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Micro Detectors



Italian Sensors Technology

SHORT FORM CATALOGUE



Micro Detectors



Italian Sensors Technology

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M.D. Micro Detectors

Our Company



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.

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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



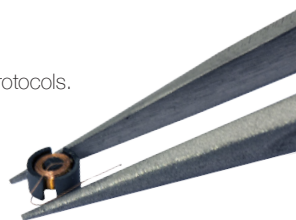
Sensors and more!

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, production and sales of electronic devices for measurement, analysis and detection in the industrial and consumer sector.

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

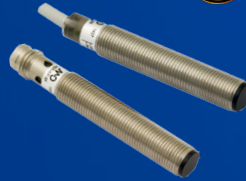


cylindrical

H8

M8 high frequency
DC

HE

M8 miniaturized
through-beam
sensors DC

DG



Ø 10 mm

dimensions	M8	M8	Ø 10 mm
background suppression	-	-	-
diffuse short distance	-	-	-
diffuse long distance	-	-	-
retroreflective	-	-	-
polarized	-	-	-
retroreflective for transparent objects	-	-	-
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

DM



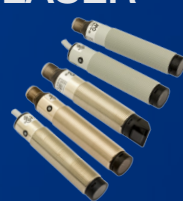
M12

FA



M18 DC

FA BGS

M18 direct diffuse with
adjustable background
suppressionFA
LASER

M18 LASER

cylindrical

M12	M18	M18	M18
-	-	30...130 mm 35...300 mm	-
100 mm	100 mm	-	400 mm (axial) 300 mm (90°)
300 mm	400 mm / 1 m (axial) 400 mm / 800 mm (90°)	-	-
.	4 m (axial) 5 m (90°)	-	-
2.5 m	2.5 m (axial) 4 m (90°)	-	30 m (RL201)
-	100...1,500 mm	-	-
4 m	15 m (axial) 20 m (90°)	-	50 m
400 Hz - 250 Hz	250 Hz - 1 kHz (axial) 250 Hz	-	800 Hz -1 kHz
IR red / (pol)	red / IR	-	red LASER (cl.1)
-	-	-	●
●	●	●	●
-	●	-	●
●	●	●	●
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
●	-	-	-
●	-	-	-
-	●	●	●
-	●	●	●
-	-	-	-
-	-	-	-
-	-	-	-
-25°C...+70°C	-25°C...+70°C	-25°C...+70°C	-15°C...+55°C
IP67	IP67	IP67	IP67
nickel plated brass	plastic / nickel plated brass	plastic / nickel plated brass	plastic / nickel plated brass
PMMA	PC / PMMA	PMMA	glass / PMMA
●	●	●	●
●	●	●	●



cylindrical

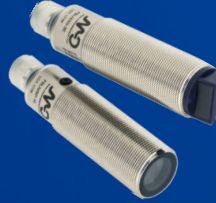
FAL BGS



M18
direct
with
back ground
suppression - DC

LASER
diffuse
adjustable

FBL



M18 LASER

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	-	400 mm (axial) 300 mm (90°)	100 mm
diffuse long distance	-	-	400 mm / 800 mm
retroreflective	-	-	5 m
polarized	-	30 m (RL201)	4 m
retroreflective for transparent objects	-	-	-
through beam	-	50 m	14 m
switching frequency	1,500 Hz	800 Hz -1 kHz	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	●	●	●

MS/MP



M18 DECOU® DC output

SA



M18 high performances with rear adjustment - DC

MV



M18 multivoltage output sensors

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

FQ

M18 sensors with
short body - DC

FF

M18 sensors for
harsh environments
- DC

FFRS

M18 sensors with
background
suppression for harsh
environment - DC

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 transparent objects	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	●	●	●



DIVERSEY ECOLAB



DIVERSEY ECOLAB

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





cubic

QM



with high performance
- DC

QF



for harsh environments
and food industry - DC

QX



miniaturized - DC

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 transparent objects	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



cubic sensors
DECOUT® - DC or AC

Q50



compact cubic
50 x 50 mm - DC or
AC/DC

FG



compact - DC or
AC/DC

RX



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
acrilic	PMMA	PMMA	PMMA
●	●	●	-
M12	M12	M12	M12





forks

FC5


photoelectric fork
for objects detection
without regulation

FC6


photoelectric fork for
objects detection with
regulation

FC7


photoelectric fork
sensors for labels
detection

dimensions	-	-	-
nominal sensing distance Sn	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

