



**Micro Detectors**



**Italian Sensors Technology**

**SHORT FORM CATALOGUE**



# Micro Detectors



## Italian Sensors Technology









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Any variation will be implemented in this catalogue and its electronic version, available  
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[www.microdetectors.com](http://www.microdetectors.com)



	<b>Photoelectric Sensors</b>	<b>6</b>
	Cylindrical Photoelectric Sensors	6
	Cubic Photoelectric Sensors	12
	Forks	14
	Amplifiers for optical fibers	16
	Optical fibers	18
	<b>Proximity Sensors</b>	<b>20</b>
	Cylindrical miniaturized proximity sensors	20
	Cubic miniaturized proximity sensors	22
	Standard cylindrical Inductive Sensors	24
	Capacitive sensors	32
	<b>Ultrasonic Sensors</b>	<b>34</b>
	Ultrasonic Sensors	34
	<b>Area sensors</b>	<b>36</b>
	Area sensors	36
	<b>Safety</b>	<b>38</b>
	Control unit and photoelectric sensors	38
	Light curtains	40
	<b>Applicative Sensors</b>	<b>42</b>
	Applicative Sensors	42
	<b>Encoder</b>	<b>46</b>
	Encoder	46
	<b>Accessories</b>	<b>48</b>
	Installation accessories	48
	Accessories for use of safety sensors	51
	Reflectors	54
	Connectors	58



## Welcome in M.D. Micro Detectors

M.D. Micro Detectors S.p.A. has been designing and manufacturing a wide range of industrial sensors and safety devices since 1971. Our company's strong commitment to future developments and innovations is based on a great tradition.

Born in a laboratory placed in a garage, this Society has collected a lot of successes in technical fields. Among all of them it is worth to tell that M.D. has been the first company in the World to produce the M18 cylindrical photoelectric sensor as well as the first manufacturer of Area Sensors.

- Photoelectric Sensors
- Proximity Sensors
- Ultrasonic Sensors
- Area Sensors
- Safety Devices
- Applicative Sensors
- Encoders
- Accessories.

In addition to our catalogue products, a very important part of our activity consists of:

- variation and customization of catalogue products;
- products specifically developed to satisfy our customers' application needs.

Our Company is now vertically integrated as a whole: all processes, from research and development of new products to manufacturing and final shipment, are carried out by our personnel at our site. This allows us to keep our technology, all of our processes and quality completely under control and to be flexible and reactive. 1.5 million of pieces approximately are entirely realized in our Modena Plant, having a production capacity available to support even bigger figures. The Made in Italy style, featuring our products development and their manufacture, means quality, accuracy, experience and reliability.

Our organization and competences allow us to manufacture our products quickly, supported by high flexibility resulting in the utmost efficiency for our customers.

Since the beginning, our products have been renowned on the market for their quality, robustness, ease of use and for outstanding performance. This is the result of a manufacturing process carried out at the highest level of capacity, quality, efficiency and flexibility.

All products manufactured in our plant undergo constant controls and they are always double-checked.

We are organized according to the principles of Lean Thinking.

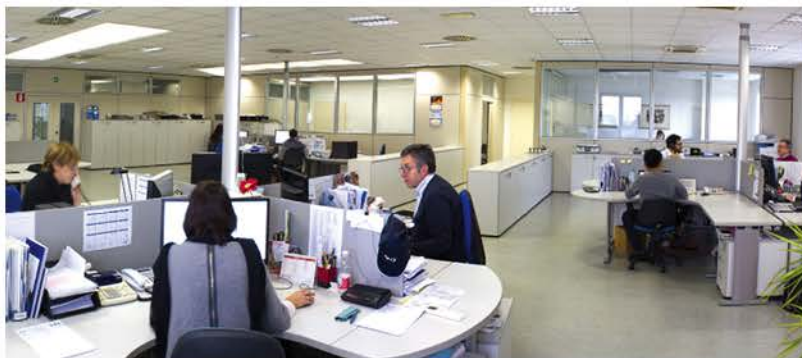


With the Lean Thinking Introduction, the Organization and all daily people behaviours have been adapted to the constant Application of such principles:

- Efficiency
- Flow
- Standardization
- Visual Management
- Simplification
- Continuous Improvement
- Team Working
- Reduction of all Indirect and "No Value Added" Activities.

## M.D. Worldwide

M.D. Micro Detectors S.p.A. has three headquarters:



**M.D. Micro Detectors S.p.A.**  
strada S. Caterina, 235  
41122, Modena (Italy)

General information:  
Tel: +39 059 420411  
Fax: +39 059 253973  
info@microdetectors.com

Technical support  
technical@microdetectors.com

Sales & Marketing Area:  
sales@microdetectors.com

Purchasing department:  
acquisti@microdetectors.com



**Micro Detectors Ibérica S.A.U.**  
c./Antic Camí Real de València, 38  
08860 Castelldefels  
(Barcelona)

General information:  
Tel.: +34 93 448 66 30  
Fax: + 34 93 645 28 15  
info@microdetectors.es



**M.D. Micro Detectors (Tianjin) Co, LTD.**  
XEDA International Industry  
area B2-3 Xiqing District  
300385 - Tianjin (China)

General information:  
Tel.: +86 022 23471915  
Fax: +86 022 23471913  
info@microdetectors.com



## Our brand evolution

Born in 1971, M.D. Micro Detectors S.p.A. have been recognized on the market over time for their high quality levels and technical innovations, at first by using "Di-ell" brand (a name resulting from two words melting together: "Didactics Electronics"). Below is a summary of logos used by M.D. Micro Detectors during the forty years of Company activities.

1971                      1986                      2000                      2001                      2012



## Sensors and more!

M.D. Micro Detectors is now more than a very competent sensors' developer and an outstanding manufacturer. Since mid 2012, M.D. Micro Detectors S.p.A. has established the new Chinese facility for the production of coils for inductive sensors, among other activities. The coil is a fundamental component to guarantee high performances of the inductive sensors. This is why M.D. decided to rule this technology setting a manufacturing unit in Tianjin where coils for different manufacturers are produced, in addition to 100% production of the coils needed by M.D. Italy.

All products realized by M.D. Tianjin are 100% quality tested. Production is based on Lean Manufacturing concepts.

The main features offered by M.D. Tianjin are:

- a stable manufacturing process, compliant to Lean Manufacturing principles and M.D. control protocols. Totally controlled by our people;
- quality of raw materials used;
- competence of our operators;
- reliability: all the products manufactured are subject to quality and functional tests;
- technology and know-how: more than 40 years of experience in the design and production of coils for inductive sensors;
- services: fast production and fast delivery worldwide;
- customization: production of coils with diameter and number of windings according to customer's request;
- competitive prices.



## M.D. Quality System



M.D. Micro Detectors Quality System meets ISO 9001:2015 standards for design, of electronic devices for measurement, analysis and detection in the industrial and consumer sector.

In next months the Quality System will be updated, meeting the new ISO 9001:2015 requirements.



cylindrical

general  
catalogue  
ed. 01/2018

43

H8

45



M8 high frequency  
DC

HE

49



M8 miniaturized  
through-beam  
sensors DC

DG

53



Ø 10 mm

dimensions	M8	M8	Ø 10 mm
background suppression	-	-	-
diffuse short distance	-	-	-
diffuse long distance	-	-	-
retroreflective	-	-	-
polarized	-	-	-
retroreflective for transparents	-	-	-
through beam	80 mm	0...1 m (10 kHz); 0...2 m (1 kHz)	2 m (EG4)
switching frequency	50 kHz	1 kHz - 10 kHz	40 Hz
LED emission	IR	IR	IR
LASER emission	-	-	-
axial optic	●	●	●
90° optic	-	-	-
power supply Vdc	●	●	●
power supply Vac	-	-	-
NPN - NO	-	●	●
NPN - NC	-	●	●
PNP - NO	●	●	●
PNP - NC	-	●	●
NPN - NO / NC	-	-	-
PNP - NO / NC	-	-	-
NPN - NO + NC	-	-	-
PNP - NO + NC	-	-	-
DECOUT®	-	-	-
relay	-	-	-
SCR	-	-	-
temperature range	-25°C...+70°C	-25°C...+70°C	-25°C...+70°C
protection degree	IP67	IP67	IP67
housing material	stainless steel	stainless steel	plastic
active head material	PMMA	PMMA	PC
cable	●	●	●
plug	-	-	-

CE

CE

CE









cylindrical

general  
catalogue  
ed. 01/2018

43

93

FAL BGS



M18 LASER - DC



-

FBL



M18 LASER

99

SS/SP



M18 with lateral  
adjustment



dimensions	M18	M18	M18
background suppression	ass.: 30..80 (cl.1) 30..130 mm (cl.2) ass.: 30..100 (cl.1) 30..150 mm (cl.2)	ass.: 30..80 (cl.1) 30..130 mm (cl.2) ass.: 30..100 (cl.1) 30..150 mm (cl.2)	50 mm / 100 mm
diffuse short distance	-	300 mm (axial) 200 mm (90°)	100 mm
diffuse long distance	-	-	400 mm / 800 mm
retroreflective	-	-	5 m
polarized	-	30 m	4 m
retroreflective for transparents	-	-	-
through beam	-	50 m	14 m
switching frequency	1,500 Hz	800 Hz	800 Hz -1 kHz 250 Hz
LED emission	red / LASER (1.2)	red / LASER (1)	red / IR
LASER emission	●	●	-
axial optic	●	●	●
90° optic	●	●	●
power supply Vdc	●	●	●
power supply Vac	-	-	-
NPN - NO	-	-	●
NPN - NC	-	-	●
PNP - NO	-	-	●
PNP - NC	-	-	●
NPN - NO / NC	●	-	●
PNP - NO / NC	●	-	●
NPN - NO + NC	●	●	-
PNP - NO + NC	●	●	-
DECOUT®	-	-	-
relay	-	-	-
SCR	-	-	-
temperature range	- 15°C...+55°C	- 15°C...+55°C	- 25°C...+70°C
protection degree	IP67	IP67	IP67
housing material	nickel plated brass	nickel plated brass	plastic / nickel plated brass
active head material	PMMA / glass	PMMA / glass	PMMA
cable	●	-	●
plug	●	●	●



117

MS  
MP

M18 DECOUT® DC output



131

SA



M18 DC high performances with rear adjustment



139

MV



M18 multivoltage output sensors



147

MQ0  
MQ1

M18 with fixed distances background suppression and 90° optics



cylindrical

M18	M18	M18	M18
50 mm / 100 mm	-	-	50 mm / 100 mm
100 mm / 200 mm	150 mm	100 mm / 200 mm	-
400 mm	400 / 1,000 mm	400 mm	-
4.5 m	6 m	4.5 m	-
3.5 m	3.5 m	3.5 m	-
-	-	-	-
16 m / 32 m	-	16 m	-
1 kHz - 80 - 30 Hz	1 kHz	25 Hz	25 Hz
red / IR	red / IR	red / IR	IR
-	•	-	-
•	-	-	•
•	•	-	-
-	-	•	-
-	-	-	-
-	-	-	-
-	-	-	-
-	•	-	-
-	•	-	-
-	-	-	-
-	-	-	-
•	-	-	-
-	-	-	-
-	-	•	•
-25°C...+70°C	-25°C...+70°C	-25°C...+70°C	-25°C...+70°C
IP67	IP65	IP67	IP67
plastic / nickel plated brass	plastic / nickel plated brass	plastic	plastic
PMMA	PMMA	PMMA	PMMA
•	•	•	-
•	•	•	•





cylindrical

general  
catalogue  
ed. 01/2018

43

FQ



151



M18 sensors with  
short body

FF



161



M18 sensors for  
harsh environments

FFRS



169



M18 sensors with  
background  
suppression for harsh  
environment

dimensions	M18 short housing	M18	M18
background suppression	-	-	30...130 mm / 60...100 mm
diffuse short distance	100 mm	100 mm	-
diffuse long distance	0.4 / 1.2 m (1 m - 90°)	400 / 800 mm	-
retroreflective	6 m	-	-
polarized	4.5 m	4.5 m	-
retroreflective for transparents	100...1,500 mm	100...1,500 mm	-
through beam	20 m (16 m - 90°)	20 mm	-
switching frequency	250 Hz	1 kHz - 500 Hz - 400 Hz - 250	1 kHz - 400 Hz
LED emission	red / IR	-	-
LASER emission	-	red / IR	red
axial optic	●	●	●
90° optic	●	-	-
power supply Vdc	●	●	●
power supply Vac	-	-	-
NPN - NO	-	-	-
NPN - NC	-	-	-
PNP - NO	-	-	-
PNP - NC	-	-	-
NPN - NO / NC	-	●	●
PNP - NO / NC	-	●	●
NPN - NO + NC	●	●	●
PNP - NO + NC	●	●	●
DECOUT®	-	-	-
relay	-	-	-
SCR	-	-	-
temperature range	-25°C...+70°C	-25°C...+80°C	-25°C...+80°C
protection degree	IP67	IP68 / IP69K	IP68 / IP69K
housing material	plastic / nickel plated brass	stainless steel AISI 316L	stainless steel AISI 316L
active head material	PMMA/PC	PMMA / PA12	PA12
cable	●	-	-
plug	●	●	●





