



Applicative Sensors







VBR series

Vibrations and inclination sensor



features

- M18 housing
- AISI316L stainless steel housing (front included)
- IP67 protection degree



web contents



- Application notes
- Photos
- Catalogue / Manuals



code description

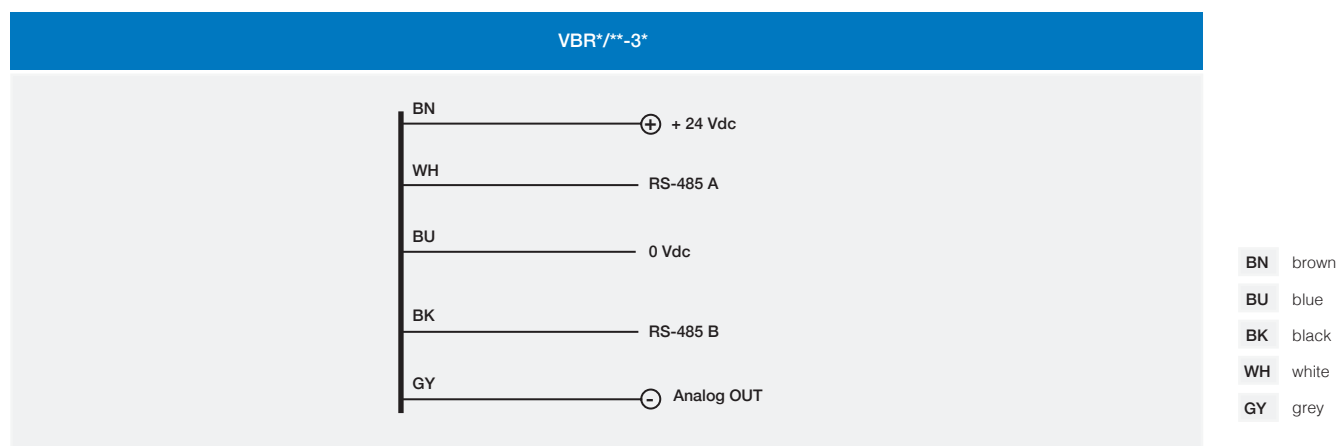
	VBR	1	/	D	0	-	3	A
series	VBR	Vibrations and inclination sensor						
housing	1	M18 short housing, f = 0...400 Hz						
	2	M18 short housing, f = 0...1,250 Hz						
exit	D	RS485 programming						
	0	RS485 + analogue output						
	3	Full AISI316L housing						
connect.	A	Cable exit						
	V	M12 pigtail cable exit						



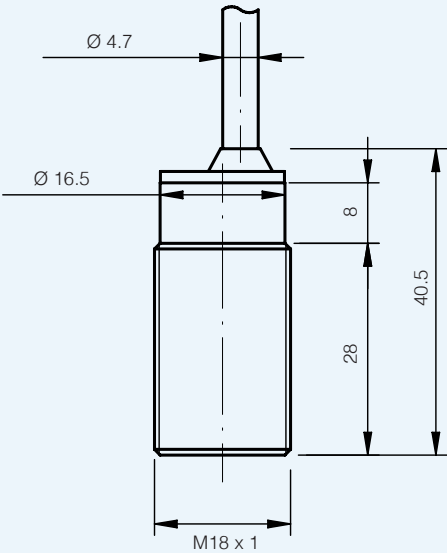
technical specifications

	VBR1/D0-3*	VBR2/D0-3*
operating voltage	24 Vdc +/- 20%	
power consumption	< 1 W	
operative range	+/- 16 g (MAX)	
resolution	15.62 mg @ +/- 2 g 31.25 mg @ +/- 4 g 62.50 mg @ +/- 8 g 125 mg @ +/- 16 g	
detection axes	3 (X, Y, Z)	
frequency range	0...400 Hz	0...1,250 Hz
technology	MEMS (Micro Electro-Mechanical Systems)	
digital output	RS-485 (addressable) 57600 Baud rate - 1 bit stop - parity	RS-485 (addressable) 921600 Baud rate - 1 bit stop - parity
resolution digital output	16 bit @ RS-485 (complementary to 2) 12 bit @ analogue output	
voltage analogue output	0..5 V / 0..10 V (programmable)	
current analogue output	4..20 mA / 0..20 mA / 0..24 mA (programmable)	
load resistor (voltage)	1k...1M Ohm	
load resistor (current)	100...500 Ohm	
humidity	< 80 % without freeze	
temperature range	-25° C...+ 70°C	
storage temperature	-30°...+90°C without freeze	
electrical protections	polarity reversal transient	
protection degree	IP 67 (EN60529)	
housing material	AISI316L PA12	
connections	cable 5 poles pig Tail M12 5 poles	
dimensions	M18	
weight	100 gr	