FC8



ultrasonic fork sensors
for labels detection



forks

**HI-TECH
TO TOUCH
DOWN**

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



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





Optical fibers amplifiers

SSF



M18



FS1



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 fibers	•	•	•
amplifier for glass fibers	•	•	-
DIN bar amplifier	-	-	•
output timing	-	-	-
Teach-in	•	-	-
frequency	800 Hz	1 kHz	2 kHz
emission	red	red	red
sensing distance	depending on optical fibers	depending on optical fibers	depending on optical fibers
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
cable	•	•	•
plug	M12	M12	-



FX



for DIN-rail mounting

FY



for DIN-rail mounting

10 x 31 x 60 mm	10 x 30 x 71,8 mm
-	-
•	•
•	•
•	•
-	•
•	•
1.5 kHz	ut to 25 kHz (FY2) up to 2,5 kHz (FY3)
red	red
depending on optical fibers	depending on optical fibers
•	•
-	-
-	-
•	•
•	•
-25°C...+55°C	-20°C...+55°C
IP64	IP64
PBT	PC
plastic fibre, glass fibre	plastic fibre, glass fibre
•	•
M8	pig-tail M8



DESIGNED TO OPERATE IN TIGHT PLACES

optical fibers amplifiers



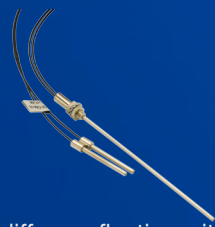
FY series

Photoelectric
sensors for DIN-rail
mounting

features

- Models with Teach-In
- Timed
- Double digital display



CF /
CA1-20diffuse reflection with
narrow beamCF /
CA4-10diffuse reflection with
sleeveCF /
RB3-20diffuse reflection with
sleeve

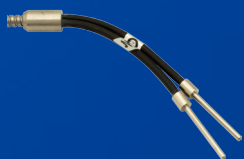
optical fibers

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

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

models	accessory type	type	SSF (mm) EX.G.=1)	FS1 (mm) X.G.=1)	FX3 (mm) X.G.=1)	FX4 (mm) X.G.=1)	F1R (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	●	AF/1S	1
AF/ER5	collimator lenses	P/R	1,000	1,000	3,000	5,000	2,200	●	AF/1S	1
AF/ER6	collimator lenses	P/R	3,500	3,500	6,000	8,000	4,500	●	AF/1S	1
AF/ER7	collimator lenses	P/R	1,000	1,000	6,000	8,000	4,500	●	AF/1S	1

CV /
CB1-**



diffuse reflection
(high temperature)

CV /
CB3-**



diffuse reflection
(high temperature)

CV /
RB6-**



diffuse reflection
(high temperature)

AF / FC1



collimator lenses

optical fibers

glass fibers 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 ⁽²⁾	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 fibers 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 ⁽²⁾	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	-

⁽¹⁾ = the last two bits of the code show the fiber length (in dm)

⁽²⁾ = 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

AA



Ø 3 mm

AB



M4

AC



Ø 4 mm

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



II3GD

AD



M5

AHS



Ø 6.5 mm

AES



M8

cylindrical
miniaturized inductive

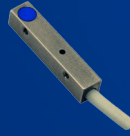
M5	Ø 6.5 mm	M8
0.8 mm	1.5 mm	1.5 mm
-	-	-
1.5 mm	2 mm	2 mm
-	-	-
-	-	-
-	-	-
•	•	•
•	•	•
-	-	-
•	•	•
•	•	•
•	•	•
•	•	•
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-25°C...+70°C	-25°C...+70°C	-25°C...+70°C
IP67	IP67	IP67
stainless steel	stainless steel	stainless steel
PBT	PBT	PBT
•	•	•
M8	M8	M8





cubic miniaturized
inductive

IL5



5 x 5 mm


IL8
IL9


8 x 8 mm



IL1



10 x 28 x 16 mm



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 pigtail (on demand)	M8	M8

IL45



40 x 40 x 65 mm

40 x 40 x 65 mm

-

-

20 mm

35 mm

-

•

-

•

-

•

•

•

•

-

-

-

-

-

-25°C...+75°C

IP67

PBT

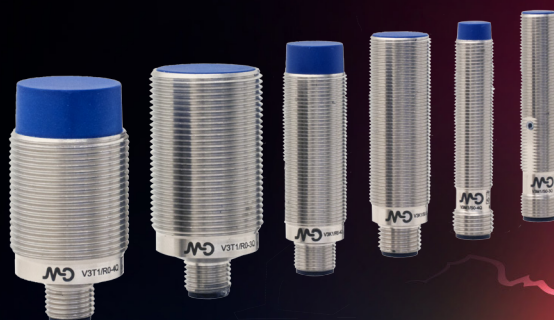
PBT

•

M12



ALTERNATING CURRENT (DIRECT QUALITY)