# IT DETECTS OBJECTS REGARDLESS OF THE COLOR



NEW !!!



cylindrical photoelectric

## FA BGS series

M18 direct diffuse with adjustable background suppression

### features

- Up 300 mm adjustable reading distance
- Cable or M12 plastic plug versions
- Supply voltage 10...30 Vdc, output current 100 mA
- LED light status indicator
- IP67 protection degree
- Complete protection against electrical damages
- ATEX models, cat.3, available on request
- Approvals: CE and cULus Listed



Micro Detectors

Italian Sensors Technology



general  
catalogue  
ed. 01/2018

79

short  
form  
ed. 01/2018

7





cubic

general catalogue  
ed. 01/2018

175

QM

177



with high performance

QF

193



for harsh environments  
and food industry

QX

199



DC miniaturized

dimensions	21 x 12.8 x 31.2	21 x 11 x 31.4 mm	15 x 23 x 40 mm
background suppression	30...200 mm 30...400 mm	25...200 mm	-
diffuse short distance	100 mm	200 mm	-
diffuse long distance	400 mm / 1,000 mm/ 1,500 mm	1,000 mm	300 mm
retroreflective	7 m	-	5 m
polarized	5 m	6 m	3 m
retroreflective for transparents	0.4...4 m 0.05...1.5 m	-	-
through beam	20 m / 30 m	15 m	8 m
switching frequency	1 kHz / 2 kHz	1 kHz / 500 Hz	500 Hz / 750 Hz
LED emission	red / IR	red / IR	red / IR
LASER emission	-	-	-
axial optic	-	-	●
90° optic	●	●	●
power supply Vdc	●	●	●
power supply Vac	-	-	-
NPN - NO	-	-	●
NPN - NC	-	-	●
PNP - NO	-	-	●
PNP - NC	-	-	●
NPN - NO / NC	●	-	-
PNP - NO / NC	●	-	-
NPN - NO + NC	-	●	-
PNP - NO + NC	-	●	-
DECOUT*	-	-	-
relay	-	-	-
SCR	-	-	-
temperature range	- 25°C...+70°C	- 25°C...+60°C	- 25°C...+70°C
protection degree	IP67	IP68 / IP69K	IP65
housing material	plastic	stainless steel AISI 316L	ABS
active head material	PMMA	PSU	acrylic
cable	●	●	●
plug	M8 e pig-tail M8, M12	M8 4 pin	M8, M12



# BS - BV

207



cubic sensors  
DECOUT® - DC or AC

# Q50

213



compact cubic  
50 x 50 mm

# FG

221



compact DC - AC

# RX

229



maxi with static  
output DC or with  
relay output AC /DC

cubic

15 x 37 x 70 mm	17 x 50 x 50 mm	20 x 43 x 55 mm	26 x 50 x 80 mm
-	120...500 mm	90...310 mm / 110...600 mm	50...300 mm / 250...1,000 mm
100 / 200 mm	-	-	-
400 mm / 1.600 mm	1 / 2 m	-	1 / 2 m
8 m	-	-	12 m
-	6 m	12 m	6 m
-	-	-	-
-	20 m	50 m	16 m / 32 m
80 Hz	20 Hz - 500 Hz	33 Hz - 250 Hz - 1 kHz	25 Hz - 500 Hz
IR	IR / red	red	IR / red
-	-	-	-
-	-	•	-
•	•	•	-
•	•	•	•
•	•	•	•
-	-	-	-
-	-	-	-
-	-	-	-
-	-	•	-
-	-	•	-
-	•	-	-
-	•	-	-
•	-	-	•
-	-	•	•
•	•	-	-
-25°C...+70°C	-25°C...+60°C	-25°C...+55°C	-25°C...+70°C
IP65	IP67	IP67	IP65
ABS	PC / ABS	plastic	PC
acrylic	PMMA	PMMA	PMMA
•	•	•	-
M12	M12	M12	M12





forks

general  
catalogue  
ed. 01/2018

239

FC5

241



photoelectric fork  
for objects detection  
without regulation

FC6

245



photoelectric fork for  
objects detection with  
regulation

FC7

251



photoelectric fork  
sensors for labels  
detection

dimensions	-	-	-
nominal sensing distance $S_n$	30, 50, 80, 120, 180 mm	2,5,15,30, 50, 80, 120 mm	3 mm
luminescent scanner	●	●	-
slot sensor for labels detection	-	-	●
depth detection slot	30, 60, 124 mm	42, 59, 95 mm	42 mm
minimum object dimension	0.8 / 1.2 mm	0.05 mm	-
emission	red	IR / LASER red (cl.1)	IR
switching frequency	4 kHz	10 kHz	10 kHz
power supply Vdc	●	●	●
power supply Vac	-	-	-
NPN - NO	●	-	-
NPN - NC	●	-	-
PNP - NO	●	-	-
PNP - NC	●	-	-
NPN - NO / NC	-	-	●
PNP - NO / NC	-	-	●
NPN / PNP - NO / NC	-	●	●
temperature range	- 10°C...+60°C	- 20°C...+60°C	- 20°C...+60°C
protection degree	IP67	IP65	IP65
housing material	painted aluminium	painted aluminium	thermoplastic (PA12)
cable	-	-	-
plug	M8 3 pin	M8 4 pin	M8 4 pin







forks

general  
catalogue  
ed. 01/2018

255

FC8

213



ultrasonic fork sensors  
for labels detection

dimensions	-
nominal sensing distance Sn	3 mm
luminescent scanner	-
slot sensor for labels detection	•
depth detection slot	69 mm
minimum object dimension	label 2 mm - 2 mm
emission	ultrasonic
switching frequency	1.5 kHz
power supply Vdc	•
power supply Vac	-
NPN - NO	-
NPN - NC	-
PNP - NO	-
PNP - NC	-
NPN - NO / NC	•
PNP - NO / NC	•
NPN / PNP - NO / NC	•
temperature range	- 5°C...+55°C
protection degree	IP65
housing material	painted aluminium
cable	-
plug	M8 4 pin



# HI-TECH TO TOUCH DOWN

forks



## FC5 and FC6

Photoelectric forks for  
object detection with  
regulation

- **Plug and Play without adjustment (FC5)**
- Simple and accurate adjustment manually by +/- buttons (FC6)
- High power RED LED emission (FC5), infrared emission: LASER emission (class 1) (FC6)
- Metal housing
- M8 connectors 3 and 4 pins
- Minimum size object detection 0.8 mm (FC5), 0.05 mm (FC6L), 0.2 mm (FC6I)
- -20...+60°C temperature range



general  
catalogue  
ed. 01/2018

241  
245





Optical fibres  
amplifiers  
general  
catalogue  
ed. 01/2018

259

M18



cubic



for DIN-rail mounting



dimensions	M18	15 x 26 x 66 mm	10 x 32 x 70 mm
amplifier with relay output	-	-	-
amplifier for plastic fibres	●	●	●
amplifier for glass fibres	●	●	●
DIN bar amplifier	-	-	●
output timing	-	-	-
Teach-in	●	-	●
frequency	800 Hz	1 kHz	2 kHz
emission	red	red	red
sensing distance	depending on optical fibres	depending on optical fibres	depending on optical fibres
power supply Vcc	●	●	●
power supply Vac	-	-	-
relay	-	-	-
PNP - NO / NC	●	●	●
NPN - NO / NC	●	●	●
temperature range	-25°C...+70°C	-25°C...+70°C	-25°C...+55°C
protection degree	IP67	IP67	IP50
housing material	plastic / metallic	PA	PBT / PC
optics material	plastic fibre, glass fibre	plastic fibre, glass fibre	plastic fibre, glass fibre
cable	●	●	●
plug	M12	M12	-





for DIN-rail mounting

10 x 31 x 60 mm

-

•

•

•

-

•

1.5 kHz

red

depending on optical fibres

•

-

-

•

•

-25°C...+55°C

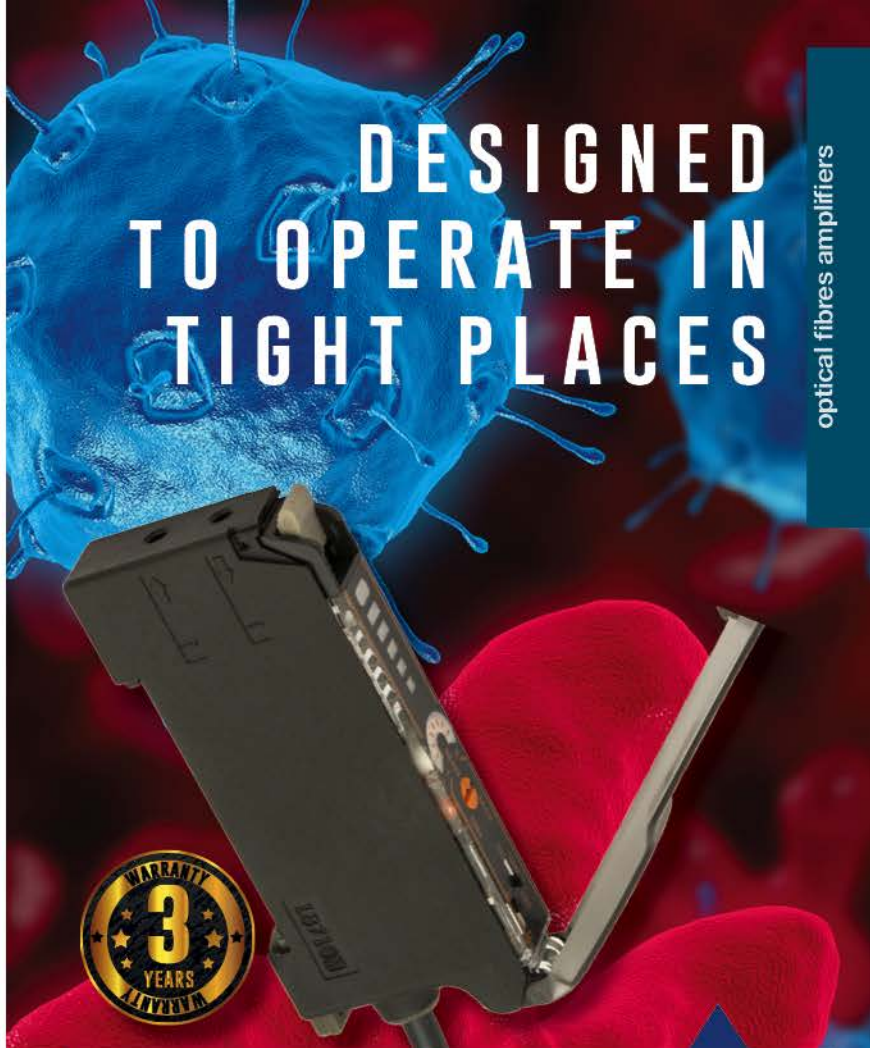
IP64

PBT

plastic fibre, glass fibre

•

M8



# DESIGNED TO OPERATE IN TIGHT PLACES

optical fibres amplifiers



## F series

Photoelectric sensors for DIN-rail mounting

### features

- Models with trimmer sensibility
- Models with Teach-In
- Double digital display