electrical diagrams of connections

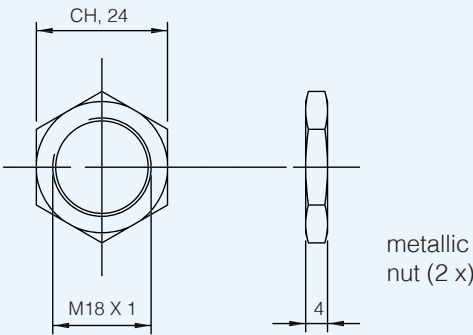


VBR*/**-3*



dimensions (mm)

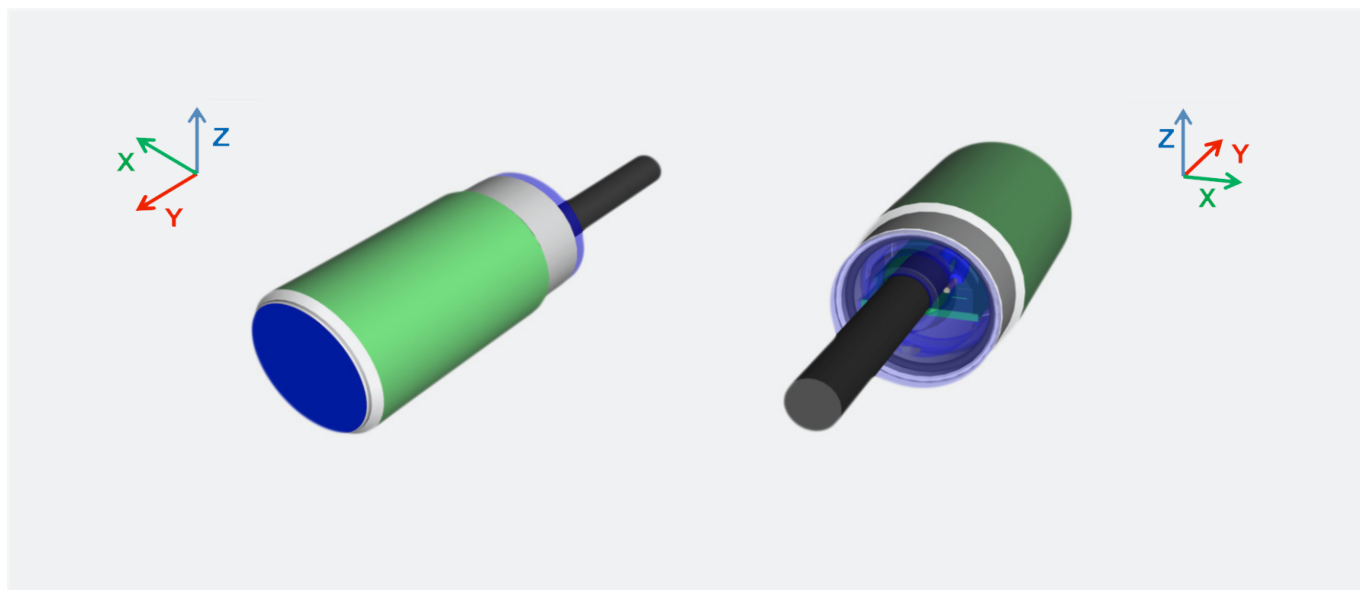
accessories included





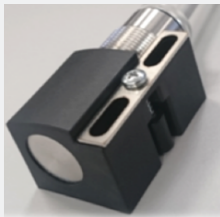
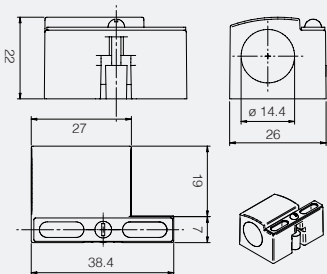
axes directions