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

cubic miniaturized
inductive



cylindrical
inductive

AH



Ø 6.5 mm



AE



M8



AM



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

PM3



M12 DECOUT®

AK



M18

PK3



M18 DECOUT®

PMS PKS PMW PKW



IP 67/68 for harsh environments
M12 and M18 - DC

cylindrical
inductive sensors

M12	M18	M18	M12 / M18
2 mm	5 mm	5 mm	2 mm / 5 mm
4 mm	8 mm	8 mm	4 mm / 8 mm
-	8 mm	-	-
-	12 mm	-	-
•	•	•	•
-	•	-	-
-	-	-	-
•	•	•	•
-	-	-	-
-	•	-	-
-	•	-	-
-	•	-	-
-	•	-	-
-	•	-	•
-	•	-	•
•	-	•	-
-	-	-	-
-	-	-	-
-	-	-	-
-25°C...+70°C	-25°C...+70°C	-25°C...+70°C	-25°C...+70°C
IP67	IP67	IP67	IP67 / IP68
nickel plated brass	nickel plated brass	nickel plated brass	nickel plated brass (PMS,PKS) stainless steel (PMW,PKW)
PBT	PBT	PBT	PPS
•	•	•	-
M12	M12	M12	M12



cylindrical inductive
standard

ET



M12 / M18
extended
temperature range

AT



M30

VM



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

VK



M18 in CA

VT



M30 in CA

V3E



M8 AC / DC

V3M



M12 AC/DC

cylindrical inductive
standard

M18	M30	M8	M12
5 mm	10 mm	-	-
8 mm	15 mm	-	-
-	-	2	4
-	-	4	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



cylindrical inductive
standard

V3K



M18 AC / DC



V3T



M30 AC / DC



FME



M8 full metal



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



FMM



M12 full metal

FMK



M18 full metal

FMT



M30 full metal

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



PFM



M12

PFK

M18 for food and
beverage applica-
tionsAE
AM
AKM8 / M12 / M18 with
analogic outputcylindrical inductive
standard

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) or NO + NC (FMK6, FMT6)



Micro Detectors

Italian Sensors Technology



IP69K





capacitive

C12



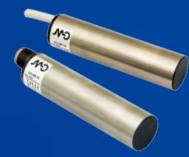
cilyndrical M12

C18



cilyndrical M18

CE



cilyndrical Ø 20

dimensions	M12	M18	M18
standard shielded	-	-	-
standard unshielded	-	-	-
long distance shielded	0,5...4 mm	3...8 mm	1,5...7,2 mm
long distance unshielded	0,5...8 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



CT



cilyndrical M30

C30

cubic
7 x 30 x 50 mm

CQ50

cubic
15 x 35 x 55 mm

CQ55



capacitive

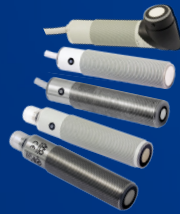
Ø 20	M30	7 x 30 x 50 mm	15 x 35 x 55 mm
10 mm	-	-	4...16 mm
-	-	-	4... 25 mm
-	2...16 mm	5 / 6 / 7 / 10 mm	-
-	4...25 mm	-	-
•	•	•	•
-	-	-	-
•	•	•	•
-	•	-	-
-	-	-	-
•	-	•	-
•	-	•	-
•	-	•	-
•	-	-	-
-	•	-	•
-	•	-	•
-	-	-	-
-	•	-	-
-	-	-	-
-	-	-	-
- 25°C...+70°C	- 25°C...+80°C	0°C...+60°C	- 25°C...+80°C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





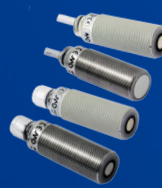
Ultrasonic

UK1 and UKR1



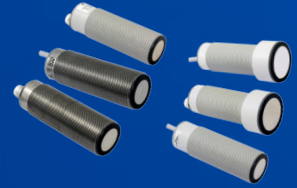
M18 cylindrical direct diffuse and retro reflective Ultrasonic sensor with Teach-in button