Micro Detectors

Italian Sensors Technology



general  
catalogue  
ed. 01/2018

269



optical fibres

general catalogue  
ed. 01/2018

277

CF /  
CA1-20

280



diffuse reflection with  
narrow beam

CF /  
CA4-10

281



diffuse reflection with  
sleeve

CF /  
RB3-20

283



diffuse reflection with  
sleeve

models <sup>(1)</sup>	SSF (mm) (EG.=1)	FS1 (mm) (EG.=1)	FX3 (mm)	FX4 (mm)	F1R (mm)	F2R (mm)	F6R (mm)	type	∅ optical fibre core	free-cut	length <sup>(2)</sup>	head shape	lenses
CF/CA1-20	60	60	140	140	-	-	-	scanner	0.5	●	2	M5	●
CF/CA2-**	15	15	70	110	40	15	100	scanner	0.5	-	0.5 / 1	M4	-
CF/CA4-**	15	15	60	80	40	15	100	scanner	0.5	-	0.5 / 1	M4 + sleeve	-
CF/RA4-**	30	30	150	250	100	60	300	P / R	0.5	-	0.5 / 1	M4 + sleeve	-
CF/RA7-**	30	30	150	250	100	60	300	P / R	0.5	-	0.5 / 1	M3	-
CF/CB1-**	50	50	200	300	150	70	300	scanner	1	●	1 / 2	M6	-
CF/CB3-**	50	50	200	300	150	70	300	scanner	1	●	1 / 2	M6 + sleeve	-
CF/RB3-**	120	120	700	700	150	70	300	P / R	1	●	1 / 2	M4	-
CF/RB4-**	120	120	600	900	410	200	800	scanner	1	●	1 / 2	M4 + sleeve	-
CF/RB6-**	120	120	600	900	410	200	800	P / R	1	●	1 / 2	M4	-
CF/RB9-**	1,200	1,200	8,000	10,000	4,000	2,400	> 4,000 EG=2	P / R	1	●	1...2	∅ 6 mm	-
CF/RBA-**	1,200	1,200	8,000	10,000	4,000	2,400	> 4,000 EG=2	P / R	1	●	2	M7	●
CF/CC1-**	15	15	70	100	50	20	90	P / R	1	-	2	M6	-
CF/RC6-**	100	100	500	500	350	190	600	P / R	1	-	2	M4	●
CF/RC9-**	1,000	1,000	6,000	8,000	2,200	1,600	> 4,000 EG=2	P / R	1	-	2	∅ 6 mm	●
CF/RCA-20	1,000	1,000	6,000	8,000	2,200	1,600	> 4,000 EG=2	P / R	1	-	2	M7	●

<sup>(1)</sup> the last two bits of the code show the fiber length (in dm)

<sup>(2)</sup> standard length. Special lengths available on request

Accessories for  
fiber optics CF

models	access- sory type	type	SSF (mm) EX.G.=1	FS1 (mm) X.G.=1	FX3 (mm) X.G.=1	FX4 (mm) X.G.=1	F1R (mm)	F2R (mm)	F6R (mm)	lenses	fibre model	∅ optical fibre core
AF/C	cutter	-	-	-	-	-	-	-	-	-	-	1
AF/1S	fibre to sell by metres	-	-	-	-	-	-	-	-	-	-	1
AF/ER4	collimator lenses	P/R	600	600	2,000	3,000	1,500	700	3,000	●	AF/1S	1
AF/ER5	collimator lenses	P/R	1,000	1,000	3,000	5,000	2,200	1,000	4,500	●	AF/1S	1
AF/ER6	collimator lenses	P/R	3,500	3,500	6,000	8,000	4,500	2,000	6,000	●	AF/1S	1
AF/ER7	collimator lenses	P/R	1,000	1,000	6,000	8,000	4,500	2,000	6,000	●	AF/1S	1



296

CV /  
CB1-\*\*diffuse reflection  
(high temperature)

297

CV /  
CB3-\*\*diffuse reflection  
(high temperature)

297

CV /  
RB6-\*\*diffuse reflection  
(high temperature)

300

AF / FC1



collimator lenses

optical fibres

glass fibres up to 200°C

models	type	SSF (EX.G.=1) (mm)	FS1 (EX.G.=1) (mm)	FX3 (EX.G.=1) (mm)	FX4 (EX.G.=1) (mm)	∅ optical fibre core	free-cut	length <sup>(2)</sup>	head shape	lenses
CV/CB1-**	scanner	50	50	150	150	1	-	1 - 2 m	M4	-
CV/CB3-**	scanner	50	50	150	150	1	-	1 - 2 m	M4 + sleeve	-
CV/RB4-**	P/R	90	90	600	900	1	-	1 - 2 m	M4 + sleeve	-
CV/RB6-**	P/R	90	90	600	900	1	-	1 - 2 m	M4	-

CV glass fibres optics up to 250°C

model (1)	type	SSF (EX.G.=1) (mm)	FS1 (EX.G.=1) (mm)	FX3 (EX.G.=1) (mm)	FX4 (EX.G.=1) (mm)	∅ optical fibre core	free-cut	length <sup>(2)</sup>	head shape	lenses
CV/CB1-**- ME	scanner	50	50	150	150	1	-	1 - 2 m	M4	-
CV/CB3- **-ME	scanner	50	50	150	150	1	-	1 - 2 m	M4 + sleeve	-
CV/RB4- **-ME	P/R	90	90	600	900	1	-	1 - 2 m	M4 + sleeve	-
CV/RB6- **-ME	P/R	90	90	600	900	1	-	1 - 2 m	M4	-

<sup>(1)</sup> = the last two bits of the code show the fiber length (in dm)<sup>(2)</sup> = standard length. Special lengths available on request

models	type	accessory type	SSF (EX.G.=1) (mm)	FS1 (mm) X.G.=1)	FX3 (mm) X.G.=1)	FX4 (mm) X.G.=1)	∅ optical fibre core	head shape	fibre model
AF/FC1	scanner	focusing device	25	25	30	30	1	∅ 6,5	CV/CB1-**
AF/FC2	scanner	focusing device	45	45	50	50	1	∅ 6,5	CV/CB1-**
AF/ER1	P/R	additional lense	1,000	1,000	4,000	4,000	1	∅ 5	CV/RB6-**
AF/ER2	P/R	additional lense	3,000	3,000	8,000	10,000	1	∅ 8,5	CV/RB6-**
AF/ER3	P/R	additional lense	3,000	3,000	14,000	16,000	1	13 x13	CV/RB6-**

Accessories for  
fiber optics





cylindrical  
miniaturized  
inductive  
general  
catalogue  
ed. 01/2018

309

AA



Ø 3 mm

309



AB



M4

313



AC



Ø 4 mm

325



dimensions	Ø 3 mm	M4	Ø 4 mm
standard shielded	0.6 mm	0.6 mm	0.8 mm
standard unshielded	-	-	-
long distance shielded	1 mm	1 mm	1.5 mm
long distance unshielded	-	-	-
standard housing	-	-	-
short housing	-	-	-
miniaturized housing	•	•	•
power supply Vdc	•	•	•
power supply Vac	-	-	-
NPN - NO	•	•	•
NPN - NC	•	•	•
PNP - NO	•	•	•
PNP - NC	•	•	•
PNP - NO + NC	-	-	-
NPN - NO + NC	-	-	-
DECOUT*	-	-	-
SCR	-	-	-
0...10 V	-	-	-
4...20 mA	-	-	-
temperature range	-25°C...+70°C	-25°C...+70°C	-25°C...+70°C
protection degree	IP67	IP67	IP67
housing material	stainless steel	stainless steel	stainless steel
active head material	PBT	PBT	PBT
cable	•	•	•
plug	-	-	M8



AD

333



M5

AHS

341



Ø 6.5 mm

AES

349



M8

cylindrical  
miniaturized inductive

M5	Ø 6.5 mm	M8
0.8 mm	1.5 mm	1.5 mm
-	-	-
1.5 mm	2 mm	2 mm
-	-	-
-	-	-
-	-	-
•	•	•
•	•	•
-	-	-
•	•	•
•	•	•
•	•	•
•	•	•
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-25°C...+70°C	-25°C...+70°C	-25°C...+70°C
IP67	IP67	IP67
stainless steel	stainless steel	stainless steel
PBT	PBT	PBT
•	•	•
M8	M8	M8





cubic miniaturized  
inductive  
general  
catalogue  
ed. 01/2018

357

IL5



5 x 5 mm

357



IL8  
IL9



8 x 8 mm

365



IL1



10 x 28 x 16 mm

369



dimensions	5 x 5 mm	8 x 8 mm	10 x 28 x 16 mm
standard shielded	0.8 mm	1.5 mm	-
standard unshielded	-	-	-
long distance shielded	1.5 mm	2 / 2.5 mm	3 mm
long distance unshielded	-	-	6 mm
standard housing	-	-	●
short housing	-	-	-
miniaturized housing	●	●	-
power supply Vdc	●	●	●
power supply Vac	-	-	-
NPN - NO	●	●	●
NPN - NC	●	●	●
PNP - NO	●	●	●
PNP - NC	●	●	●
PNP - NO + NC	-	-	-
NPN - NO + NC	-	-	-
DECOUT*	-	-	-
SCR	-	-	-
0...10 V	-	-	-
4...20 mA	-	-	-
temperature range	-25°C...+70°C	-25°C...+70°C	-25°C...+70°C
protection degree	IP67	IP67	IP67
housing material	stainless steel	stainless steel	PA
active head material	PBT	PBT	PA
cable	●	●	●
plug	-	M8	M8





# ALTERNATING CURRENT (DIRECT QUALITY)

cubic miniaturized  
inductive

NEW!!!



INDUCTIVE  
SENSORS

AC/DC



## V3E1, V3M1, V3K1, V3T1 series

M8, M12, M18 inductive with AC/DC  
supply voltage

### features

- Operating voltage: 20...250 Vac / Vdc
- Sensing range: shielded 1.75 mm, unshielded 3 mm (V3E1), 4 mm, unshielded 6 mm (V3M1), 6 mm, unshielded 10 mm (V3K1), 12 mm, unshielded 18 mm (V3T1)
- NO/NC output selectable, if DC supplied
- Cable or M12 plug exit (dual keyway)
- IP67 protection degree



SHIELDED  
AND  
UNSHIELDED  
MODELS



Micro Detectors

Italian Sensors Technology



short  
form  
ed. 01/2018

27



cylindrical  
inductive  
general  
catalogue  
ed. 01/2018

307

AH

373



Ø 6.5 mm

AE

381



M8

AM

389



M12

dimensions	Ø 6.5 mm	M8	M12
standard shielded	1.5 mm	1.5 mm	2 mm
standard unshielded	2.5 mm	2.5 mm	4 mm
long distance shielded	2 mm	2 mm	4 mm
long distance unshielded	4 mm	4 mm	8 mm
standard housing	•	•	•
standard housing	•	•	•
short housing	-	-	-
power supply Vdc	•	•	•
power supply Vac	-	-	-
NPN - NO	•	•	•
NPN - NC	•	•	•
PNP - NO	•	•	•
PNP - NC	•	•	•
PNP - NO + NC	-	-	-
NPN - NO + NC	-	-	-
DECOUT*	-	-	-
SCR	-	-	-
0...10 V	-	-	-
4...20 mA	-	-	-
temperature range	-25°C...+70°C	-25°C...+70°C	-25°C...+70°C
protection degree	IP67	IP67	IP67
housing material	stainless steel	nickel plated brass	nickel plated brass
active head material	PBT	PBT	PBT
cable	•	•	•
plug	M8 and M12	M8 and M12	M8 and M12







cylindrical inductive  
standard  
general  
catalogue  
ed. 01/2018

307

ET



427



M12 / M18  
extended  
temperature range

AT



433



M30

VM



451



M12 in CA

dimensions	M12 / M18	M30	M12
standard shielded	2 mm / 5 mm	10 mm	2 mm
standard unshielded	4 mm / 8 mm	15 mm	4 mm
long distance shielded	-	15 mm	-
long distance unshielded	-	20 mm	-
standard housing	●	●	●
short housing	-	●	-
miniaturized housing	-	-	-
power supply Vdc	●	●	-
power supply Vac	-	-	●
NPN - NO	-	●	-
NPN - NC	-	●	-
PNP - NO	-	●	-
PNP - NC	-	●	-
PNP - NO + NC	●	●	-
NPN - NO + NC	●	●	-
DECOUT*	-	-	-
SCR / Mosfet	-	-	SCR
0...10 V	-	-	-
4...20 mA	-	-	-
temperature range	-25°C...+110°C	-25°C...+70°C	-25°C...+70°C
protection degree	IP68	IP67	IP67
housing material	stainless steel	nickel plated brass	nickel plated brass
active head material	PPS / PSU	PBT	PBT
cable	●	●	●
plug	M12	M12	M12



NEW !!!

NEW !!!

