	MRFID S B IA M	Connettore M12	Individual coding
1292313	MRFID S B IA 5	Cavo da 5 m	

Individual actuators

Ordering code	Model	Description
1292290	MRFID A S	Actuator for sensors 22 mm interaxis
1292390	MRFID A B	Actuator for sensors 78 mm interaxis

Spacers*

Ordering code	Model	Description
1292401	MRFID SP S	Spacer for sensors 22 mm interaxis
1292400	MRFID SP B	Spacer for sensors 78 mm interaxis

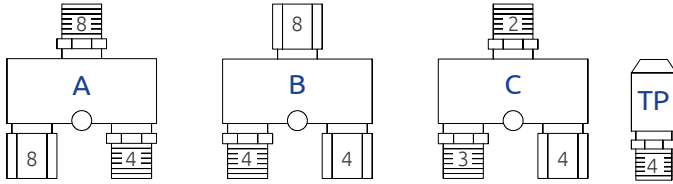
* Ordering code includes one spacer only

CABLE NEEDED

- M12 8-pole connector C8Dx .See [page 31](#)
Alternatively , M12 8-pole MRFID EC C8x extension cable can be used. see [page 32](#)

ACCESSORIES

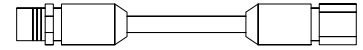
T CONNECTORS



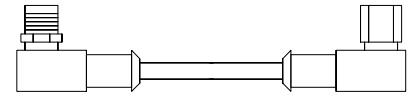
Ordering code	Model	Type	Description
1292404	MRFID TCA	A	T M12 connector to gain status output from the connected sensor
1292403	MRFID TCB	B	T M12 connector for series connections of 2 or more sensors
1292405	MRFID TCC	C	T M12 connector to introduce additional power supplies in long series
1292402	MRFID TP	TP	Plug

EXTENSION CABLES

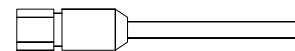
Type S
Male - Female
M12 connector (straight)
Length: 1, 3, 5, 10 m
Poles: 4 or 8
See



Type L
Male - Female
M12 connector (90°)
Length: 1, 3, 5, 10 m
Poles: 4
See



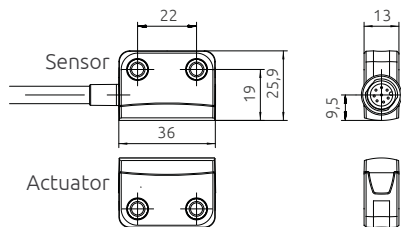
Type C
Female M12 connector
Length: 1, 3, 5, 10 m
Poles/wires: 4 or 8
See