UK6 and UKR6



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

UT and UTR



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

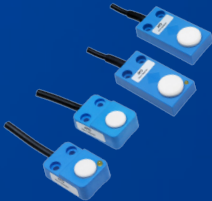
dimensions	M18	M18 - short body	M30
direct diffuse	up to 2,200 mm	up to 1,200 mm	up to 8,000 mm
retroreflective	up to 2,000 mm	up to 1,200 mm	up to 6,000 mm
through beam	-	-	-
power supply Vdc	●	●	●
power supply Vac	-	-	-
2 x PNP hysteresis function	Teach-in button	-	Teach-in button
2 x NPN hysteresis 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

UQ



cubic ultrasonics
53 x 38 x 20 mm

UH



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

53 x 38 x 20 mm	30 x 20 x 15 mm and 24 x 50 x 15 mm
up to 1,200 mm	-
up to 1,200 mm	-
-	0...300 mm 0...1.100 mm
●	●
-	-
-	1 x PNP - NO
-	1 x PNP - NC
-	1 x NPN - NO
-	1 x NPN - NC
-	-
-	-
●	-
●	-
●	-
●	-
-20°C...+70°C	-15°C...+60°C
IP67	IP67
PA	PBT
epoxy glass resin	ceramic
-	●
M12	-



FC8



ultrasonic

ultrasonic fork sensors
for label detection

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



UAB "Eibienos automatika"

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THE LIMITLESS SERIES



Ultrasonic

THE NEW ULTRASONIC WAVE



CR0


retroreflective
polarized

CR1


retroreflective
polarized

BX04 e
BX10


medium resolution

Area

dimensions	107 x 20 x 36 mm	187 x 20 x 36 mm	20 x 44 x 120 mm
sensing distance	up to 4,5 m	up to 4,5 m	up to 6 m
controlled area height	70 mm	150 mm	90 mm
beam type	retroreflective polarized	retroreflective polarized	crossed
minimum detectable object	up to 6 mm @ 2 m, 10 mm @ 4.5 mm	up to 6 mm @ 2 m, 10 mm @ 4.5 mm	up to Ø 5 mm
number of optics	4 emitters + 3 receivers	8 emitters + 7 receivers	4 / 10
optics step	10 mm	10 mm	30 / 10 mm
blanking	-	-	-
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	-10°C...+55°C	0°C...+60°C
protection degree	IP67	IP67	IP67
housing material	aluminium	aluminium	valox
head material	PMMA	PMMA	PC
cable	-	-	●
plug	pig-tail M12	pig-tail M12	M12

BX80



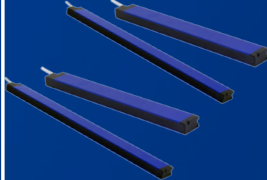
high resolution cubic housing area sensor

CX0



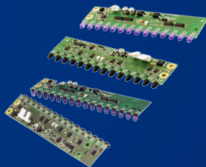
high resolution and compact housing

CX2



high resolution and compact housing with digital and analogue output

NX



medium resolution area sensors without housing

Area

20 x 44 x 120 mm	20 x 36 mm	20 x 36 mm	41 x 18 x 140...157 mm
up to 2.5 m	up to 6 m	up to 6 m	0,25-0.7...0.5-2 m
70 mm	from 160 to 320 mm	from 160 to 960 mm	from 132 mm to 150 mm
crossed / parallel	crossed	crossed / parallel	-
up to Ø 2 mm	up to Ø 3 mm	up to Ø 1 mm	up to Ø 5 mm
12	from 17 to 32	from 17 to 97	14 / 16
6 mm	5 - 10 mm	5 - 10 - 20 mm	10 mm
-	-	●	-
●	●	●	●
-	-	-	-
-	-	-	-
-	-	-	-
●	-	-	-
●	-	-	-
-	-	-	●
-	-	-	●
-	-	-	●
-	-	-	●
-	●	●	-
-	-	●	-
-	-	-	-
-25°C...+50°C	-10°C...+55°C	-10°C...+55°C	0°C...+55°C
IP67 / IP69K	IP67	IP67	undefined
valox	aluminium	aluminium	-
PC	PMMA	PMMA	-
●	-	-	-
M12	pig-tail M12	pig-tail M12	MOLEX 22-05-7048



control unit and photocells

SBCR03



control unit Type 2

SH-IA/IC TH-IA/IC



photocells Type 2 and
Type 4

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-IC and TH-IC)
manual restart	●	conn. to SBCR03 (SH-IA and TH-IA), conn. to ctrl. unit cat.2 and 4 (SH-IC and TH-IC)
EDM	●	conn. to SBCR03 (SH-IA and TH-IA), conn. to ctrl. unit cat.2 and 4 (SH-IC and TH-IC)
double muting	●	conn. to SBCR03 (SH-IA and TH-IA), conn. to ctrl. unit cat.2 and 4 (SH-IC and TH-IC)
type	2 (EN 61496-1/-2), PL c (EN ISO 13849-1), SIL CL 1 (EN 62061 - IEC 61508)	2 (SH-IA, TH-IA), 2/4 (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