457

463

3 YEAR WARRANTY

3 YEAR WARRANTY

VK

VT

V3E

V3M



M18 in CA

M30 in CA

M8 AC / DC

M12 AC/DC

441

441

cylindrical inductive standard

M18	M30	M12	M18
5 mm	10 mm	-	-
8 mm	15 mm	-	-
-	-	2	4
-	-	1	6
•	•	•	•
-	-	-	-
-	-	-	-
-	-	•	•
•	•	•	•
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
SCR	SCR	Mosfet	Mosfet
-	-	-	-
-	-	-	-
-25°C...+70°C	-25°C...+70°C	-25°C...+70°C	-25°C...+70°C
IP67	IP67	IP67	IP67
nickel plated brass	nickel plated brass	nickel plated brass	nickel plated brass
PBT	PBT	PBT	PBT
•	•	•	•
M12	M12	½" - 20 UNF	½" - 20 UNF

CE cRU<sup>®</sup> US

CE cRU<sup>®</sup> US

CE cUL<sup>®</sup> US

CE cUL<sup>®</sup> US



**NEW!!!**

**V3K**



M18 AC / DC

441

**NEW!!!**

**V3T**



M30 AC / DC

441

**NEW!!!**

**FME**



M8 full metal

441

cylindrical inductive  
standard  
general  
catalogue  
ed. 01/2018

307

dimensions	M18	M30	M8
standard shielded	-	-	-
standard unshielded	-	-	-
long distance shielded	6	12	2 mm
long distance unshielded	10	18	-
standard housing	●	●	-
short housing	-	-	-
miniaturized housing	-	-	●
power supply Vdc	●	●	●
power supply Vac	●	●	-
NPN - NO	-	-	●
NPN - NC	-	-	●
PNP - NO	-	-	●
PNP - NC	-	-	●
PNP - NO + NC	-	-	-
NPN - NO + NC	-	-	-
DECOUT*	-	-	-
SCR / Mosfet	Mosfet	Mosfet	-
0...10 V	-	-	-
4...20 mA	-	-	-
temperature range	-25°C...+70°C	-25°C...+70°C	-25°C...+70°C
protection degree	IP67	IP67	IP67 / IP68 / IP69K
housing material	nickel plated brass	nickel plated brass	stainless steel AISI 316L
active head material	PBT	PBT	stainless steel AISI 316L
cable	●	●	-
plug	½" - 20 UNF	½" - 20 UNF	M8





NEW!!!

NEW!!!

NEW!!!

FMM



M12 full metal

469

FMK



M18 full metal

469

FMT



M30 full metal

469

cylindrical inductive standard

M12	M18	M30
-	-	-
-	-	-
3 mm	5 mm	10 mm
-	-	-
-	-	-
-	-	-
•	•	•
•	•	•
-	-	-
•	-	-
•	-	-
•	-	-
•	-	-
-	•	•
-	•	•
-	-	-
-	-	-
-	-	-
-	-	-
-25°C...+70°C	-25°C...+70°C	-25°C...+70°C
IP67 / IP68 / IP69K	IP67 / IP68 / IP69K	IP67 / IP68 / IP69K
stainless steel AISI 316L	stainless steel AISI 316L	stainless steel AISI 316L
stainless steel AISI 316L	stainless steel AISI 316L	stainless steel AISI 316L
-	•	-
M12	M12	M12





cylindrical inductive  
standard  
general  
catalogue  
ed. 01/2018

307

## PFM

477



M12

## PFK

483



M18 for food and  
beverage applica-  
tions

## AE AM AK

489



M8 / M12 / M18 with  
analogic output

dimensions	M12	M18	M8 / M12 / M18
standard shielded	2 mm	5 mm	-
standard unshielded	4 mm	8 mm	-
long distance shielded	4 mm	8 mm	semi-embeddable 4 mm / 6 mm / 10 mm
long distance unshielded	8 mm	12 mm	-
standard housing	●	●	●
short housing	-	-	●
miniaturized housing	-	-	-
power supply Vdc	●	●	●
power supply Vac	-	-	-
NPN - NO	●	●	-
NPN - NC	-	-	-
PNP - NO	●	●	-
PNP - NC	-	-	-
PNP - NO + NC	●	●	-
NPN - NO + NC	●	●	-
DECOUT*	-	-	-
SCR / Mosfet	-	-	-
0...10 V	-	-	●
4...20 mA	-	-	●
temperature range	-40°C...+80°C	-40°C...+80°C	-25°C...+70°C
protection degree	IP68 / IP69K	IP68 / IP69K	IP67
housing material	stainless steel AISI316L	stainless steel AISI316L	nickel plated brass
active head material	PPS	PPS	PBT
cable	-	-	●
plug	M12	M12	M8 / M12

# TESTED TO WITHSTAND EXTREME CONDITIONS

cylindrical inductive  
standard

NEW !!!



## FME, FMM, FMK, FMT series

M5 inductive sensors with full metal housing

### features

- sensing distance 2 mm (FMES), 3 mm (FMM6), 5 mm (FMK6), 10 mm (FMT6)
- Shock resistance degree: IK05 (FMES and FMM6), IK08 (FMK6), IK10 (FMT6)
- protection degree: IP68/IP69K
- M8 (FMES), M12
- Output logic PNP or NPN
- Output state NO or NC (FMES, FMM6) oppure NO + NC (FMK6, FMT6)



Micro Detectors

Italian Sensors Technology



IP69K



short  
form  
ed. 01/2018

29





capacitive

general  
catalogue  
ed. 01/2018

495

C12

497



cilyndrical M12

C18

501



cilyndrical M18

CE

505



cilyndrical Ø 20

dimensions	M12	M18	M18
standard shielded	-	-	-
standard unshielded	-	-	-
long distance shielded	0,5...4 mm	3...8 mm	3...8 mm
long distance unshielded	0,5...8 mm	3...12 mm	3...12 mm
standard housing	●	●	●
miniaturized housing	-	-	-
power supply Vdc	●	●	●
power supply Va	-	●	-
NPN/PNP - NO/NC	●	-	-
NPN - NO	-	-	-
NPN - NC	-	-	-
PNP - NO	-	-	-
PNP - NC	-	-	-
PNP - NO + NC	-	●	●
NPN - NO + NC	-	●	-
DECOUT*	-	-	-
SCR	-	●	-
0...10 V	-	-	-
4...20 mA	-	-	-
temperature range	- 25°C...+80°C	- 25°C...+80°C	- 25°C...+80°C
protection degree	IP67	IP67	IP67
housing material	PE	PE	PE
active head material	PE	PE	PE
cable	●	●	●
plug	M12	M12	M12

CE

CE c UL us

CE

CT

509



cylindrical M30

C30

515



cubic  
7 x 30 x 50 mm

CQ50

519



cubic  
15 x 35 x 55 mm

CQ55

523



capacitive

Ø 20	M30	7 x 30 x 50 mm	15 x 35 x 55 mm
10 mm	-	-	-
-	-	-	-
-	2...16 mm	5 / 6 / 7 / 10 mm	4... 25 mm
-	4...25 mm	-	-
•	•	•	•
-	-	-	-
•	•	•	•
-	•	-	-
-	-	-	-
•	-	•	-
•	-	•	-
•	-	•	-
•	-	-	-
-	•	-	•
-	•	-	•
-	-	-	-
-	•	-	-
-	-	-	-
-	-	-	-
-25°C...+70°C	-25°C...+80°C	0°C...+60°C	-25°C...+80°C
IP65	IP67	IP67	IP67
stainless steel	PE / stainless steel	noryl	PC
LCP	PE	noryl	PC
•	•	•	•
M12	M12	-	M12





## Ultrasonic

general  
catalogue  
ed. 01/2018

526

### UK1 and UKR1

531



M18 cylindrical direct diffuse and retro reflective Ultrasonic sensor with Teach-in button

### UK6 and UKR6

545



M18 cylindrical short body direct diffuse and retro-reflective Ultrasonic Sensor with Teach-in button

### UT and UTR

553



M30 cylindrical direct diffuse and retro-reflective Ultrasonic Sensor with Teach-in button

dimensions	M18	M18 - short body	M30
direct diffuse	up to 2,200 mm	up to 1,200 mm	up to 8,000 mm
retroreflective	up to 2,000 mm	up to 1,200 mm	up to 6,000 mm
through beam	-	-	-
power supply Vdc	•	•	•
power supply Vac	-	-	-
2 x PNP hysteresis function	Teach-in button	-	Teach-in button
2 x NPN hysteresis function	Teach-in button	-	Teach-in button
PNP - NO / NC	Teach-in button	Teach-in cable	Teach-in button
NPN - NO / NC	Teach-in button	Teach-in cable	Teach-in button
0...10 V	Teach-in button	Teach-in cable	Teach-in button
4...20 mA	Teach-in button	Teach-in cable	Teach-in button
1 x PNP - NO / NC + 1 x 0...10 V	-	-	Teach-in button
1 x NPN - NO / NC + 1 x 0...10 V	-	-	Teach-in button
1 x PNP - NO / NC + 4...20 mA	-	-	Teach-in button
1 x NPN - NO / NC + 4...20 mA	-	-	Teach-in button
temperature range	-20°C...+70°C	-20°C...+70°C	-20...+70°C
protection degree	IP67	IP67	IP67
housing material	PBT/AISI316L	PBT/AISI316L	PBT/AISI316L
active head material	epoxy glass resin	epoxy glass resin	epoxy glass resin
cable	-	•	•
plug	M12	M12	M12





UH

563



cubic through beam  
30 x 20 x 15 mm  
and 24 x 50 x 15 mm



ultrasonic

General  
Catalogue  
ed. 01/2018

567

FC8

567



ultrasonic fork sensors  
for label detection

Ultrasonic

30 x 20 x 15 mm and 24 x 50 x 15 mm
-
-
0...300 mm
●
-
no reg.
no reg.
no reg.
no reg.
-
-
-
-
-
-
-15°C...+60°C
IP67
PBT
ceramic
●
-

CE

dimensions	-
nominal sensing distance	3 mm
fork sensor	-
fork for label	●
slot length detection	69 mm
minimum object dimension	2 mm
emission	ultrasonic
switching frequency	1.5 kHz
power supply Vdc	●
power supply Vac	-
NPN - NO	-
NPN - NC	-
PNP - NO	-
PNP - NC	-
NPN - NO / NC	●
PNP - NO / NC	●
NPN / PNP - NO / NC	●
temperature range	-5°C...+55°C
protection degree	IP65
housing material	painted aluminium
cable	-
plug	M8 4 pin

CE cULus

CR0

575



retroreflective  
Polarized

BX04 e  
BX10

579



medium resolution

BX80

585



high resolution cubic  
housing area sensor

Area

general  
catalogue  
ed. 01/2018

570

dimensions	107 x 20 x 36 mm	20 x 44 x 120 mm	20 x 44 x 120 mm
sensing distance	up to 4,5 m	up to 6 m	up to 2.5 m
controlled area height	70 mm	90 mm	70 mm
beam type	retroreflective polarized	crossed	crossed / parallel
minimum detectable object	up to 6 mm @ 2 m, 10 mm @ 4.5 mm	up to Ø 15 mm	up to Ø 2 mm
number of optics	4 emitters + 3 receivers	4 / 10	12
optics step	10 mm	30 / 10 mm	6 mm
blinking	-	-	-
power supply Vdc	•	•	•
power supply Vac	-	-	-
NPN + PNP - NO	-	•	-
NPN + PNP - NC	-	•	-
NPN - NO / NC	•	-	•
PNP - NO / NC	•	-	•
PNP - NO	-	-	-
NPN - NO	-	-	-
PNP - NC	-	-	-
NPN - NC	-	-	-
1 x PNP NO / NC + 1 x NPN NO / NC	•	-	-
1 x 4...20 mA + 1 x 0...10 V	-	-	-
NPN + 4...20 mA + 0...10 V	-	-	-
temperature range	-10°C...+55°C	0°C...+60°C	-25°C...+50°C
protection degree	IP67	IP67	IP67 / IP69K
housing material	aluminium	valox	valox
head material	PMMA	PC	PC
cable	-	•	•
plug	pig-tail M12	M12	M12