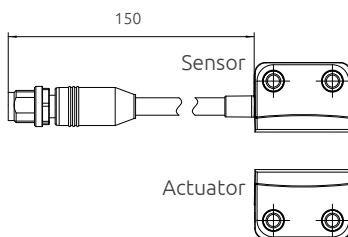
DIMENSIONS

S series

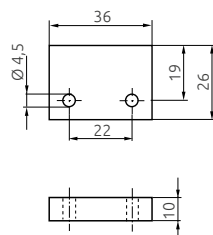
Cable version



M12 Connector version

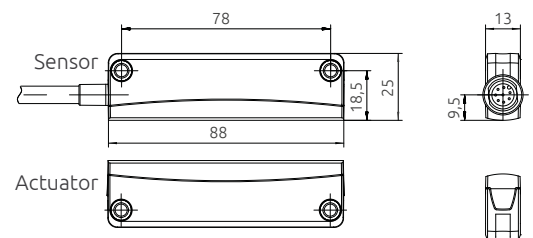


Spacer S

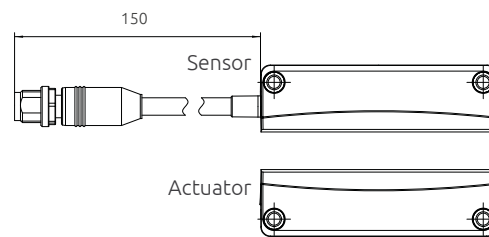


B series

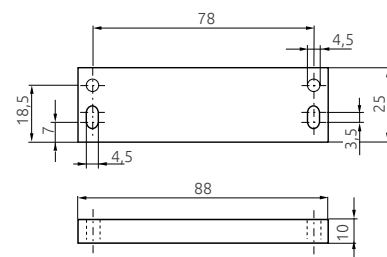
Cable version



M12 Connector version

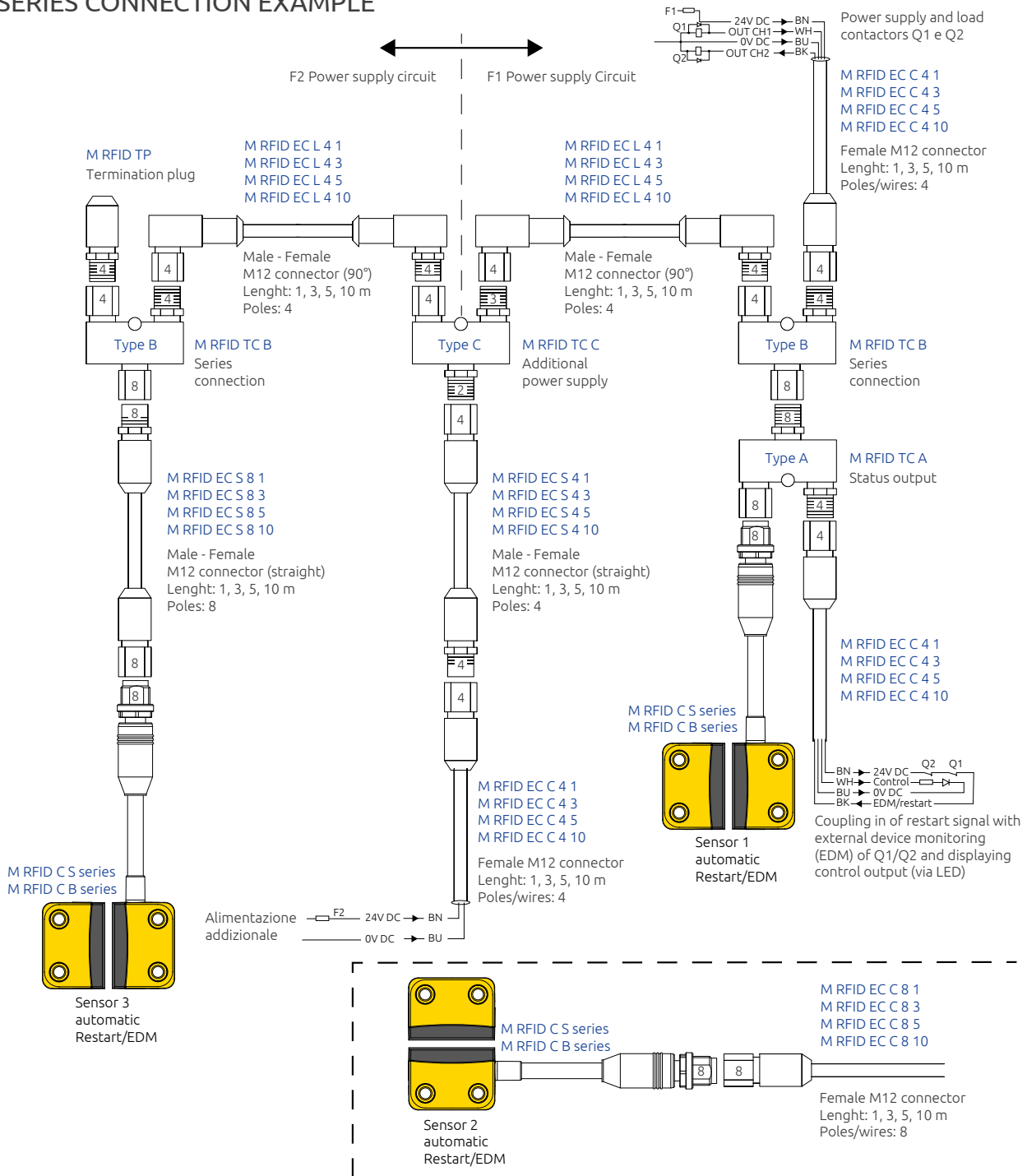


Spacer B



Dimension: mm

SERIES CONNECTION EXAMPLE





- 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 (only use reinforced actuation magnets if a gap of more than 4 mm is unavoidable)
Possible actuation reinforced magnets	

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 (only use reinforced actuation magnets if a gap of more than 4 mm is unavoidable)
Possible actuation reinforced magnets	

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.

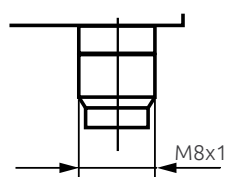
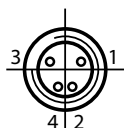
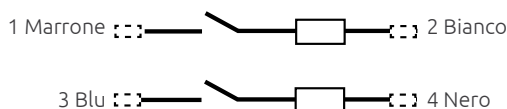
Can be also connectet to safety interfaces for emergency stop and safety switches

- Connected to AD SRE3 - AD SR3C form a certified PL d safety system
- Connected to AD SRE4 - AD SR4C form a certified PL e safety system

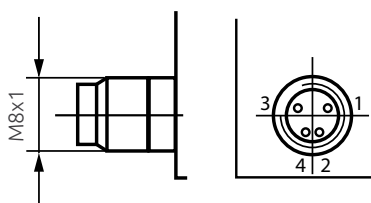
CABLE NEEDED

M8 4-pole. See [page 30](#) (C8Gx, C8G9x)

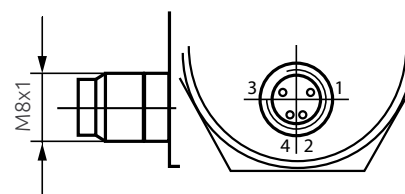
CONNECTOR



MG S

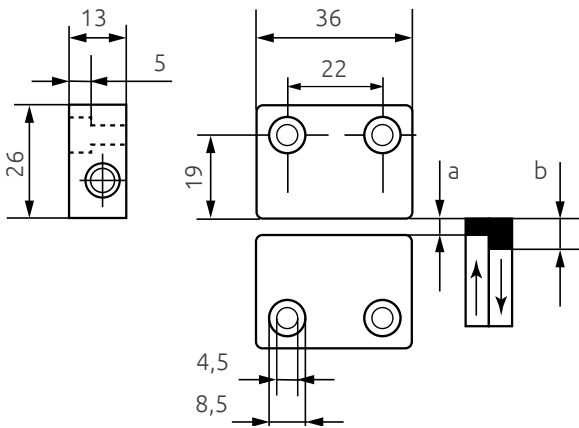


MG B



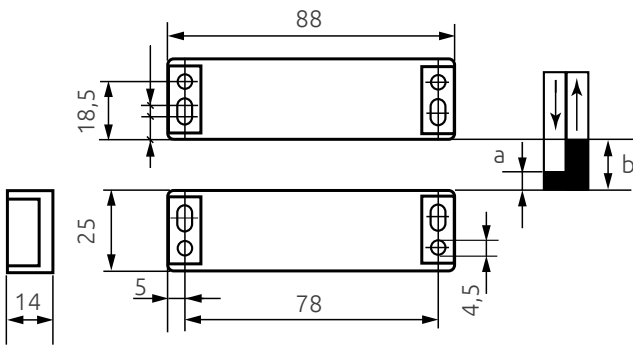
MG M

MECHANICAL DATA



Gaps (operating distance) for safe switching function in mm:

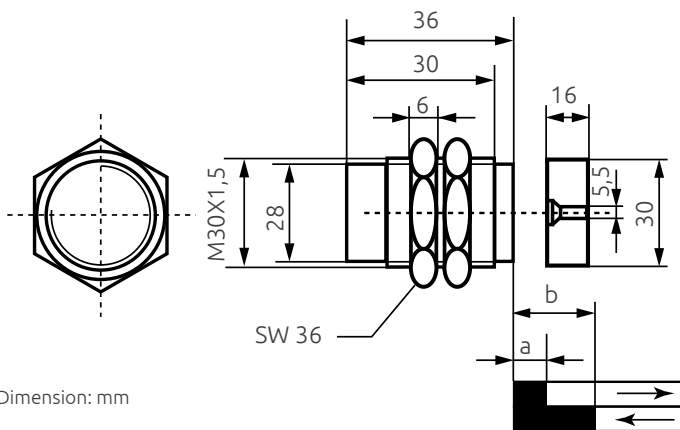
MINIMUM GAP	0,5	-
ON	3	a
OFF	10	b



Gaps (operating distance) for safe switching function in mm:

MINIMUM GAP	normal	0,5	
	with + magnet	3	
ON	normal	4	a
	with + magnet	7	
OFF	normal	16	b
	with + magnet	18	

+ = reinforced



Dimension: mm

Gaps (operating distance) for safe switching function in mm:

MINIMUM GAP	normal	0,5	
	with + magnet	3	
ON	normal	4	a
	with + magnet	7	
OFF	normal	16	b
	with + magnet	18	

+ = reinforced



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

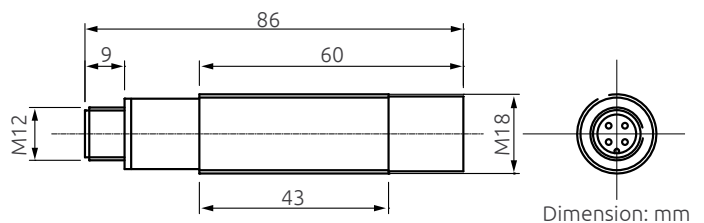
TECHNICAL FEATURES

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 AU SX. See [page 27](#)
- Safety interface AU SXM. See [page 27](#)
- 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 28](#) (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

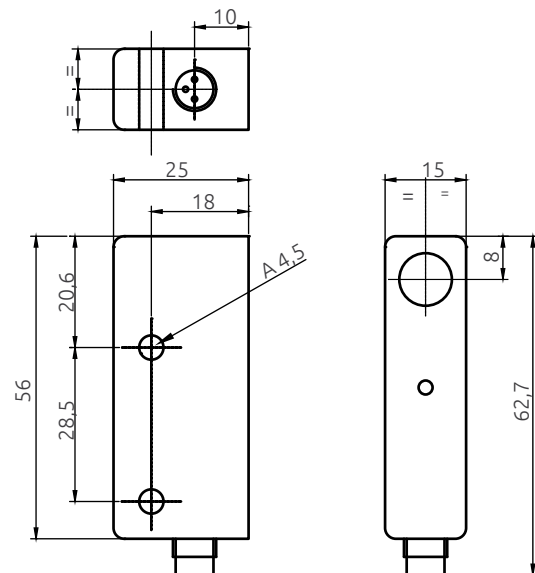
TECHNICAL FEATURES

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 29 (C8x, C 895)

ACCESSORIES

- Safety interface AU SX. See page 27
- Safety interface AU SXM. See page 27



Shaft version



Hollow shaft version

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

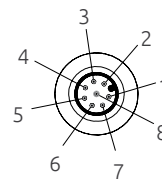
Any applications requiring speed monitoring of a rotating axis.

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 - \bar{A} : Sine output
- 5 - B: Cosine output
- 6 - \bar{B} : Cosine output
- 7 - N.C.
- 8 - N.C.
- shield - PH

APPROVALS

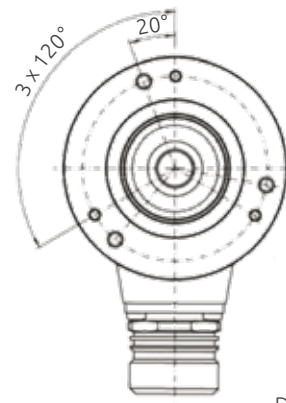
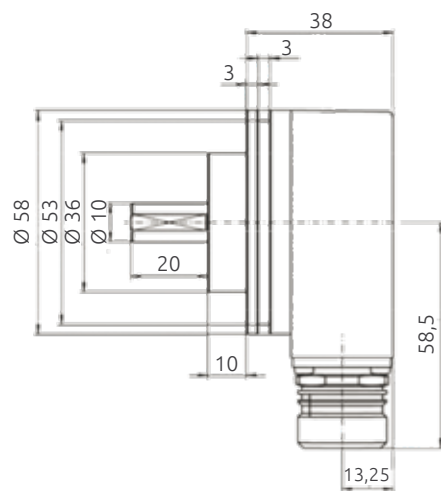
- 2006/42/EC "Machinery Directive"
- 2004/108/EC "Electromagnetic Compatibility (EMC)"
- EN ISO 13849-1 "Safety of machinery: Safety-related parts of control systems. Part 1: General principles for design"
- EN ISO 13849-2 "Safety of machinery: Safety-related parts of control systems. Part 2: Validation"
- 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



PART NUMBERS

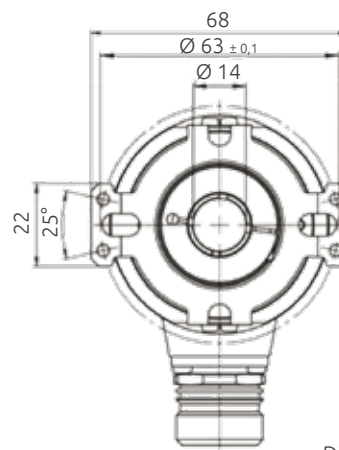
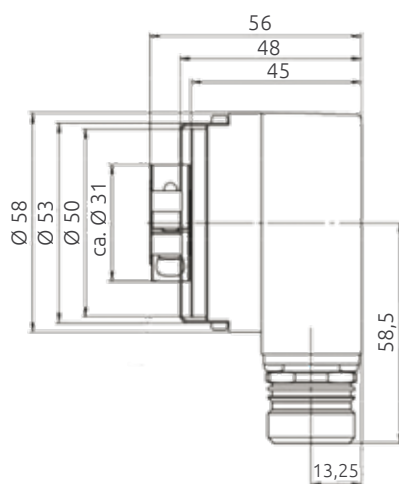
Ordering code	Description
1100102	SC3 24D2048R - 24 VDC Hollow Shaft version Ø 12 mm
1100103	SC3 05D2048R - 5 VDC Hollow Shaft version Ø 12 mm
1100104	SC3 24B2048R - 24 VDC Shaft version Ø 10 mm with flat surface
1100105	SC3 05B2048R - 5 VDC Shaft version Ø 10 mm with flat surface