Vibrations and inclination

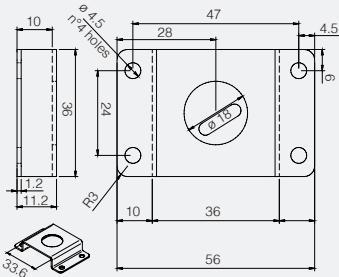


accessories

bracket ST 18 - S

product	to be used with	dimensions (mm)	description / installation
	VBR series		fixing bracket for M18 sensors

bracket ST 18 - V

product	to be used with	dimensions (mm)	description / installation
	VBR series		fixing bracket for M18 sensors

connection cables

CD12M/0H-050A5 (PUR, 5 m) CD12M/0H-100A5 (PUR, 10 m)
CD12S/0H-050A1 (PVC, shielded, 5 m) CD12S/0H-100A1 (PVC, shielded, 10 m)

VBR



INC series

Inclination sensor



Inclination sensor

features

- M18 housing
- AISI316L stainless steel housing (front included)
- IP67 protection degree



web contents



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- Photos
- Catalogue / Manuals



code description

INC 1 / D 0 - 3 A

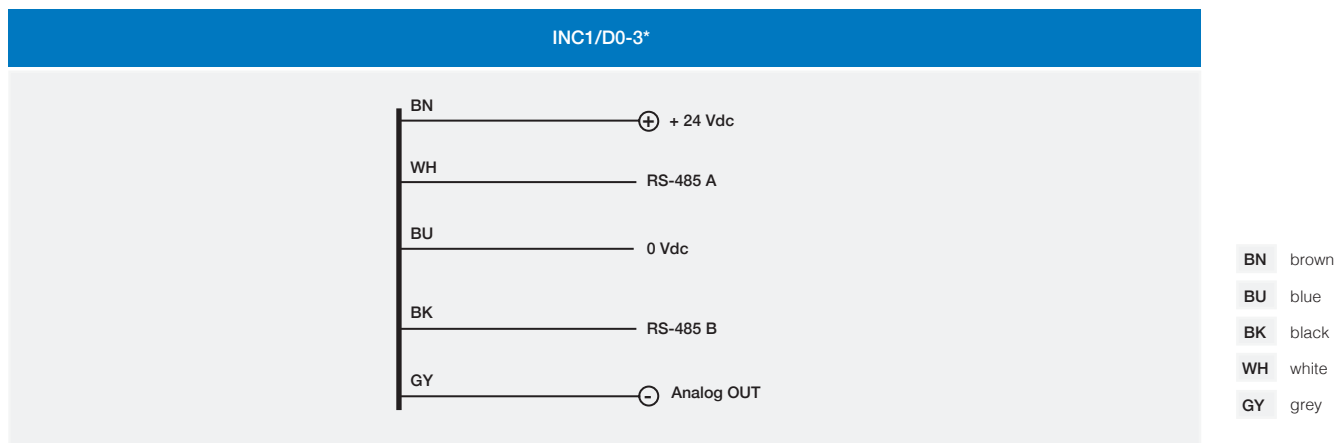
series	INC	Inclination sensor
housing	1	M18 housing
	D	RS485 programming
exit	0	RS485 + analogue output
	3	Full AISI316L housing
conness.	A	Cable exit
	V	M12 pigtail cable exit