I12GD  
I13GD



I13GD

# CX0

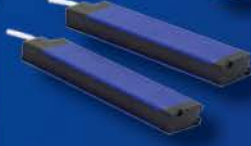
593



high resolution and compact housing

# CX1

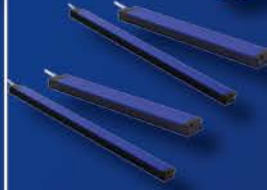
597



high resolution and compact housing with digital output

# CX2

601



high resolution and compact housing with digital and analogue output

# NX

607



medium resolution area sensors without housing

Area

20 x 36 mm	20 x 36 mm	20 x 36 mm	41 x 18 x 140...157 mm
up to 6 m	up to 6 m	up to 6 m	0,25-0,7...0.5-2 m
from 160 to 320 mm	from 160 to 960 mm	from 160 to 960 mm	from 132 mm to 150 mm
crossed	crossed / parallel	crossed / parallel	-
up to Ø 3 mm	up to Ø 3 mm	up to Ø 1 mm	up to Ø 5 mm
from 17 to 32	from 17 to 97	from 17 to 97	14 / 16
5 - 10 mm	5 - 10 mm	5 - 10 - 20 mm	10 mm
-	-	•	-
•	•	•	•
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	•
-	-	-	•
-	-	-	•
-	-	-	•
•	•	•	-
-	-	•	-
-	-	-	-
-10°C...+55°C	-10°C...+55°C	-10°C...+55°C	0°C...+55°C
IP67	IP67	IP67	undefined
aluminium	aluminium	aluminium	-
PMMA	PMMA	PMMA	-
-	-	-	-
pig-tail M12	pig-tail M12	pig-tail M12	MOLEX 22-05-7048





631

SBCR03



control unit Type 2

635

SH-IA/IC  
TH-IA/IC

photocells Type 2 and Type 4

control unit and  
photocellsgeneral  
catalogue  
ed. 01/2018

614

dimensions	84 x 76 x 110 mm	M18 / M30
sensing distance	to be used together with sensor SH-IA and TH-IA	10 m (M18 axial), 5 m (M18 90°), 60 m (M30)
controlled area height	-	-
protection	-	-
resolution	-	-
beams number	up to 6	-
automatic restart	●	conn. to SBCR03 (SH-IA and TH-IA), conn.to ctrl. unit cat.2 and 4 (SH-C and TH-C)
manual restart	●	conn. to SBCR03 (SH-IA and TH-IA), conn.to ctrl. unit cat.2 and 4 (SH-C and TH-C)
EDM	●	conn. to SBCR03 (SH-IA and TH-IA), conn.to ctrl. unit cat.2 and 4 (SH-C and TH-C)
double muting	●	conn. to SBCR03 (SH-IA and TH-IA), conn.to ctrl. unit cat.2 and 4 (SH-C and TH-C)
type	2 (EN 61496-1/-2), PL c (EN ISO 13849-1), SIL CL 1 (EN 62061 - IEC 61508)	2 (SH-IA, TH-IA), 24 (IEC61496-2), SILCL1/SILCL3 (EN62061), PL c/PL and (EN ISO 13849)
power supply Vdc	●	-
power supply Vac	-	-
2 relay	-	-
2 PNP	●	-
totem pole	-	●
temperature range	-20°C...+60°C	-20°C...+55°C
protection degree	IP20	-
housing material	ABS	nickel plated brass / plastic
head material	-	glass
cable	-	●
plug	-	M12
clamps	●	-



# FEEL SAFE

Safety



## LS2, LS2\_K, LS2\_H series

Light curtains

Type 2 according to IEC 61496-1 and 2

### features

- Compact housing (28 x 30 mm) and no dead zone on cap side
- Resolution 30, 40, 50, 90 mm for hand protection and presence control and 2, 3, 4 beams for body protection/access control
- Controlled distance up to: 3, 4, 10, 12 m
- Base, Standard versions and Master Slave version to connect up to 3 sets in cascade configuration
- Selectable Automatic/Manual Restart and EDM integrated functions (Standard models)
- Selectable controlled distance
- IP69K protection models (LS2\_K) and models with integrated heating system to reach -25°C operating temperature (LS2\_H)
- Standard M12 5 and 8 poles connectors



**IP69K**



Micro Detectors

Italian Sensors Technology



general  
catalogue  
ed. 01/2018

614

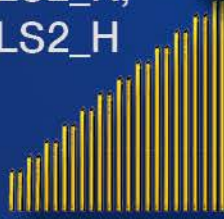
short  
form  
ed. 01/2018

40



641

LS2,  
LS2\_K,  
LS2\_H



light curtains Type 2  
according to  
IEC 61496-1 and 2

655

LS4,  
LS4\_K,  
LS4\_H



light curtains Type 4  
according to  
IEC 61496-1 and 2

673

LP4ER



light curtains Type 4

light curtains

general  
catalogue  
ed. 01/2018

614

dimensions	cubic 28 x 30 mm, cylindric Ø 56 mm	cubic 28 x 30 mm, cylindric Ø 56 mm	cubic 50 x 60 mm,
sensing range	0...4/0...12 m select. 0...3 / 0...10 m	0...2 / 1...6 m (ris. 14 mm) 0...3 / 3...20 m select.	0...6 / 1...16 m select. 8...30 / 18...60 m select.
controlled area height	from 160 to 1,800 mm	from 160 to 1,800 mm	510 mm, 610 mm, 810 mm, 910 mm, 1,210 mm
protection	hand, body, access	finger, hand, body, access	hand, access
resolution	30 mm, 40, mm, 50 mm, 300 mm, 400 mm, 500 mm	14 mm, 20 mm, 30 mm, 40, mm, 50 mm, 300 mm, 400 mm, 500 mm	40 mm, 300 mm, 400 mm, 500 mm
beams number	depending on height	depending on height	depending on height
automatic restart	●	●	●
manual restart	●	●	●
EDM	●	●	●
integrated connections for muting sensors	-	-	-
sensitivity adjustment	●	●	●
extended range	-	●	●
master	●	●	-
intermediate slave	●	●	-
final slave	●	●	-
with passive element	-	-	-
type	2 (EN 61496-1/-2), SIL CL 1 (EN 62061), PL and (EN ISO 13849-1)	4 (EN 61496-2), SIL CL 3 (EN 62061), PL and (EN ISO 13849-1)	4 (EN 61496-2), SIL CL 3 (EN 62061), PL and (EN ISO 13849-1)
power supply Vdc	●	●	●
power supply Vac	-	-	-
2 relay	-	-	-
2 PNP	●	●	●
temperature range	-10°C...+55°C	-10°C...+55°C	-10°C...+55°C
protection degree	IP67	IP67 / IP69K	IP65
housing material	aluminium	aluminium (LS4), PMMA, POM-C, stainless steel AISI 316L	aluminium
optic material	PMMA	PMMA	PMMA
cable	● (LS2-K e LS2_H)	● (LS4-K e LS4_H)	-
plug	M12, 5 wires (emitt. master/slave), M12, 8 wires (single rece. and master)	M12, 5 wires (emitt. master/slave), M12, 8wires (single rece. and master)	M12, 5 wires (emitt.), M12, 8 poli (rice.), M23, 19 poli (rece.)





# LP4PF

679



light curtains Type 4

# LP4ER\_M

683



light curtains Type 4

# LP4PT

693



light curtains Type 4

cubic 50 x 60 mm, 0...6 m	cubic 50 x 60 mm, 0...6 / 1...16 m select. 8...30 / 18...60 m select.	cubic 50 x 60 mm, 0...6 m
510 mm, 810 mm, 910 mm,	from 310 mm to 1,810 mm,	510 mm, 810 mm, 910 mm
access	hand, body, access	access
300 mm, 400 mm, 500 mm	30 mm, 40 mm, 90 mm, 300 mm, 400 mm, 500 mm	300 mm, 400 mm, 500 mm
2, 3 and 4 rays	depending on height	2, 3 and 4 rays
•	•	•
•	•	•
•	•	•
-	•	•
-	•	-
•	•	-
-	-	-
-	-	-
-	-	-
•	-	•
4 (EN 61496-2), SIL CL 3 (EN 62061), PL and (EN ISO 13849-1)	4 (EN 61496-2), SIL CL 3 (EN 62061), PL and (EN ISO 13849-1)	4 (EN 61496-2), SIL CL 3 (EN 62061), PL and (EN ISO 13849-1)
•	•	•
-	-	-
-	-	-
•	•	•
0°C...+55°C	-10°C...+55°C	0°C...+55°C
IP65	IP65	IP65
aluminium	aluminium	aluminium
PMMA	PMMA	PMMA
-	-	-
M12, 8 wires (active element)	M12, 5 wires (emitt. and sens muting male), M23, 19 wires (receiv.)	M12, 8 wires (sens muting male), M23, 19 wires (active element)

## Relay modules



### SB300

710



Relay module : 2 x NO

### SB400 SB400M

711



Relay module with functions:

- muting (SB400M)
- automatic start
- manual start
- EDM
- 2 x NO





## Applicative

general  
catalogue  
ed. 01/2018

712

## VBR



vibrations and  
inclination sensor

## INC



vibrations and  
inclination sensor

## TFM



time of flight  
miniaturized sensor

dimensions	M18	M18	21 x 12.8 x 31.2 mm
power supply voltage	24 Vdc $\pm$ 20%	24 Vdc $\pm$ 20%	24 Vdc $\pm$ 20%
sensing range	$\pm$ 16 g (max.)	$\pm$ 16 g (max.)	0...180 mm (white 90%) 0...360 mm (white 90%) 0...600 mm (white 90%)
resolution	15,62 mg @ $\pm$ 2 g, 31,25 mg @ $\pm$ 4 g, 62,5 mg @ $\pm$ 8 g, 125 mg @ $\pm$ 16 g,	0,025° (0...360°) [INC1] 0,0028 ( $\pm$ 90°) [INC2]	1 mm @ range 0...180 mm 2 mm @ range 0...360 mm 3 mm @ range 0...600 mm
accuracy	-	-	$\pm$ 10 mm
number of measurement axis	3 (X, Y, Z)	1	-
frequency range	0...400 Hz (VBR1) 0...1.200 (VBR2)	-	-
switching frequency	-	-	< 10 Hz
output type	RS-485 (addressable) + analogic 4...20 mA / 0...10 V (programmable)	RS-485 (addressable) + analogic 4...20 mA / 0...10 V (programmable)	2 digital outputs 24 V program- mable PNP / PushPull - NO
technology	MEMS	MEMS	-
emission	-	-	LASER infrared Class 1
wave length	-	-	850 nm
temperature range	-25°C...+70°C	-25°C...+70°C	-10°C...+60°C
protection degree	IP67 / IP68	IP67 / IP68	IP67
housing material	stainless steel	stainless steel	plastic
head material	stainless steel	stainless steel	glass
cable	5 wires	5 wires	-
plug	pig-tail M12 5 wires	pig-tail M12 5 wires	pig-tail M12 4 wires



ITS



temperature sensor



Applicative

 general  
 catalogue  
 ed. 01/2018

712

FL



carwash sensor

applicative

M18
24 Vdc ±20%
-20°C...+350°C
0,0017°C @ +350°C
-
60° (X axis); 16° (Y axis) (ITS1)
-
4 Hz
RS-485 (addressable) 57600 baud - 1 bit stop - no parity
16 x 4 Thermopile array (ITS1)
-
-
-25°C...+70°C
IP65
stainless steel AISI 316L + Grilamid
-
5 wires
pig-tail M12 5 wires

CE

dimensions	-
Amplifier with relay output	-
output timing	-
contrast scanner	-
luminescent scanner	-
sensing distance Sn	8 m (3 m) 30 m (3 m)
slot sensor	-
sensing distance	-
emission	-
frequency	10 Hz
power supply vdc	●
power supply vac	-
NPN - NO	●
NPN - NC	●
PNP - NO	●
PNP - NC	●
NPN - NO / NC	-
PNP - NO /NC	-
NPN / PNP - NO / NC	-
SCR	-
relay	●
temperature range	-20°C...+70°C
protection degree	IP67
housing material	PBT + PC
head material	PC
cable	●
plug	-

