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.

MAGNUS RFID

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 (mm²)	0,25	
Dimensions h w 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

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

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"

SAFETY LEVEL

Cat. 4

SIL 3 - SILCL 3 PL e

CE

TÜV SÜD

c UL us LISTED

RoHS Compliant

SERIES CONNECTION WITH MAXIMUM SAFETY

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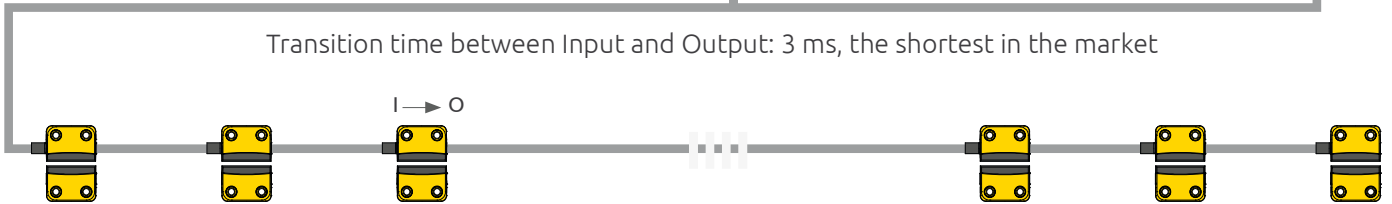according to EN ISO 13849-1

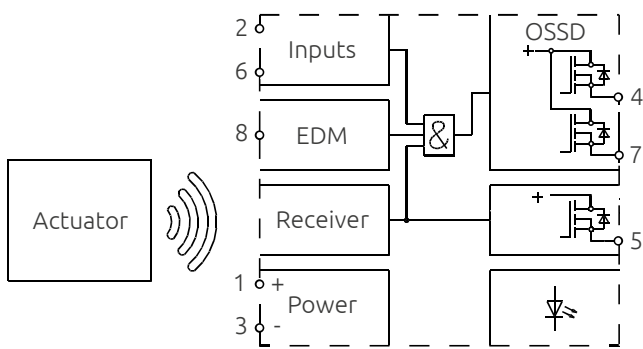Reliable evaluation,
e.g. with the modular safety controller
MOSA:C

…or with the AD SR1
safety control unit

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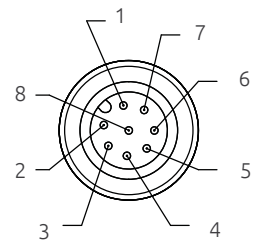
I → O

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
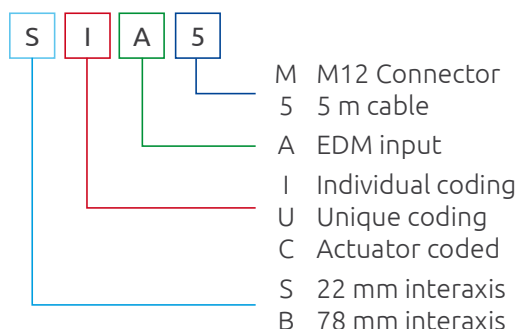with Magnus MG B series

CONNECTIVITY

Cable or **M12 Connector**
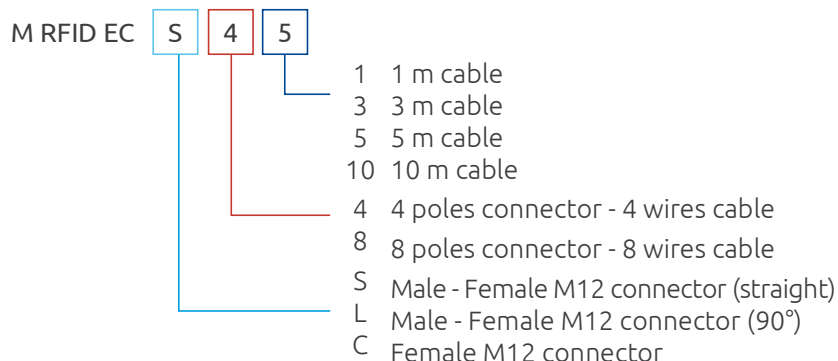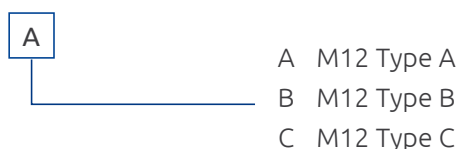Magnus RFID satisfies all requirements with regard to connectivity.