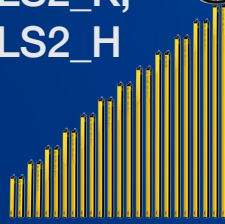


Micro Detectors

Italian Sensors Technology

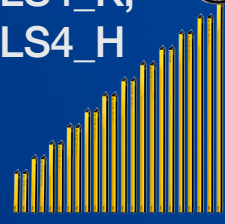


LS2,
LS2_K,
LS2_H



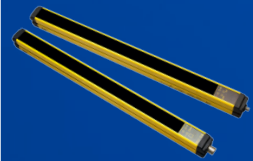
light curtains Type 2
according to
IEC 61496-1 and 2

LS4,
LS4_K,
LS4_H



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

LP4ER

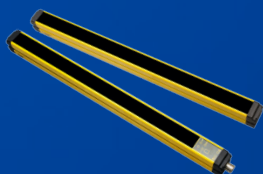


light curtains Type 4

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 (IP69K)	0...3/1...6 m (res. 14 mm) - 0...4/0...12 m (std) 0...10/3...20m (L vers.) - 0...2/1...5m (14 mm IP69K) - 0...8/3...17 m (IP69K)	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 pins (rece.)



LP4PF



light curtains Type 4

LP4ER_M



light curtains Type 4

LP4PT



light curtains Type 4

cubic 50 x 60 mm,	cubic 50 x 60 mm,	cubic 50 x 60 mm,
0...6 m	0...6 / 1...16 m select. 8...30 / 18...60 m select.	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 (riceiv.)	M12, 8 wires (sens muting male), M23, 19 wires (active element)

Relay modules



SB300



Relay module : 2 x NO

SB400 SB400M



Relay module with functions:

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





Applicative

VBR



vibrations and
inclination sensor

INC



vibrations and
inclination sensor

VBR3



vibrations and
inclination sensor

dimensions	M18	M18	50 x 75 x 19,5 mm
power supply voltage	24 Vdc $\pm 20\%$	24 Vdc $\pm 20\%$	24 Vdc $\pm 20\%$
sensing range	± 16 g (max.)	± 16 g (max.)	± 16 g (max.)
resolution	15,62 mg @ ± 2 g, 31,25 mg @ ± 4 g, 62,5 mg @ ± 8 g, 125 mg @ ± 16 g,	0,025° (0...360°)	16 bit
accuracy	-	-	-
number of measurement axis	3 (X, Y, Z)	1	3 (X, Y, Z)
frequency range	0...400 Hz (VBR1) 0...1.200 (VBR2)	-	0...400 Hz 0...1.500 Hz
switching frequency	-	-	-
output type	RS-485 (addressable) + analogic 4...20 mA / 0...10 V (programmable)	RS-485 (addressable) + analogic 4...20 mA / 0...10 V (programmable)	CAN RS-485 (addressable) - analogic 4...20 mA / 0...10 V (programmable)
technology	MEMS	MEMS	MEMS
emission	-	-	-
wave length	-	-	-
temperature range	-25°C...+70°C	-25°C...+70°C	-25°C...+70°C
protection degree	IP67 / IP68	IP67 / IP68	IP67 / IP68
housing material	stainless steel	stainless steel	zama
head material	stainless steel	stainless steel	-
cable	5 wires	5 wires	-
plug	pig-tail M12 5 wires	pig-tail M12 5 wires	M12 - 4, 5 and 8 wires