CE





## Applicative

general  
catalogue  
ed. 01/2018

710

UR



control unit for  
miniaturized sensors

731



DG



miniature photoelectric  
sensors

735



LDL



luminescence scanner  
M18 - DC

739



dimensions	32 x 67 x 90 mm	Ø 10 mm / M12	M18
amplifier with relay output	●	-	-
output timing	●	-	-
contrast scanner	-	-	-
luminescent scanner	-	-	●
sensing distance Sn	-	-	-
slot sensor	-	-	-
sensing distance	-	up to 75 m	12 mm (STF12) 25 mm (STF25)
emission	-	IR	UV
frequency	10 Hz	-	10 kHz
power supply vdc	●	-	●
power supply vac	●	-	-
NPN - NO	-	-	-
NPN - NC	-	-	-
PNP - NO	-	-	-
PNP - NC	-	-	-
NPN - NO / NC	-	-	●
PNP - NO / NC	-	-	●
NPN / PNP - NO / NC	-	-	-
SCR	-	-	-
relay	●	-	-
temperature range	-10°C...+50°C	-20°C...+60°C	-5°C...+55°C
protection degree	IP20	IP67	IP65
housing material	plastic	plastic / metallic	PBT
head material	-	PC - glass	PMMA
cable	-	●	●
plug	-	-	M12



LDLV

743



luminescence scanner M30 - DC

LTB

747



contrast scanner M18 - DC

FC3

751



dual beams photo-electrics slot sensor for sensor edge detection

FC4

755



four beams fork sensor for belt tracking control

Applicative

M30	M18	26 x 75 x 90 mm	26 x 83 x 162 mm
-	-	-	-
-	-	-	-
-	•	-	-
•	-	-	-
-	-	38 mm	43 mm
-	-	•	•
30 mm	12 mm (STF12) 25 mm (STF25)	h = 38 mm	h = 43 mm
UV	UV	IR	IR
400 Hz	10 kHz	25 Hz	25 Hz
•	•	•	•
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
•	•	-	-
•	•	-	-
-	-	-	-
-	-	•	•
-	-	-	-
-5°C...+55°C	-5°C...+55°C	-25°C...+50°C	-25°C...+55°C
IP65	IP65	IP64	IP67
nickel plated brass	PBT	PCB	PC
glass	PMMA	PCB	PC
-	•	-	-
M12	M12	M12 pig-tail	M12 pig-tail

CE

CE

CE

CE



## Encoders

general  
catalogue  
ed. 01/2018

758

### MDI 40 A

763



miniaturized  $\varnothing$  42 mm encoder series for general factory automation applications

### MDI 58 B / C

767



standard  $\varnothing$  58 mm encoder series for industrial applications with high mechanical resistance requirements

### MDI 63 A / D

771



standard  $\varnothing$  63 mm encoder series for industrial applications with high mechanical resistance requirements

bearings	2	2	2
bearings life	10 <sup>9</sup> revolutions	10 <sup>9</sup> revolutions	10 <sup>9</sup> revolutions
operating temperature	-25° ... +85°C	-25° ... +85°C	-25° ... +70°C
storage temperature	-25° ... +70°C	-25° ... +70°C	-25° ... +70°C
weight	100 g	350 g	350 g
resolution	from 100 to 2,500 ppr	from 100 to 2,500 ppr	from 100 to 2,500 ppr
power supply	5/30 = 4,5 ... 30 VdC (with prot. Inv.)	5/30 = 4,5 ... 30 VdC (with prot. Inv.)	5/30 = 4,5 ... 30 VdC (with prot. Inv.)
no-load supply current	800 mW	800 mW	800 mW
max load current	20 mA / channel	20 mA / channel	20 mA / channel
output type**	push-pull / line driver	push-pull / line driver	push-pull / line driver
max output frequency	220 kHz	220 kHz	220 kHz
counting direction	A leads B clockwise (shaft view)	A leads B clockwise (shaft view)	A leads B clockwise (shaft view)
EMC (IEC 61000-6-2 IEC 61000-6-4)	•	•	•

CE

CE

CE



775

## MDI 38 F / G



miniaturized Ø 38 mm  
encoder for general  
factory automation  
applications



779

## MDI 58 F / G - 63 F/G



standard ø 63 encoder  
series for industrial  
applications with high  
mechanical resistance  
requirements

2	2
10° revolutions	10° revolutions
-25° ... +70°C	-25° ... +85°C
-25° ... +70°C	-25° ... +70°C
150 g	350 g
from 100 to 2,500 ppr	from 100 to 2,500 ppr
5/30 = 4,5 ... 30 VdC (with prot. Inv.)	5/30 = 4,5 ... 30 VdC (with prot. Inv.)
800 mW	800 mW
20 mA / channel	20 mA / channel
push-pull / line driver	push-pull / line driver
220 kHz	220 kHz
A leads B clockwise (shaft view)	A leads B clockwise (shaft view)
•	•



# ENCODING SOLUTIONS

Encoder



## MDI 40 A

miniaturized Ø 42  
for general factory au-  
tomation application

### features

- 3 channel encoder (A / B / Z) up to 2,500 rpm
- power supply up to +30 Vdc with several electronic outputs available
- up to 220 kHz output frequency
- cable output, connectors available on cable end
- 6 mm solid shaft diameter
- Mounting by chapling flange



general  
catalogue  
ed. 01/2018

763



installation  
accessories  
General  
Catalogue  
ed. 01/2018

788

722  
ST 18-S



fixin bracket for M18  
sensors

790  
ST 08-A



metal axial mount  
bracket for M8  
cylindrical sensors

793  
ST 02



plastic swing bracket

universal accessories

model	description	suitable for
ST82	screwdriver accessory for trimmer adjustment	sensors with trimmer adjustment
ST100	accessory for testing DC sensors	sensors
ST300D	accessory for testing DC sensors, rechargeable	sensors

Accessories for M8 cylindrical Sensors

model	description	suitable for
ST08 - A	metal axial mount bracket	M8 cylindrical sensors
ST08 - A	metal right angle mount bracket	M8 cylindrical sensors

Accessories for M12 cylindrical Sensors

model	description	suitable for
ST04	plastic swing bracket	M12 cylindrical sensors
ST12-A	metal axial mount bracket	M12 cylindrical sensors
ST12-A7W	stainless steel AISI316L (DIN 1.4404) axial mount bracket	M12 cylindrical sensors
ST12-C	right angle mount bracket	M12 cylindrical sensors
ST12-C7W	stainless steel AISI316L (DIN 1.4404) right angle mount bracket	M12 cylindrical sensors
STFM-1...4	M12 focusing device (7.5 - 12.5 - 22 - 29 mm)	M12 cylindrical sensors (only emitter)
STOM-1...6	shutters	M12 cylindrical sensors
ST37	right angle beam adapter	M12 cylindrical sensors
ST36	antidust front	M12 cylindrical sensors
ST60	protective front	M12 cylindrical sensors

793

ST29



M18 metal ring nuts

794

ST 18-C

metal right angle  
mount bracket

795

STF-12

stainless steel  
AISI316L (DIN 1.4404)  
right angle mount  
bracket for M18  
cylindrical sensors

796

ST50

protective front  
for M18 cylindrical  
sensors

installation accessories

## Accessories for M18 cylindrical Sensors

model	description	suitable for
ST02	plastic swing bracket	M18 cylindrical sensors
ST08	M18 metal ring nuts	M18 cylindrical sensors
ST29	M18 metal ring nut	M18 metallic cylindrical sensors fixed to ST-02 plastic adjustable bearing
ST18-A	metal axial mount bracket	M18 cylindrical sensors
ST18-A7W	stainless steel AISI316L (DIN 1.4404) axial mount bracket	M18 cylindrical sensors
ST18-C	metal right angle mount bracket	M18 cylindrical sensors
ST18-C7W	stainless steel AISI316L (DIN 1.4404) right angle mount bracket	M18 cylindrical sensors
STC-18	mounting bracket for cylindrical rod $\varnothing 12 \div 20$ mm	M18 cylindrical sensors
ST18-V	radial fixing bracket for M18 sensors	M18 cylindrical sensors
ST18-S	mount bracket	M18 cylindrical sensors
ST12...50	M18 focusing devices (12 - 25 - 50 mm)	M18 cylindrical sensors SAT-LDLU-LTB-SST-MST series
ST0S1...8	shutters	M18 cylindrical sensors
ST03	right angle beam adapter	M18 cylindrical sensors
ST30	antidust front	M18 cylindrical sensors
ST32	anti-condensation front	M18 cylindrical sensors
ST50	protective front	M18 cylindrical sensors
ST03-U	plastic right angle beam adapter	M18 cylindrical sensors
ST0FA1	kit adhesive shutter	M18 cylindrical sensors axial FA series
ST0FA2	kit adhesive shutter	M18 cylindrical sensors right angle FA series





installation  
accessories  
General  
Catalogue  
ed. 01/2018

788

ST 13

796



accessories suitable for  
M30 cylindrical sensors

ST 30-C

797



accessories suitable  
for M30 cylindrical  
sensors

ST 103

800



vertical mounting  
bracket with  
protective cover

accessories for M30 cylindrical Sensors

model	description	suitable for
ST13	metal swing bracket with threaded holes	M30 cylindrical sensors
ST14	metal swing bracket with screws	M30 cylindrical sensors
ST30-A	metal axial mount bracket	M30 cylindrical sensors
ST30-C	metal right angle mount bracket	M30 cylindrical sensors
ST55	right angle beam adapter	M30 cylindrical sensors

accessories for cubic sensors

model	description	suitable for
ST101	L vertical mounting bracket	QM rectangular sensors
ST102	L side mounting bracket	QM rectangular sensors
ST103	vertical mounting bracket with protective cover	QM rectangular sensors
ST104	horizontal mounting bracket with protective cover	QM rectangular sensors
STOM0	vertical and horizontal shutters	QM rectangular sensors
STQMS	screws - nuts - lockwashers	QM rectangular sensors
ST 01	metal mounting bracket	BS - BV rectangular sensors
ST 07	metal mounting bracket	PS - FS1 rectangular sensors
ST 70	metal mounting bracket	BS - BV rectangular sensors
ST 80	metal mounting bracket	RX rectangular sensors
ST 81	metal mounting bracket	RX rectangular sensors
STC-80	metal mounting bracket for cylindrical rod $\varnothing 12 \div 20$ mm	RX - BS - BV - PS rectangular sensors
ST0FE	shutters for emitter / receiver	FE rectangular sensors
STPFE	focus for emitter / receiver	FE rectangular sensors
STDFX	bracket 1 pc	FX3 / FX4
STDFX-10	bracket 10 pcs	FX3 / FX4
STZ3	undecal socket	URA - URB - URC - URD control units series

797

## ST 03-U



plastic beam deflector for ultrasonic cylindrical sensors

710

## SB300



force guided relay module

711

## SB400



safety light Curtains

711

## SB400M



safety module with integrated Muting function

installation accessories

accessories for Ultrasonic Sensors

model	description	suitable for
ST 03-U	beam deflector	M18 cylindrical sensors

accessories for Area Sensors

model	description	suitable for
ST86	position adapter BX80 - AX80	Area Sensors BX80 series
ST 18 - A	metal axial mount bracket	Area Sensors
ST 18 - C	metal right angle mount bracket	Area Sensors

accessories for Safety Sensors

model	description	suitable for
ST85	box IP65	SBCR03 control unit serie
SBAL/01	cover with rectangular male connector	SBA series
SBAL/02	cover with PG11 connector	SBA series
SBAL/03	internal female terminal	SBA series
SB300	safety relay module for DIN rail mount	control units and Safety Sensors Cat. 2
CHR / 0B -00	DIN 43850 connector	TH series
LP / BOX - 1	checking box: start functions, override, muting lamp, M12 and M13 conn., Relay 2NA + 1NC	LP4 series
SB400	Relay Interface module	LS2 and LS4 series
SB400M	Relay Interface module with muting functions	LS2 and LS4 series
STFIX	basement for columns	LP4, LS2 and LS4 series
STFLEX	basement for columns with springs	LP4, LS2 and LS4 series
STCLA	protective column barrier basement for barriers with 2 beams	LP4 series
STCLB	protective column barrier basement for barriers with 3 beams	LP4 series
STCLC	protective column barrier basement for barriers with 4 beams	LP4 series
STCL17	protective column barrier basement for barriers with controlled height up to 1,980 mm	LP4 series
STCL20	protective column barrier basement for barriers with controlled height up to 1,680 mm	LP4 series
STCLAP	protective column barrier basement for barriers with lug PG11 for barriers with 2 beams	LP4 series
STCLBP	protective column barrier basement for barriers with lug PG11 for barriers with 3 beams	LP4 series