Cable (5

M12 Connector
(15 cm pigtail)

MAGNUS RFID

CODE LEGEND (ORDERING INFORMATION)

Combo (Sensor + Actuator)[1]

| S | I | A | 5 |

- M M12 Connector
- 5 5 m cable
- A EDM input
- I Individual coding
- U Unique coding
- C Actuator coded
- S 22 mm interaxis
- B 78 mm interaxis

Extension cable (for series connection)

M RFID EC | S | 4 | 5 |

- 1 1 m cable
- 3 3 m cable
- 5 5 m cable
- 10 10 m cable
- 4 4 poles connector - 4 wires cable
- 8 8 poles connector - 8 wires cable
- S Male - Female M12 connector (straight)
- L Male - Female M12 connector (90°)
- C Female M12 connector

T Connectors (for series connection)

| A |

- A M12 Type A
- B M12 Type B
- C M12 Type C

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)

1. Each Combo set is provided with a Sensor and the corresponding Actuator. Sensors and Actuators can be also ordered separately, please enquire within
2. 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*

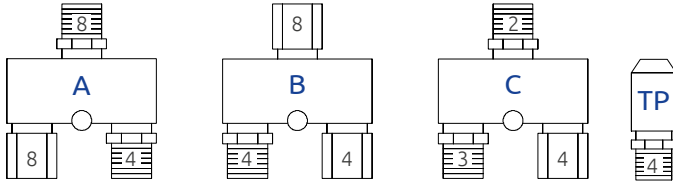| Ordering codee	Model	Description
1292401	MRFID SP S	Spacer for sensors 22 mm interaxis
1292400	MRFID SP B	Spacer for sensors 78 mm interaxis

* 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

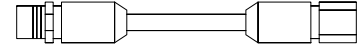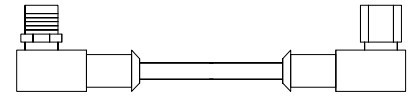## T CONNECTORS

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

EXTENSION CABLES

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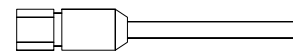M12 connector (straight)
Lenght: 1, 3, 5, 10 m
Poles: 4 or 8
See

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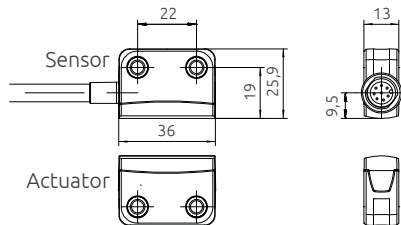Lenght: 1, 3, 5, 10 m
Poles: 4
See

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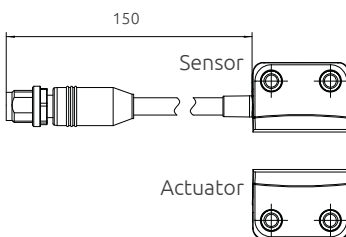Female M12 connector
Lenght: 1, 3, 5, 10 m
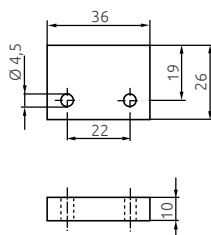Poles/wires: 4 or 8
See