INC4



vibrations and
inclination sensor

TFKI



time of flight
miniaturized sensor

TFKR



time of flight
miniaturized sensor

TFKV



time of flight
miniaturized sensor

applicative

50 x 75 x 19,5 mm	M18	M18	M18
24 Vdc ±20%	10 - 30 VdC	10 - 30 VdC	10 - 30 VdC
2 g	0...2.000 mm (white 90%)	0...1.500 mm (white 90%)	0...1.500 mm (white 90%)
0,025° (±90°)	-	-	-
-	10 mm @ 1 m	10 mm @ 1 m	10 mm @ 1 m
1, 2	-	-	-
-	-	-	-
-	5 Hz	5 Hz	5 Hz
CAN RS-485 (addressable) - analogic 4...20 mA / 0...10 V (programmable)	digital, analog (voltage or current), IO-Link	digital, analog (voltage or current), IO-Link	digital, analog (voltage or current), IO-Link
MEMS	-	-	-
-	infrared LED	red LED	Vsel IR (class IM)
-	850 nm	630 nm	850 nm
-25°C...+70°C	-20°C...+70°C	-20°C...+70°C	0°C...+50°C
IP67 / IP68	IP67	IP67	IP67
zama	PBT / nickel plated brass	PBT / nickel plated brass	PBT / nickel plated brass
-	PMMA	PMMA	PMMA
-	-	-	-
M12 - 4, 5 and 8 wires	M12 4 and 5 wires	M12 4 and 5 wires	M12 4 and 5 wires





Applicative

TFM



time of flight
miniaturized sensor

ITS



temperature sensor

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





FL



carwash sensor

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	-



VIBRATION SENSOR

applicative



VBR series Vibration sensor



features

- frequency range: 0...400 Hz e 0...1.200 Hz
- communication RS485
- programmable analogue output
- selectable full range $\pm 2g$, $\pm 4g$, $\pm 8g$, $\pm 16g$
- stainless steel housing AISI 316L
- MEMS tri-axial technology



Applicative

UR


control unit for
miniaturized sensors


DG


miniature photoelectric
sensors


LDL


luminescence scanner
M18 - DC



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



luminescence scanner M30 - DC

LTB



contrast scanner M18 - DC

FC3



dual beams photo-electrics slot sensor for sensor edge detection

FC4

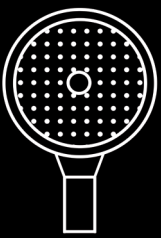


four beams fork sensor for belt tracking control

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





Encoders

MDI 40 A



miniaturized Ø 42 mm encoder series for general factory automation applications

MDI 58 B / C



standard ø 58 mm encoder series for industrial applications with high mechanical resistance requirements

MDI 63 A / D



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

bearings	2	2	2
bearings life	10 ⁹ revolutions	10 ⁹ revolutions	10 ⁹ 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)	•	•	•



MDI 38 F / G



miniaturized Ø 38 mm
encoder for general
factory automation
applications

MDI 58 F / G - 63 F/G

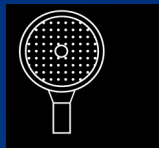


standard ø 63 encoder
series for industrial
applications with high
mechanical resistance
requirements

ENCODING SOLUTIONS

Encoder

2	2
10 ⁹ revolutions	10 ⁹ 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)
•	•



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





installation accessories

ST 18-S



fixing bracket for M18
sensors

ST 08-A



metal axial mounting
bracket for M8
cylindrical sensors

ST 02



plastic swing bracket

universal accessories

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

Accessories for M8 cylindrical Sensors

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

Accessories for M12 cylindrical Sensors

model	description	suitable for
ST04	plastic swing bracket	M12 cylindrical sensors
ST12-A	metal axial mounting bracket	M12 cylindrical sensors
ST12-A7W	stainless steel AISI316L (DIN 1.4404) axial mounting bracket	M12 cylindrical sensors
ST12-C	right angle mounting bracket	M12 cylindrical sensors
ST12-C7W	stainless steel AISI316L (DIN 1.4404) right angle mounting 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

ST29



M18 metal ring nuts

ST 18-C



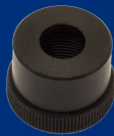
metal right angle mounting bracket

STF-12



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

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 mounting bracket	M18 cylindrical sensors
ST18-A7W	stainless steel AISI316L (DIN 1.4404) axial mounting bracket	M18 cylindrical sensors
ST18-C	metal right angle mounting bracket	M18 cylindrical sensors
ST18-C7W	stainless steel AISI316L (DIN 1.4404) right angle mounting bracket	M18 cylindrical sensors
STC-18	mounting bracket for cylindrical rod $\varnothing 12 \div 20$ mm	M18 cylindrical sensors
STI8-V	radial fixing bracket for M18 sensors	M18 cylindrical sensors
STI8-S	mounting bracket	M18 cylindrical sensors
STF12...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

ST 13



accessories suitable for
M30 cylindrical sensors

ST 30-C



accessories suitable
for M30 cylindrical
sensors

ST 103



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 mounting bracket	M30 cylindrical sensors
ST30-C	metal right angle mounting 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