DIMENSIONS



Dimension: mm

Encoder, shaft version with flat surface



Dimension: mm

Hollow shaft version

CABLES NEEDED

M12 8-pole shielded. See [page 31](#)
(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).



SAFETY SWITCH WITH GUARD LOCKING

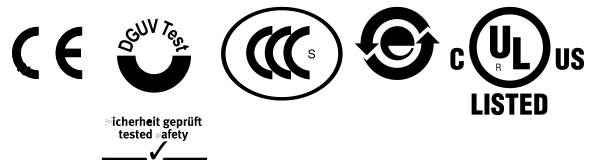
LOCK AND INTERLOCK SAFETY FUNCTIONS

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



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

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

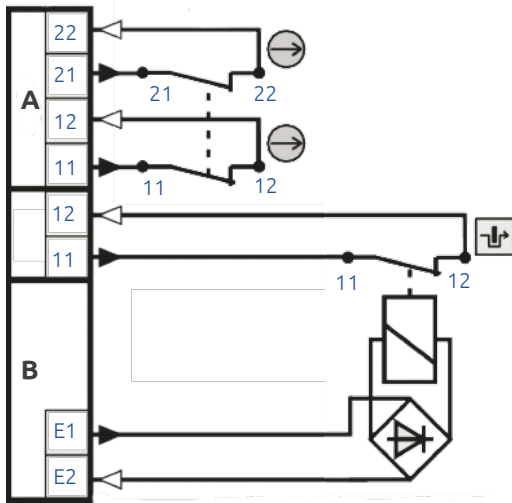
* Contact ReeR to check availability

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
ACT-F-S-RB		1290306 *	Actuator for insertion funnels, straight with rubber bush Two stainless safety screws per actuator Actuators with rubber bushings
ACT-F-A-RB		1290307 *	Actuator for insertion funnels, angled with rubber bush Two stainless safety screws per actuator Actuators with rubber bushings
ACT-F-H-TB		1290308 *	Actuator for insertion funnels, hinged, top-bottom Actuators made of stainless steel Two stainless safety screws per actuator For doors hinged at top and bottom
ACT-FH-LR		1290309 *	Actuator for insertion funnels, hinged, left-right Actuators made of stainless steel Two stainless safety screws per actuator For doors hinged on right and left
ACT-F-IF		1290311 *	Insertion funnel