DIMENSIONS

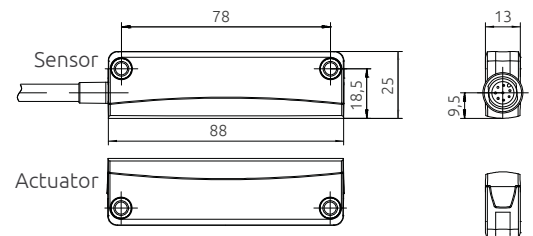## S series

Cable version

M12 Connector version

Spacer S
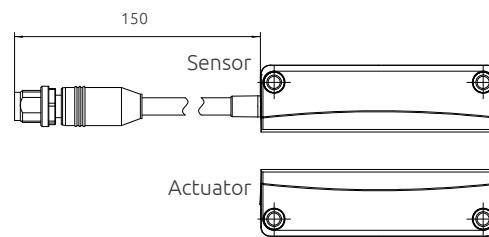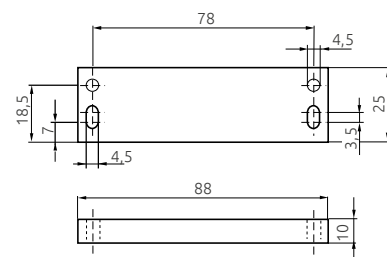

B series

Cable version

M12 Connector version

Spacer B

Dimension: mm

SERIES CONNECTION EXAMPLE

F2 Power supply circuit | F1 Power supply Circuit

F1
Q1 — 24V DC → BN
OUT CH1 → WH
0V DC → BU
Q2 — OUT CH2 → BK

Power supply and load
contactors Q1 e Q2

M RFID EC C 4 1
M RFID EC C 4 3
M RFID EC C 4 5
M RFID EC C 4 10

Female M12 connector
Lenght: 1, 3, 5, 10 m
Poles/wires: 4

M RFID TP
Termination plug

M RFID EC L 4 1
M RFID EC L 4 3
M RFID EC L 4 5
M RFID EC L 4 10

M RFID EC L 4 1
M RFID EC L 4 3
M RFID EC L 4 5
M RFID EC L 4 10

Male - Female
M12 connector (90°)
Lenght: 1, 3, 5, 10 m
Poles: 4

Male - Female
M12 connector (90°)
Lenght: 1, 3, 5, 10 m
Poles: 4

Type B

M RFID TC B
Series
connection

Type C

M RFID TC C
Additional
power supply

Type B

M RFID TC B
Series
connection

Type A

M RFID TC A
Status output

M RFID EC S 8 1
M RFID EC S 8 3
M RFID EC S 8 5
M RFID EC S 8 10

Male - Female
M12 connector (straight)
Lenght: 1, 3, 5, 10 m
Poles: 8

M RFID EC S 4 1
M RFID EC S 4 3
M RFID EC S 4 5
M RFID EC S 4 10

Male - Female
M12 connector (straight)
Lenght: 1, 3, 5, 10 m
Poles: 4

M RFID EC C 4 1
M RFID EC C 4 3
M RFID EC C 4 5
M RFID EC C 4 10

Female M12 connector
Lenght: 1, 3, 5, 10 m
Poles/wires: 4

M RFID C S series
M RFID C B series

Sensor 1
automatic
Restart/EDM

BN → 24V DC
WH → Control
BU → 0V DC
BK → EDM/restart

Q2   Q1

Coupling in of restart signal with
external device monitoring
(EDM) of Q1/Q2 and displaying
control output (via LED)

M RFID C S series
M RFID C B series

Sensor 3
automatic
Restart/EDM

Alimentazione
addizionale

F2
24V DC → BN
0V DC → BU

M RFID C S series
M RFID C B series

Sensor 2
automatic
Restart/EDM

M RFID EC C 8 1
M RFID EC C 8 3
M RFID EC C 8 5
M RFID EC C 8 10

Female M12 connector
Lenght: 1, 3, 5, 10 m
Poles/wires: 8