ST 03-U



plastic beam deflector for ultrasonic cylindrical sensors

SB300



force guided relay module

SB400



safety light Curtains

SB400M



safety module with integrated Muting function

accessories for Ultrasonic Sensors

model	description	suitable for
ST 03-U	beam deflector	M18 cylindrical sensors
STOUK	sound tube	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 mounting bracket	Area Sensors
ST 18 - C	metal right angle mounting 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 43650 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 1,360 mm	LP4 series
STCL20	protective column barrier basement for barriers with controlled height up to 1,660 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

ST AX



column barrier
basement for up to
4 beams barriers

SLA CL



column with mirror for
2 beams safety light
curtain

SL 015



mirror for 160 mm
protected height

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
STCLSBP	protective column barrier basement for barriers with lug PG11 for barriers with 2 beams	LS2 and LS4 series
STCLSCP	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 3 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

STL 01 P



laser pointer for LP
safety light Curtain

STL 01 S



laser pointer for LS
safety light Curtain

ST VP 4



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

ST VP 6



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

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

⁽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 ⁽²⁾	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 (1)
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	-	-	-	-	-	SPP
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												protection degree ⁽²⁾
acrylic / polycarbonate												material



reflectors

RL 102



polarized and
retroreflective
sensors

RL 105G



polarized and retro-
reflective sensors

RL 106G



polarized and retro-
reflective sensors

RL 098

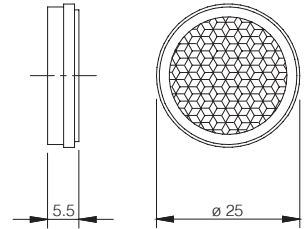


Not usable with polarized sensors

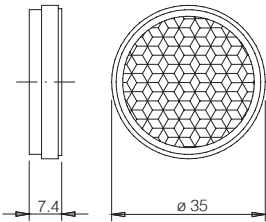
RL100DCR0 / RLAGV / RL100DA4 / RL100DC4 /
RL100DQ1 / RL100D



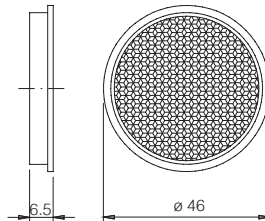
RL102



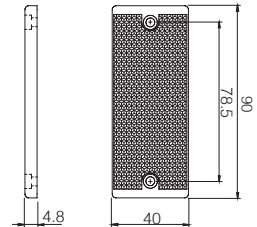
RL 103



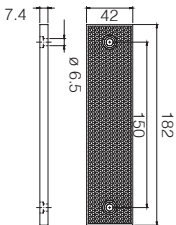
RL 104



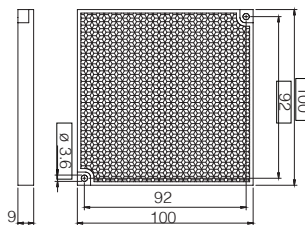
RL 105G



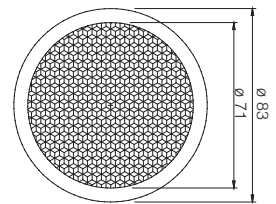
RL 106G



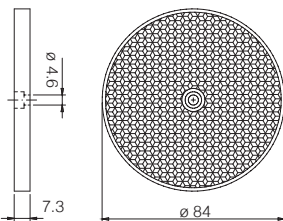
RL 107



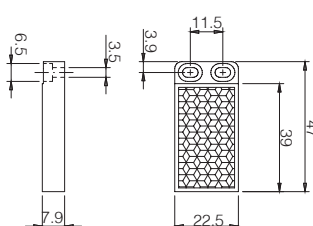
RL 109 G



RL 110



RL 111G



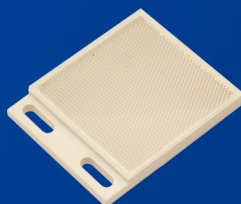
All unit values are expressed in mm.