* Contact ReeR to check availability

BLOCK DIAGRAM



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

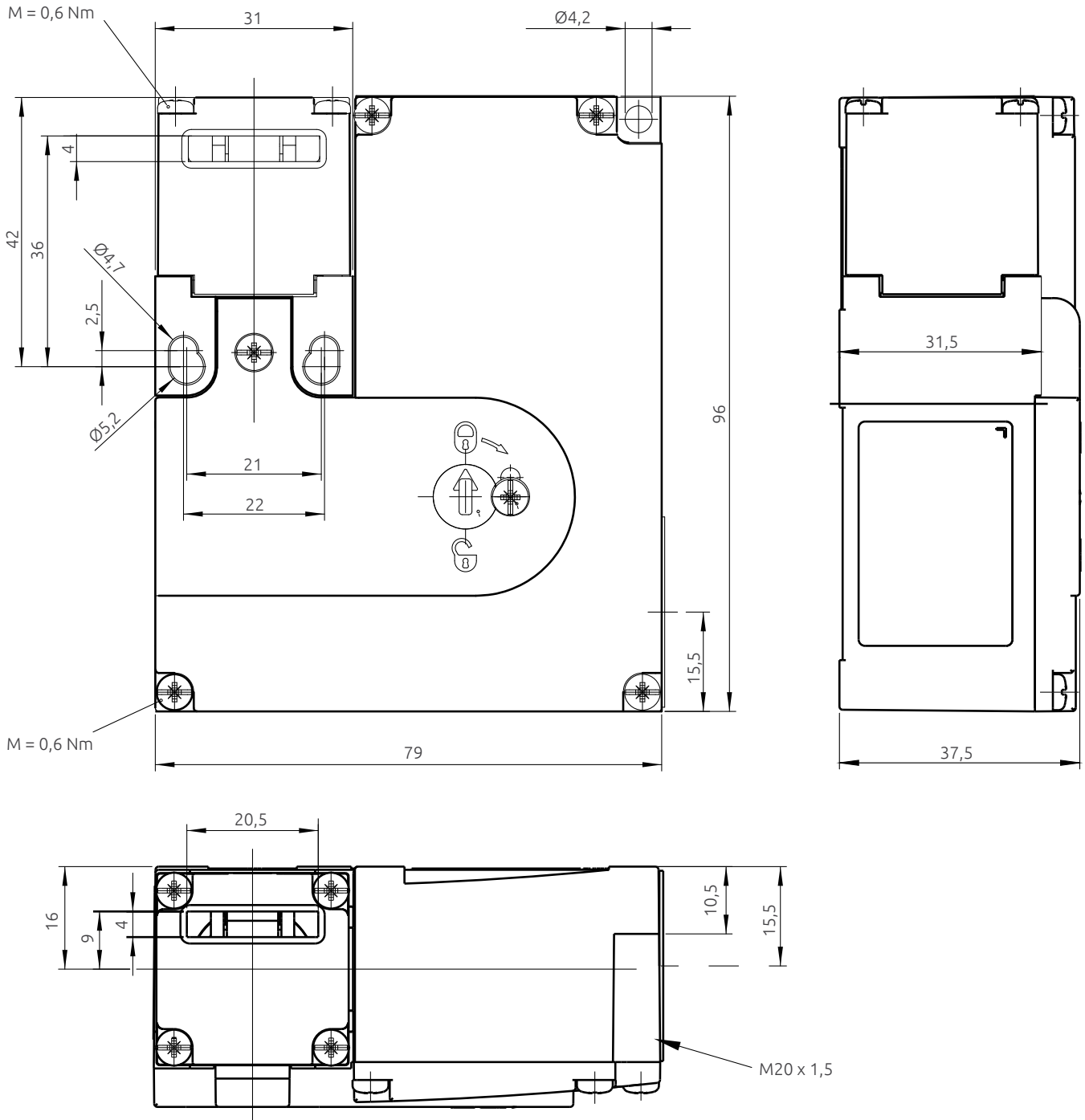
SAFETY LEVELS

3 different safety levels according to the EN ISO 13489-1 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 realy AD SR1
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



Dimension: mm



LIVELLO DI SICUREZZA

TIPO 4

SILCL 3
PL e - Cat. 4

AD SR1 safety interface constitutes the dedicated interface system between the machine control circuits and OSSD output devices such as Magnus RFID sensors.

- Guided-contact safety relays
- Start/Restart interlock
- EDM feedback input for external contactors monitoring



LIVELLO DI SICUREZZA

PL e

Cat. 4



AD SRE3
AD SRE3C

LIVELLO DI SICUREZZA

PL d

Cat. 3

Safety relay for emergency stop buttons and safety switches monitoring.

- According to EN ISO 13849-1:
 - AD SRE4 - AD SRE4C models can be used up to safety Category 4, PL e
 - AD SRE3 - AD SRE3C models can be used up to safety Category 4, PL d
- Guided-contact safety relays
- EDM Feedback input for external contactors monitoring
- Start/Restart can be:
 - Automatic/Manual AD SRE4 - AD SRE3
 - Manual Monitored AD SRE4C - AD SRE3C

AD SR1 TYPE 4 SAFETY INTERFACE

TECHNICAL FEATURES

Safety relay outputs	2 NO - 2 A 250 VAC
Status output	PNP - 100 mA at 24 VDC
Response time (ms)	≤ 20
Start/Restart command according to IEC 61496-1	Manual or automatic Start/Restart selectable on terminal block
Status display	LED indication of input/output status and diagnosis
Power supply (VDC)	24 ± 20%
Electrical connections	On terminal blocks
Operating temperature (°C)	0 ... +55
Protection rating	IP20 for housing IP2X for terminal blocks
Fastening	DIN rail fastening according to EN 50022-35 standard
Dimensions h x w x d (mm)	99 x 22,5 x 114

PART NUMBERS

AD SR1: 1330900

AD SRE4 - AD SRE4C AD SRE3 - AD SRE3C SAFETY INTERFACES FOR EMERGENCY STOP BUTTONS AND SAFETY SWITCHES

TECHNICAL FEATURES

Safety relay outputs	3 NO + 1 NC - 5 A 240 VAC / 24 VDC Each NO safety output line is interrupted twice by the two relays
Response time (ms)	≤ 50
Start/Restart	AD SRE4 / AD SR3 - Automatic/Manual AD SRE4C / AD SR3C - Manual monitored
Status display	LED indicators for status and supply diagnostic: power, channel 1 and channel 2
Power supply (VDC)	24 (±10%)
Electrical connection	On terminal block
Operating temperature (°C)	-25 ... +55
Protection rating	IP40 for housing IP20 for terminal block
Fastening	DIN rail fastening according to EN 50022-35 standard
Dimensions h x w x d (mm)	99 x 22,5 x 114

PART NUMBERS

AD SRE 4: 1330913 AD SRE 4C: 1330914

AD SRE 3: 1330911 AD SRE 3C: 1330912





LIVELLO DI SICUREZZA

TIPO 2

SILCL 1
PL c - Cat. 2

Control unit for safety photocells Ilion and Ulisse, which can be combined to form a Type 2 safety system. Up to 4 photocells may be connected.

- With guided-contact safety relays
- Start/Restart interlock
- EDM Feedback input for external contactors monitoring
- Self test every 5 seconds



LIVELLO DI SICUREZZA

TIPO 2

SILCL 1
PL c - Cat. 2

AU SXM control unit, with integrated Muting functions, for safety photocells Ilion and Ulisse, which can be combined to form a Type 2 safety system. Up to 4 photocells may be connected.

- 2-sensor Muting logics
- With guided-contact safety relays
- Muting time-out selectable
- Start/Restart interlock
- EDM feedback input for external contactors monitoring
- Self test every 5 seconds

PART NUMBERS

AU SX: 1201710

AU SXM: 1201711



TYPE 2 SAFETY INTERFACES FOR ILION AND ULISSE PHOTOCELLS

TECHNICAL FEATURES

AU SX

Safety relay outputs	2 NO - 2 A 250 VAC
Status output	PNP - 100 mA at 24 VDC
Response time (ms)	≤ 30
Start/Restart command according to IEC 61496-1	Manual or automatic Start/Restart selectable on terminal block
Signalling	LED indication of input/output status and diagnosis
Power supply (VDC)	24 ± 20%
Electrical connections	On terminal block
Operating temperature (°C)	0 ... 55
Protection rating	IP20 for housing IP2X for terminal block
Fastening	DIN rail fastening according to EN 50022-35 standard
Dimensions h x w x d (mm)	99 x 22,5 x 114