accessories for  
safety sensors

General  
catalogue  
ed. 01/2018

699

ST AX



column barrier  
basement for up to  
4 beams barriers

SLA CL



column with mirror for  
2 beams safety light  
curtain

708

SL 015



mirror for 160 mm  
protected height

709

accessories for Safety Sensors

model	description	suitable for
STCLCP	protective column barrier basement for barriers with lug PG11 for barriers with 3 or 4 beams	LS4 series
STCL17P	protective column barrier basement for barriers with lug PG11 for barriers with controlled height up to 1,360 mm	LS4 series
STCL20P	protective column barrier basement for barriers with lug PG11 for barriers with controlled height up to 1,660 mm	LS4 series
STAX	column barrier basement for up to 4 beams barriers	LP4,LS2 and LS4 series
ST CLS B	protective column barrier basement for up to 2 beams barriers	LS2 and LS4 series
ST CLS C	protective column barrier basement for up to 3 and 4 beams barriers	LS2 and LS4 series
ST CLS 17	protective column barrier basement for barriers with controlled height up to 1,360 mm	LS2 and LS4 series
STCLS20	protective column barrier basement for barriers with controlled height up to 1,660 mm	LS2 and LS4 series
STCLSBBP	protective column barrier basement for barriers with lug PG11 for barriers with 2 beams	LS2 and LS4 series
STCLSBBP	protective column barrier basement for barriers with lug PG11 for barriers with 3 or 4 beams	LS2 and LS4 series
STCLS17P	protective column barrier basement for barriers with lug PG11 for barriers with controlled height up to 1,360 mm	LS2 and LS4 series
STCLS20P	protective column barrier basement for barriers with lug PG11 for barriers with controlled height up to 1,660 mm	LS2 and LS4 series
SLACL	protective column with mirror for 2 beams barriers	LP4,LS2 and LS4 series
SLBCL	protective column with mirror for 3 beams barriers	LP4,LS2 and LS4 series
SLCCL	protective column with mirror for 4 beams barriers	LP4,LS2 and LS4 series
SL17CL	protective column with mirror for barriers with controlled height up to 1,360 mm	LP4,LS2 and LS4 series
SL20CL	protective column with mirror for barriers with controlled height up to 1,660 mm	LP4,LS2 and LS4 series
SL015	beam deflector mirror for barriers with 160 mm protected height	LP4,LS2 and LS4 series
SL020	beam deflector mirror for barriers with 230 mm protected height	LP4,LS2 and LS4 series
SL030	beam deflector mirror for barriers with 310 mm protected height	LP4,LS2 and LS4 series
SL045	beam deflector mirror for barriers with 460 mm protected height	LP4,LS2 and LS4 series
SL060	beam deflector mirror for barriers with 610 mm protected height and 2 beams	LP4,LS2 and LS4 series
SL075	beam deflector mirror for barriers with 760 mm protected height and 2 beams	LP4,LS2 and LS4 series
SL090	beam deflector mirror for barriers with 910 mm protected height and 3 beams	LP4,LS2 and LS4 series
SL105	beam deflector mirror for barriers with 1,060 mm protected height and 4 beams	LP4,LS2 and LS4 series
SL120	beam deflector mirror for barriers with 1,210 mm protected height	LP4,LS2 and LS4 series



710

## STL 01 P



laser pointer for LP  
safety light Curtain

710

## STL 01 S



laser pointer for LS  
safety light Curtain

701

## ST VP 4



4 pcs. kit  
antivibration  
basement, from  
1,210 to 1,810 mm

701

## ST VP 6



6 pcs. kit  
antivibration  
basement, from  
1,210 to 1,810  
mm

accessories for  
safety sensors

## accessories for Safety Sensors

model	description	suitable for
SL135	beam deflector mirror for barriers with 1,360 mm protected height	LP4, LS2 and LS4 series
SL145	beam deflector mirror for barriers with 1,440 mm protected height	LP4, LS2 and LS4 series
SL150	beam deflector mirror for barriers with 1,510 mm protected height	LP4, LS2 and LS4 series
SL165	beam deflector mirror for barriers with 1,660 mm protected height	LP4, LS2 and LS4 series
SL180	beam deflector mirror for barriers with 1,810 mm protected height	LP4, LS2 and LS4 series
STL01P	laser pointer	LP4 series
STL01S	laser pointer	LP4 series
STVP4	4 pcs. kit antivibration basement, from 310 to 1,060 mm; 2,3,4 beams	LS2 and LS4 series
STVP6	6 pcs. kit antivibration basement	LP4 series
ST4VS	4 pcs. kit antivibration basement for barriers with 150 mm protected height	LS2 and LS4 series
ST8VS	8 pcs. kit antivibration basement for barriers with protected height from 300 mm to 1,050 mm	LS2 and LS4 series
ST12VS	12 pcs. kit antivibration basement for barriers with protected height from 1,500 mm to 1,800 mm	LS2 and LS4 series
ST2014	4 pcs. short L brackets	LP4 series
ST2016	6 pcs. short L brackets	LP4 series
ST2024	2 pcs. long L brackets	LP4 series
ST2034	4 pcs. fixing inserts	LP4 series
ST2036	6 pcs. fixing inserts	LP4 series
ST2044S	4 pcs. kit L brackets and related insert and bolts	LS2 and LS4 series
ST2046S	6 pcs. kit L brackets and related insert and bolts	LS2 and LS4 series
ST2064S	4 pcs. kit swing brackets for barriers with 1,050 mm protected height	LS2 and LS4 series
ST2066S	6 pcs. kit swing brackets for barriers with 1,200 mm protected height	LS2 and LS4 series
ST207S	4 pcs. kit swing brackets - 180° rotation	LS2 and LS4 series
ST2214	14 mm testing rod	LS2 and LS4 series
ST2220	20 mm testing rod	LP4 series
ST2230	30 mm testing rod	LS2 and LS4 series
ST2240	40 mm testing rod	LS2 and LS4 series
ST2250	50 mm testing rod	LS2 and LS4 series



# Reflectors

general  
catalogue  
ed. 01/2018

803

% reflector reading

(1) Refer to individual data sheets for detailed specifications of the photoelectric sensors

(2) Applications involving water immersion or atmospheres with steam or water vapour clouds are not advised

% reflector model (1)	RL098	RL100	RL100D (50 x 50 mm)	RL100 DA4	RL100 DC4	RL100 DQ1	RL102	RL103	RL104	RL105G	RL106G	RL107	RL109G
DMP	-	-	40	55	50	50	25	50	50	50	80	125	100
FAIC_axial	20	10	20	40	25	30	35	50	50	40	80	105	100
FAIM_axial	20	10	20	40	25	30	35	50	50	40	80	105	100
FAIC_90°	20	10	20	40	25	30	35	50	50	40	80	105	100
FAIM_90°	20	10	20	40	25	30	35	50	50	40	80	105	100
FARN_axial	-	-	25	40	30	35	40	45	50	40	80	110	100
FARP_axial	-	-	25	40	30	35	40	45	50	40	80	110	100
FARN_90°	-	-	20	35	25	30	30	25	35	40	110	130	100
FARP_90°	-	-	20	35	25	30	30	25	35	40	110	130	100
FARL_axial	-	-	-	-	-	-	-	-	-	-	-	-	100
FARL_90°	-	-	-	-	-	-	-	-	-	-	-	-	100
FALN	-	-	20	20	15	20	30	40	45	70	90	85	100
SSC	20	10	15	35	30	30	30	40	50	40	80	110	100
SPC	20	10	15	35	30	30	30	40	50	40	80	110	100
SSP	-	-	-	-	-	-	5	40	50	30	70	110	100
SPP	-	-	-	-	-	-	5	40	50	30	70	110	100
MSC	20	10	25	45	35	40	35	50	60	45	100	115	100
MPC	20	10	25	45	35	40	35	50	60	45	100	115	100
MSP	-	-	35	35	35	35	25	50	70	50	110	115	100
MPP	-	-	35	35	35	35	25	50	70	50	110	115	100
SAC	30	15	25	40	40	40	25	40	45	45	100	115	100
SAP	-	-	25	35	35	35	25	40	50	40	90	120	100
MVC	20	10	25	45	35	45	30	50	60	40	90	110	100
MVP	-	-	20	25	30	30	25	20	35	35	60	105	100
FQIC_axial	30	15	30	75	40	45	40	50	50	50	95	105	100
FQIC_90°	15	20	30	75	40	50	25	40	55	40	90	105	100
FQRN_axial	-	-	30	30	30	30	40	50	50	45	90	110	100
FQRN_90°	-	-	30	35	30	30	40	50	50	40	90	110	100
FQRL_axial	-	-	-	-	-	-	-	-	-	-	-	-	100
FQRL_90°	-	-	-	-	-	-	-	-	-	-	-	-	100
FFRN	-	-	25	30	30	30	35	45	50	45	90	110	100
FFRP	-	-	25	30	30	30	35	45	50	45	90	110	100
FFRL	-	-	-	-	-	-	-	-	-	-	-	-	100
QXP	-	-	30	35	35	35	25	30	40	40	80	110	100
QXC	-	-	-	40	30	15	20	25	35	40	90	100	100
BVC	40	20	35	85	50	55	40	50	55	50	95	110	100
BSC	40	20	35	85	50	55	40	50	55	50	95	110	100
PSC	-	-	-	30	25	25	20	20	10	40	30	115	100
RXC	25	20	25	50	30	40	30	30	20	35	80	95	100
RXP	-	-	30	50	35	40	10	10	40	45	60	110	100
QMIC	40	20	30	40	20	35	30	40	40	40	90	100	100
QMIG	-	-	-	-	-	-	-	-	-	-	-	-	100
QMRG_LP	-	-	-	-	-	-	-	-	-	-	-	-	100
QMRG	-	-	-	-	-	-	-	-	-	-	-	-	100
Q50RN	-	-	25	35	25	30	35	45	50	40	80	105	100
FGRN	5	-	15	30	30	30	35	50	55	45	75	105	100
QMRN	-	-	15	35	30	35	15	30	40	50	90	120	100
QMRL	-	-	-	-	-	-	-	-	-	-	-	-	100
protection degree <sup>(2)</sup>	IP67												
material	acrylic / polycarbonate												



The range is calculated as follows:  
 $\text{range} = \text{max. sensing distance} \times \text{reflector \%} \times \text{ambient condition\%}$ .  
 The ambient condition % is an arbitrary value that can be determined only by experimentation. Typical values are: clean = 100%; low levels of dust or humidity = 50%; moderate levels = 25%; high levels = 10%

The reflectors should be positioned at 90° to the optical axis with a tolerance of  $\pm 15^\circ$ . The range is calculated as follows:  
 $\text{range} = \text{max. sensing distance} \times \text{reflector \%} \times \text{ambient condition\%}$ .  
 The ambient condition % is an arbitrary value that can be determined only by experimentation.

Typical values are: clean = 100%; low levels of dust or humidity = 50%; moderate levels = 25%; high levels = 10%.  
 The reflectors should be positioned at 90° to the optical axis with a tolerance of  $\pm 15^\circ$ .  
 Please Note: Mechanical dimensions can vary without any advice.