RL 131



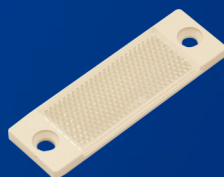
polarized and retro-reflective sensors

RL 202



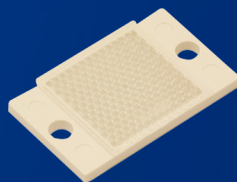
LASER sensors

RL 203



LASER sensors

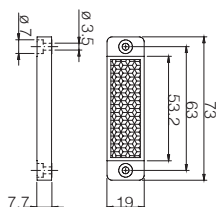
RL 204



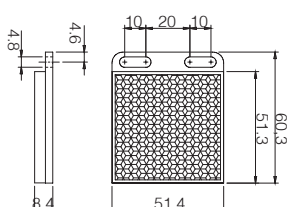
LASER sensors

reflectors

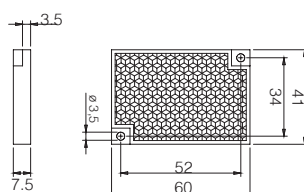
RL 112G



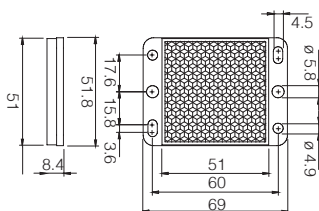
RL 113G



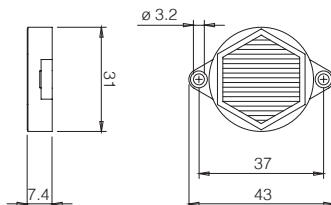
RL 116



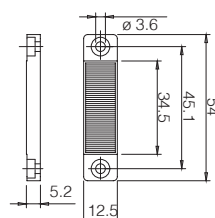
RL 130



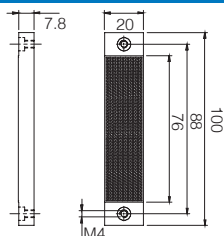
RL 131



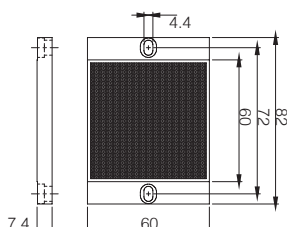
RL 133



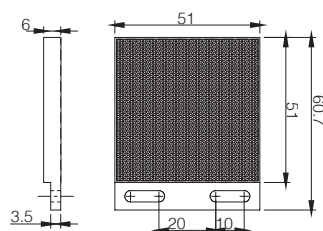
RL 135



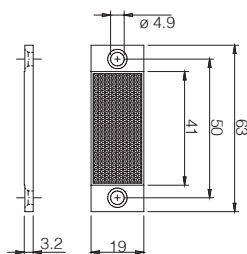
RL 201



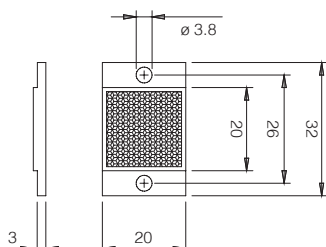
RL 202



RL 203



RL 204



All unit values are expressed in mm.



connectors

CD08/
0B-****1connector with PVC
cableCD08/
0A- ****5connectors with
PUR cableCL12/
0B-00Aconnector without
cable

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		CD12M/AA-***A1	CD12M/AA-***C1	
	4		CD12M/0B-***A1	CD12M/0B-***C1	
	3 NO-NPN	2	-	CD12M/NA-***C1	
	3 NO-NPN			CD12M/PA-***C1	
	4 NO/NC-PNP			CD12M/VB-***C1	
	4 DECOUT®	Bi-led		CD12M/DB-***C1	

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		CD12M/AA-***A5	CD12M/AA-***C5	
	4		CD12M/0B-***A5	CD12M/0B-***C5	
		3	-	CD12M/LB-***C5	5 - 10
	5	-	CD12M/0H-***A5	CD12M/0H-***C5	2 - 5 - 10
	8		CD12M/0X-***A5	-	5 - 10 - 15
M12 (AC)	3		CD12M/AC-050A5	CD12M/AC-050C5	5

connectors without cable

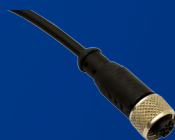
plug	type	fixing	nr. of wires	axial	right angle
M8	male	spring terminals	3	CV08/1A-00A	-
			4	CV08/1B-00A	-
		screw terminals	3	CV08/0A-00A	-
			4	CV08/0B-00A	-
	female	spring terminals	3	CL08/1A-00A	-
			4	CL08/1B-00A	-
		screw terminals	3	CL08/0A-00A	-
			4	CL08/0B-00A	-
M12	male			4	CV12/0B-00A
	female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

CDV-55

in line plug connectors,
ø 5.5 mm

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

extension cable

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

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

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

connectors with
UR cable and
cCSAus certification

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.

connectors with IP69K cable for Food & Beverage applications					
plug	nr. of wires	led	axial	right angle	length (m)
M8	3	-	CD08F/0A-***A4	CD08F/0A-***C4	5 - 10
	4		CD08F/0B-***A4	CD08F/0B-***C4	
M12			CD12F/0A-***A4	CD12F/0A-***C4	
		3	CD12F/0B-***A4	CD12F/0B-***C4	

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	

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