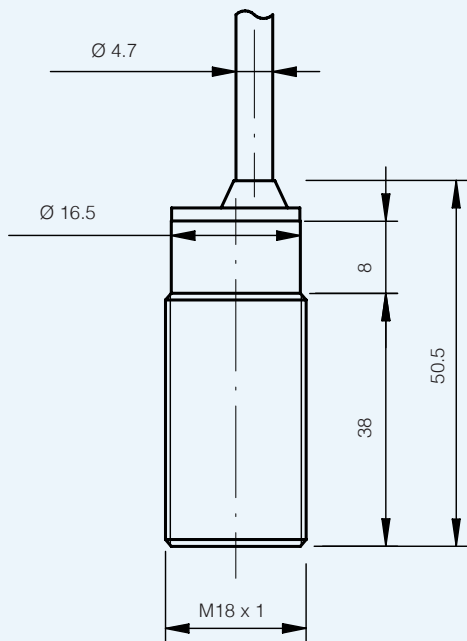
technical specifications

	INC1/D0-3*
operating voltage	24 Vdc +/- 20%
power consumption	< 1 W
operative range	360°
resolution	0,025° @ RS-485
detection axes	1
frequency range	< 3 msec
technology	MEMS (Micro Electro-Mechanical Systems)
digital output	RS-485 (addressable) 57600 Baud rate - 1 bit stop - parity
MEMS resolution digital output	14 bit
resolution digital output	12 bit
voltage analogue output	0..5 V / 0..10 V (programmable)
current analogue output	4..20 mA / 0..20 mA / 0..24 mA (programmable)
load resistor (voltage)	1k...1M Ohm
load resistor (current)	100...500 Ohm
humidity	< 80 % without condensation
temperature range	-25° C...+ 70°C
storage temperature	-30°...+90°C without freeze
electrical protections	polarity reversal transient
protection degree	IP 67 (EN60529)
housing material	AISI316L PA12
connections	cable 5 poles pig Tail M12 5 poles
dimensions	M18
weight	100 gr

electrical diagrams of connections

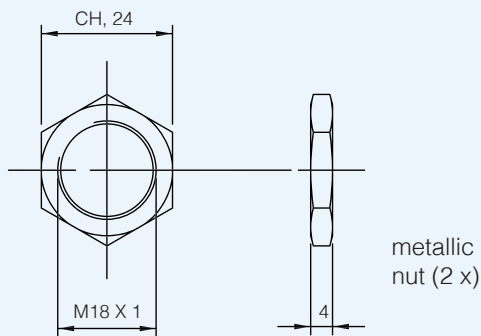


INC1/D0-3*

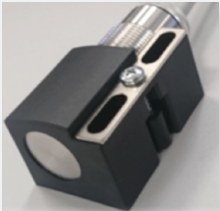
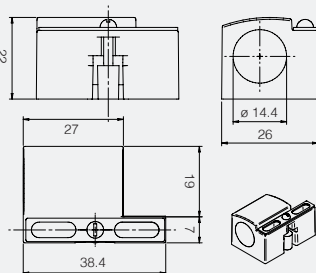


dimensions (mm)

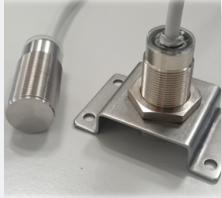
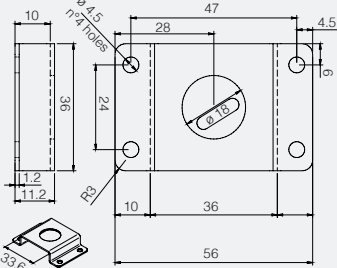
accessories included



bracket ST 18 - S

product	to be used with	dimensions (mm)	description / installation
	VBR series INC series		fixing bracket for M18 sensors

bracket ST 18 - V

product	to be used with	dimensions (mm)	description / installation
	VBR series INC series		fixing bracket for M18 sensors

connection cables

CD12M/0H-050A5 (PUR, 5 m) **CD12M/0H-100A5** (PUR, 10 m)
CD12S/0H-050A1 (PVC, shielded, 5 m) **CD12S/0H-100A1** (PVC, shielded, 10 m)



TFM Series

Time of flight miniaturized Sensor



Time of flight
miniaturized Sensor

features

- Completely filled with resin
- 2 Digital Outputs (Lon)
- Switching Frequency from 10 Hz to 80 Hz
- Infrared Laser emission (class 1)
- Wide angle emission
- Output selectable : PNP or Pushpull
- Resolution from 1 to 3 mm
- IP67 protection degree and complete protection against electrical damages