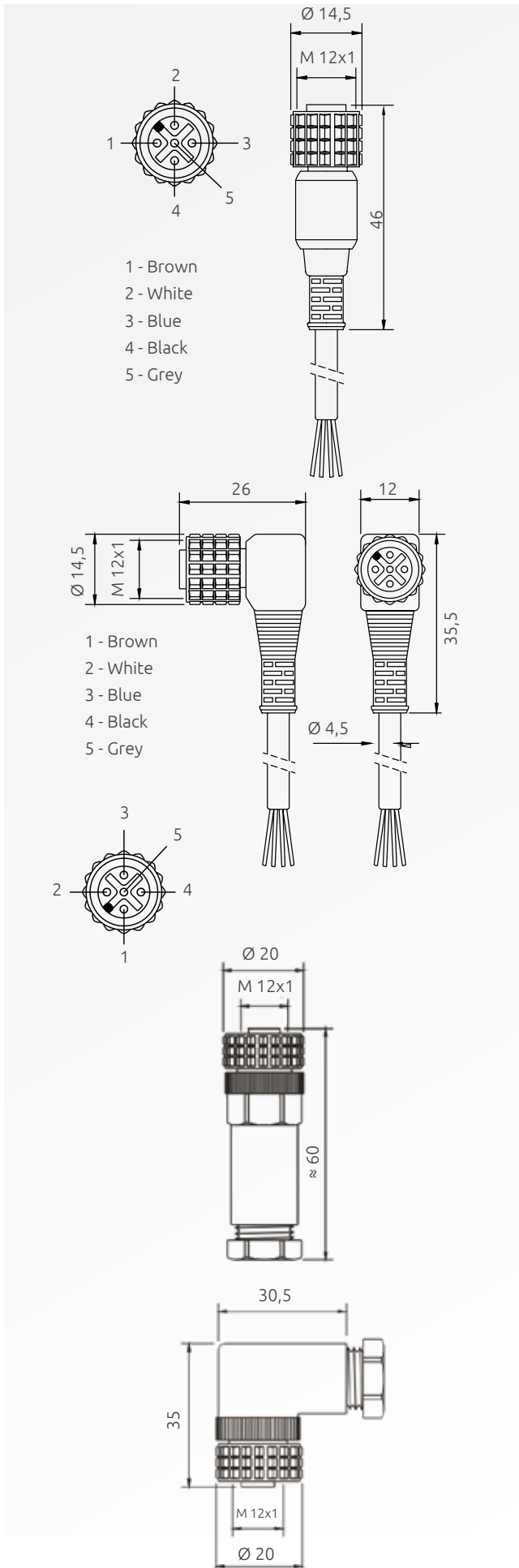
AU SXM

As the previous interface plus the following features:

Inputs for Muting sensors	2 inputs 0 or 24 VDC – PNP or relay – dark-on
Muting Enable input	0 or 24 VDC – PNP or relay
Muting lamp output	24 VDC; 0,5 - 5 W
Muting time-out	30 sec. or infinite, selectable
Override	2 operating modes selectable: manual action with hold to run or automatic with pulse command
Override time-out (min)	15
Response time (ms)	≤ 30
Signalling	LED indications of input/output status, Muting sensor inputs, diagnosis
Dimensions h x w x d (mm)	99 x 35 x 114

APPROVALS

- 2006/42/EC: "Machine Directive"
- 2014/30/EU: "Electromagnetic Compatibility Directive"
- 2014/35/EU: "Low Voltage Directive"
- EN 61496-1:2013 "Safety of machinery - Electro sensitive protective equipment - General requirements and tests"
- IEC 62061 (ed.1) (SILCL1) "Safety of machinery - Functional safety of safety-related electrical, electronic and programmable electronic control systems"
- EN ISO 13849-1: 2008 (Cat. 2, PL c) "Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design"
- EN 50178: 1997 "Electronic equipment for use in power installations"
- EN 55022: 2010 "Information Technology Equipment- Radio Disturbance Characteristics- Limits and Methods of Measurement"
- EN60947-5-1: 2004 + A1:2009 "Low Voltage Switchgear and Controlgear - Part 5 - 1: Control Circuit Devices and Switching Elements - Electromechanical Control Circuit Devices"
- EN 60204-1:2006 "Safety of machinery - Electrical equipment of machines - Part 1: General requirements"
- UL (C+US) mark for USA and Canada



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 Ilion photocells.
Note: 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