RL110	RL111G	RL112G	RL113G	RL116	RL130	RL131	RL133	RL201	RL202	RL203	RL204	% reflector model (f)
100	30	35	75	50	55	30	25	-	-	-	-	DMP
100	40	50	80	80	80	30	25	-	-	-	-	FAIC_axial
100	40	50	80	80	80	30	25	-	-	-	-	FAIM_axial
100	40	50	80	80	80	30	25	-	-	-	-	FAIC_90°
100	40	50	80	80	80	30	25	-	-	-	-	FAIM_90°
100	35	45	70	75	75	35	10	-	-	-	-	FARN_axial
100	35	45	70	75	75	35	10	-	-	-	-	FARP_axial
100	15	15	60	20	45	25	7	-	-	-	-	FARN_90°
100	15	15	60	20	45	25	7	-	-	-	-	FARP_90°
100	-	-	70	70	-	-	-	-	-	-	-	FARL_axial
100	-	-	55	70	-	-	-	-	-	-	-	FARL_90°
100	60	70	85	85	90	15	15	130	120	90	90	FALN
100	45	50	75	85	85	40	25	-	-	-	-	SSC
100	45	50	75	85	85	40	25	-	-	-	-	SPC
100	40	45	70	110	80	25	-	-	-	-	-	SSP
100	40	45	70	110	80	25	-	-	-	-	-	SFP
100	35	50	80	80	100	40	35	-	-	-	-	MSC
100	35	50	80	80	100	40	35	-	-	-	-	MPC
100	50	40	60	90	60	30	25	-	-	-	-	MSP
100	50	40	60	90	60	30	25	-	-	-	-	MPP
100	20	55	80	90	80	35	10	-	-	-	-	SAC
100	30	30	80	50	40	20	20	-	-	-	-	SAP
100	50	40	70	70	75	30	25	-	-	-	-	MVC
100	25	30	60	55	55	30	7	-	-	-	-	MVP
100	40	55	75	90	70	30	25	-	-	-	-	FQIC_axial
100	40	55	80	90	70	30	25	-	-	-	-	FQIC_90°
100	35	50	75	80	70	30	25	-	-	-	-	FQRN_axial
100	20	30	70	40	65	35	20	-	-	-	-	FQRN_90°
100	-	-	55	60	-	-	-	-	-	-	-	FQRL_axial
100	-	-	55	60	-	-	-	-	-	-	-	FQRL_90°
100	35	45	75	80	70	35	25	-	-	-	-	FFRN
100	35	45	75	80	70	35	25	-	-	-	-	FFRP
100	-	-	55	45	-	-	-	-	-	-	-	FFRL
100	55	40	50	70	70	20	25	-	-	-	-	QXP
100	25	30	35	40	45	-	-	-	-	-	-	QXC
100	35	55	85	95	95	35	30	-	-	-	-	BVC
100	35	55	85	95	95	35	30	-	-	-	-	BSC
100	30	30	45	45	60	10	-	-	-	-	-	PSC
100	30	40	60	60	65	-	-	-	-	-	-	RXC
100	25	35	45	25	60	-	-	-	-	-	-	RXP
100	35	50	80	80	85	30	20	-	-	-	-	QMIC
100	-	-	50	60	-	-	-	-	-	-	-	QMIG
100	-	-	65	70	-	-	-	-	-	-	-	QMRG_LP
100	-	-	65	70	-	-	-	-	-	-	-	QMRG
100	40	35	60	80	80	25	20	-	-	-	-	Q50RN
100	40	45	70	80	80	25	30	-	-	-	-	FGRN
100	35	45	70	80	80	30	15	-	-	-	-	QMRN
100	-	-	70	80	-	-	-	-	-	-	-	QMRL

IP67

acrylic / polycarbonate

protection degree<sup>®</sup>  
material





reflectors

general  
catalogue  
ed. 01/2018

803

RL 102



polarized and  
retroreflective  
sensors

805

RL 105G



polarized and retro-  
reflective sensors

807

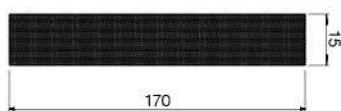
RL 106G



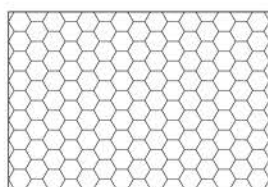
polarized and retro-  
reflective sensors

807

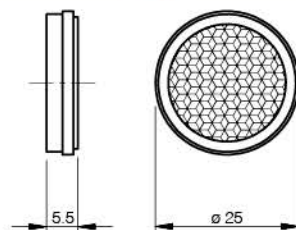
RL 098



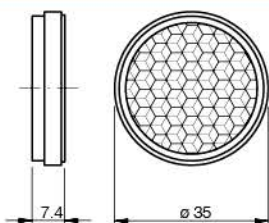
RL100DCR0 / RLAGV / RL100DA4 / RL100DC4 /  
RL100DQ1 / RL100D



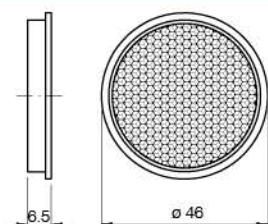
RL102



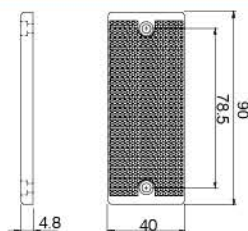
RL 103



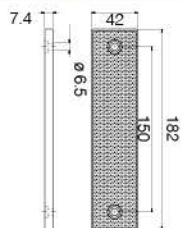
RL 104



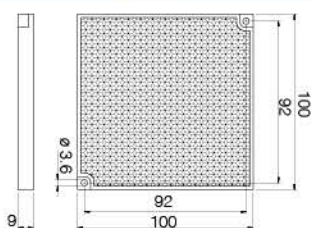
RL 105G



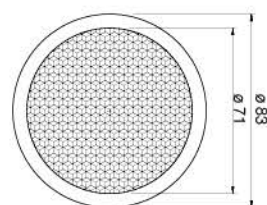
RL 106G



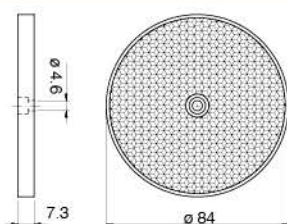
RL 107



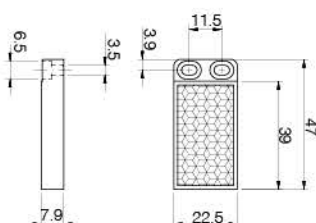
RL 109 G



RL 110



RL 111G



All unit values are expressed in mm.

810

RL 131



polarized and retro-reflective sensors

811

RL 202



LASER sensors

811

RL 203



LASER sensors

781

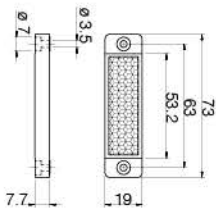
RL 204



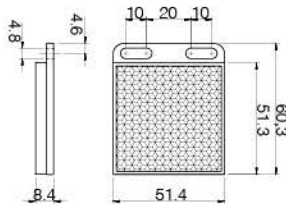
LASER sensors

reflectors

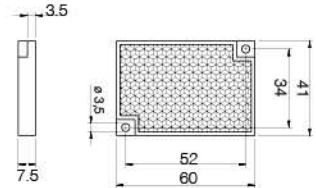
RL 112G



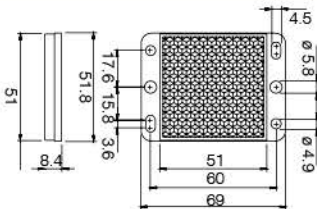
RL 113G



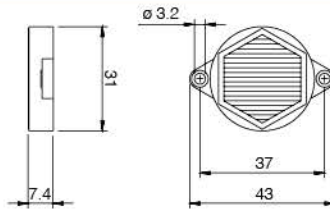
RL 116



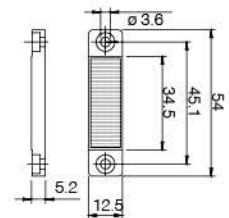
RL 130



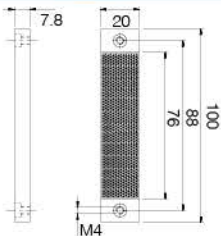
RL 131



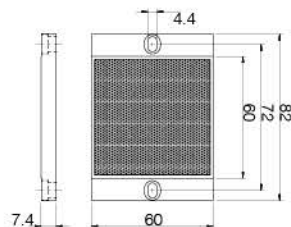
RL 133



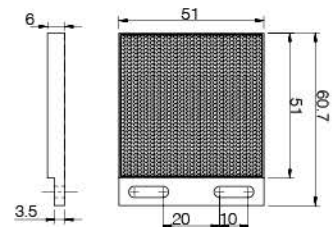
RL 135



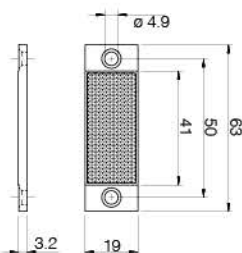
RL 201



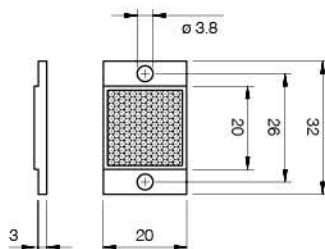
RL 202



RL 203



RL 204



All unit values are expressed in mm.



connectors

general  
catalogue  
ed. 01/2018

813

CD08 / 0B

- \*\*\*\*1



connector with PVC  
cable

821

CD08 / 0A

- \*\*\*\*5



connectors with  
PUR cable

821

CL12  
0B-00A



connector without  
cable

796

connectors with PVC cable

plug	wires	led	axial	right angle	length (m)
M8	3	-	CD08/0A-***A1	CD08/0A-***C1	2 - 5 - 10
	4		CD08/0B-***A1	CD08/0B-***C1	
M12	3 NO	2	CD12M/AA-***A1	CD12M/AA-***C1	2 - 5 - 10
	4		CD12M/0B-***A1	CD12M/0B-***C1	
	3 NO-NPN		CD12M/NA-***C1		
	3 NO-NPN		CD12M/PA-***C1		
	4 NO/NC-PNP		CD12M/VB-***C1		
4 DECOU*®	Bi-led	CD12M/DB-***C1			
M12 IP69K	4	-	CD12F/0B-050A1	CD12F/0B-050C1	5
		3	-	CD12F/LB-050C1	

connectors with PUR cable

plug	nr. of wires	led	axial	right angle	length (m)
M8	3	-	CD08/0A-***A5	CD08/0A-***C5	2 - 5 - 10
	4		CD08/0B-***A5	CD08/0B-***C5	
M12	3	3	CD12M/AA-***A5	CD12M/AA-***C5	5 - 10
	4		CD12M/0B-***A5	CD12M/0B-***C5	
	5		CD12M/0H-***A5	CD12M/0H-***C5	
	8		CD12M/0X-***A5	-	
	5 - 10 - 15		CD12M/AC-050A5	CD12M/AC-050C5	
M12 (AC)	3	-	CD12M/AC-050A5	CD12M/AC-050C5	5

connectors without cable

plug	type	fixing	nr. of wires	axial	right angle
M8	male	spring terminals	3	CV08/1A-00A	-
			4	CV08/1B-00A	-
		screw terminals	3	CV08/0A-00A	-
			4	CV08/0B-00A	-
	female	spring terminals	3	CL08/1A-00A	-
			4	CL08/1B-00A	-
		screw terminals	3	CL08/0A-00A	-
			4	CL08/0B-00A	-
M12	male	screw terminals	4	CV12/0B-00A	CV12/0B-00B
	female			CL12/0B-00A	CL12/0B-00C
	male		5	CV12/0H-00A	CV12/0H-00C
	female			CL12/0H-00A	CL12/0H-00C



826

## CDV-55



in line plug connectors,  
ø 5.5 mm

825

CDP08  
/ 0B-\*\*\*AA

extension cable

822

CD12M /  
0B-\*\*\*A1HT

extended temperature  
connectors  
(-25°C...+105°C)

822

CD08/0B-  
\*\*\*A5US

connectors with  
UR cable and  
cCSAus certification

connectors

## in line plug connectors

plug	type	fixing	wires	model	cable diameter
M8	male	in line plug connector	4	CDV-37	ø 3.75 mm
				CDV-47	ø 4.7 mm
				CDV-50	ø 5 mm
				CDV-55	ø 5.5 mm

## extension cable

plug	nr. of wires	female plug	male plug	model	length (m)
M8	3	axial	axial	CDP08/0A-***AA	(*)
M12	4			CDP08/0B-***AA	
				CDP12/0B-***AA	

(\*)= Please contact M.D. Sales Department for cable length and possible minimum orderable quantity.

## extended temperature connectors (-25°C...+105°C)

plug	nr. of wires	led	axial	right angle	length (m)
	4	-	CD12M/0B-***A1HT	CD12M/0B-***C1HT	5 - 10

## connectors with PVC cable and cCSAus certification

plug	nr. of wires	led	axial	right angle	length (m)
M8	3	-	CD08/0A-***A1US	CD08/0A-***C1US	5 - 10 - 15
M12	4		CD08/0B-***A1US	CD08/0B-***C1US	
			CD12/0B-***A1US	CD12/0B-***C1US	

## connectors with PUR cable and cCSAus certification

plug	nr. of wires	led	axial	right angle	length (m)
M8	3	-	CD08/0A-***A5US	CD08/0A-***C5US	5 - 10 - 15
M12	4		CD08/0B-***A5US	CD08/0B-***C5US	
			CD12/0B-***A5US	CD12/0B-***C5US	

CAT7E001885701 SHORT FORM CATALOGUE ENG ED.01/2018

All information written in this catalogue are subject to modifications without notice.  
They don't represent any obligation for M.D. Micro Detectors.

Any variation will be implemented in this catalogue and its electronic version, available  
on the corresponding page of M.D. Micro Detectors website:

[www.microdetectors.com](http://www.microdetectors.com)



**Micro Detectors**



**Italian Sensors Technology**

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