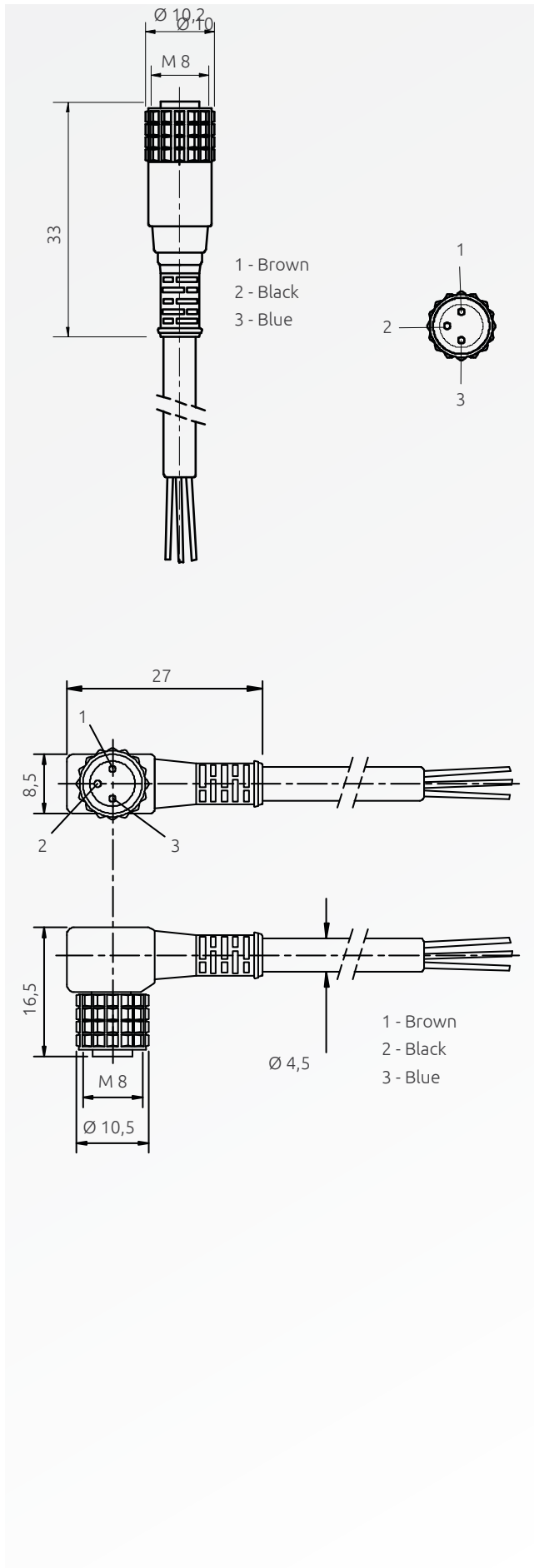
Model	Code
CDM99	1330955

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

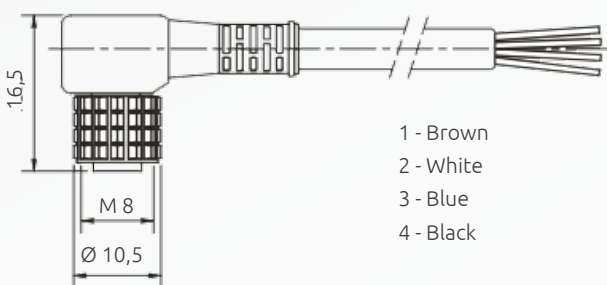
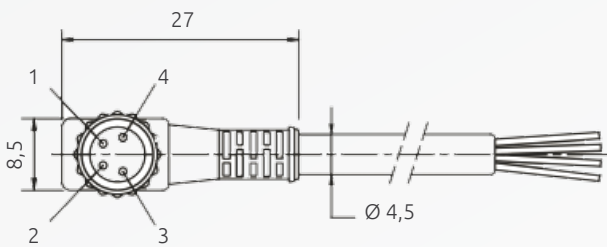
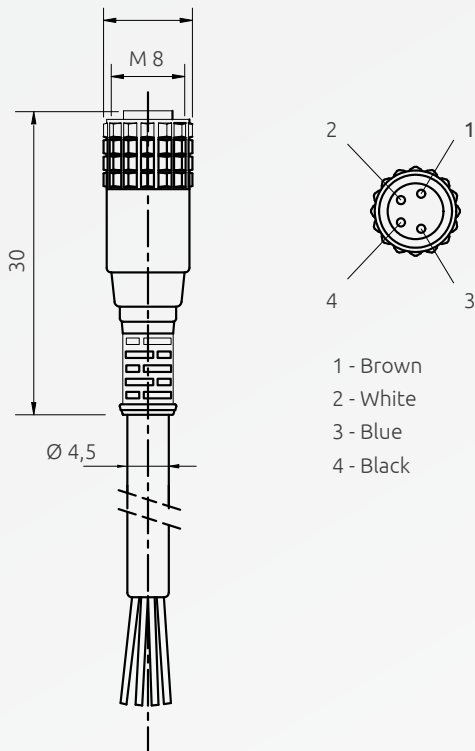
Model	Code	Description
C895	1200216	Pre-wired cable 5 m

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.

C8Dx M12 FEMALE STRAIGHT CONNECTOR 8-POLE

Model	Part number	Description
C8D5	1330980	Pre-wired cable 5 m
C8D10	1330981	Pre-wired cable 10 m
C8D15	1330982	Pre-wired cable 15 m
C8D20	1330908	Pre-wired cable 20 m
C8D25	1330967	Pre-wired cable 25 m
C8D40	1330966	Pre-wired cable 40 m
C8D50	1330909	Pre-wired cable 50 m
C8D70	1330937	Pre-wired cable 70 m

Cables for Magnus RFID

C8Dx SH M12 STRAIGHT CONNECTOR, 8-POLE, SHIELDED

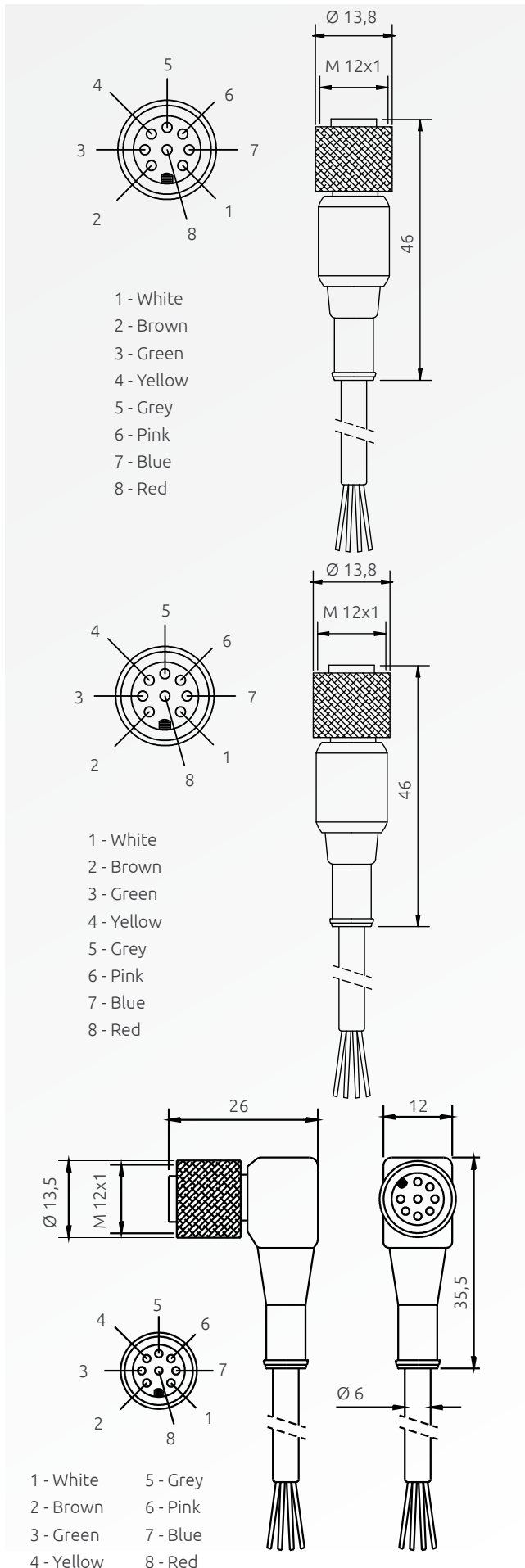
Model	Code	Description
C8D5 SH	1330930	Pre-wired shielded cable 5 m
C8D10 SH	1330931	Pre-wired shielded cable 10 m
C8D15 SH	1330932	Pre-wired shielded cable 15 m

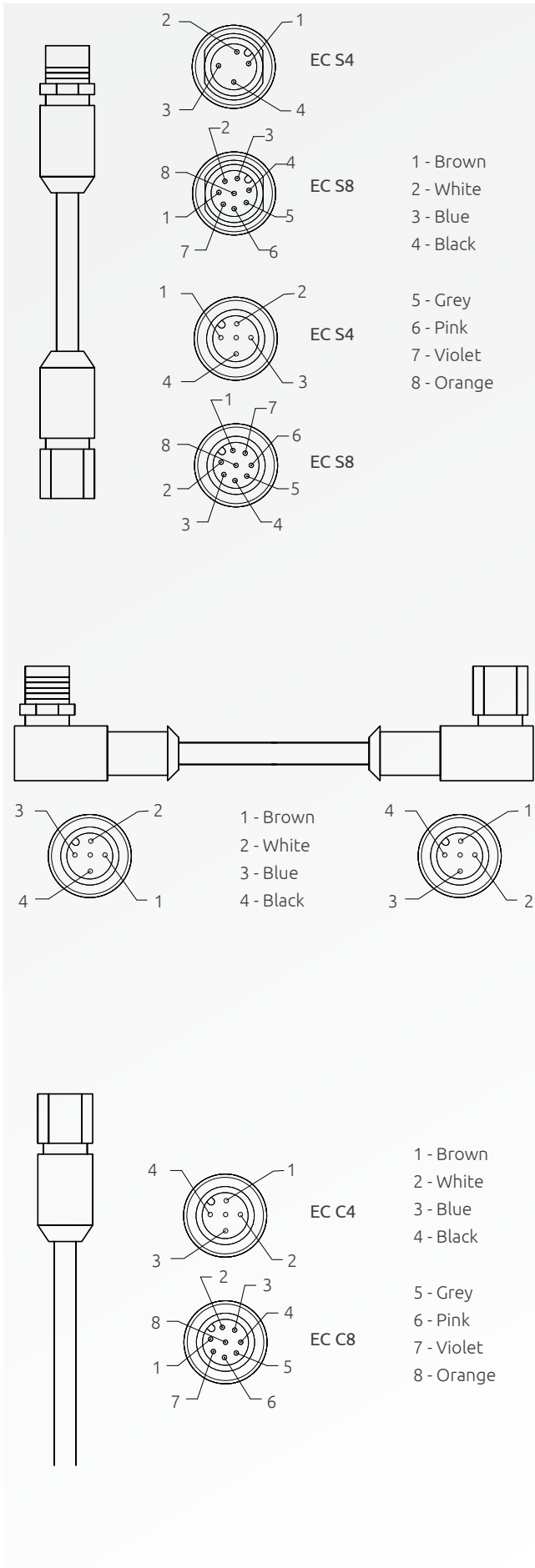
Cables for Safecoder.

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.





EC S4 x MALE-FEMALE M12 STRAIGHT CONNECTOR 4-POLE

Model	Code	Description
MRFID EC S4 1	1292414	Pre-wired cable 1 m
MRFID EC S4 3	1292415	Pre-wired cable 3 m
MRFID EC S4 5	1292416	Pre-wired cable 5 m
MRFID EC S4 10	1292417	Pre-wired cable 10 m

EC S8 x MALE-FEMALE M12 STRAIGHT CONNECTOR 8-POLE

Model	Code	Description
MRFID EC S8 1	1292422	Pre-wired cable 1 m
MRFID EC S8 3	1292423	Pre-wired cable 3 m
MRFID EC S8 5	1292424	Pre-wired cable 5 m
MRFID EC S8 10	1292425	Pre-wired cable 10 m

Cables for Magnus RFID sensors.

EC L4 x MALE-FEMALE M12 90° ANGLE CONNECTOR 4-POLE

Model	Code	Description
MRFID EC L4 1	1292418	Pre-wired cable 1 m
MRFID EC L4 3	1292419	Pre-wired cable 3 m
MRFID EC L4 5	1292420	Pre-wired cable 5 m
MRFID EC L4 10	1292421	Pre-wired cable 10 m

Cables for Magnus RFID sensors.

EC C4 x FEMALE M12 STRAIGHT CONNECTOR 4-POLE

Model	Code	Description
MRFID EC C4 1	1292406	Pre-wired cable 1 m
MRFID EC C4 3	1292407	Pre-wired cable 3 m
MRFID EC C4 5	1292408	Pre-wired cable 5 m
MRFID EC C4 10	1292409	Pre-wired cable 10 m

EC C8 x FEMALE M12 STRAIGHT CONNECTOR 8-POLE

Model	Code	Description
MRFID EC C8 1	1292410	Pre-wired cable 1 m
MRFID EC C8 3	1292411	Pre-wired cable 3 m
MRFID EC C8 5	1292412	Pre-wired cable 5 m
MRFID EC C8 10	1292413	Pre-wired cable 10 m

Cables for Magnus RFID sensors.



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Issue 2 - Rev. 1.4
February 2021
8946228
SENSORS - English

Printed in Italy