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code description

			TF	M	1	/	0	P	-	0	V
series	TF	Sensor with Time of flight									
shape	M	Miniaturized									
range	1	180 mm (Low range)									
	2	350 mm (Medium range)									
	4	600 mm (High range)									
	A	180 mm or 600 mm (Low or High range)									
switching frequency	0	Switching frequency selectable (10 Hz or 80 Hz)									
	1	10 Hz									
	3	27 Hz									
	8	80 Hz									
output logic	P	PNP									
	X	Pushpull									
housing	0	Plastic housing PA66									
connect.	V	Pig-tail M12 with cable lenght 20 cm									

available models

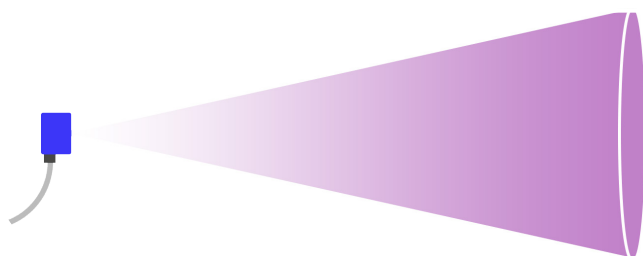
distance	output type	switching frequency	code
0...180 mm (default) 0...600 mm	pushpull	810 (default) / 80 Hz	TFMA/0X-0V
	PNP		TFMA/0P-0V
0...180 mm	pushpull	10 Hz	TFM1/1X-0V
0...600 mm			TFM4/1X-0V
0...180 mm			TFM1/8X-0V
0...180 mm	PNP	10 Hz	TFM1/1P-0V
0...600 mm			TFM4/1P-0V
0...180 mm			TFM1/8P-0V
0...360 mm	pushpull	27 Hz	TFM2/3X-0V
	PNP		TFM2/3P-0V



technical specifications

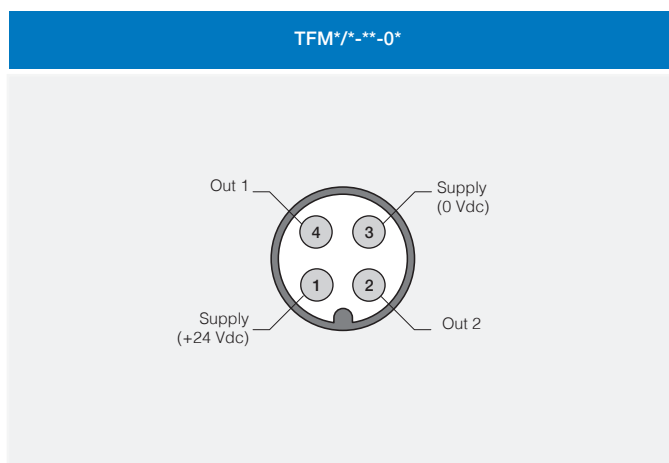
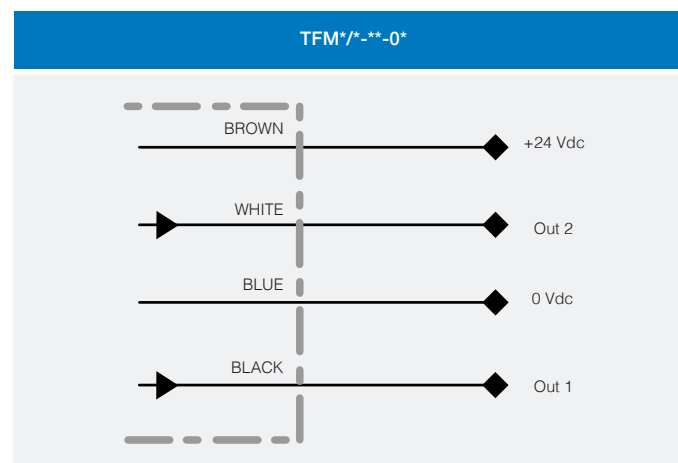
	TFM1/1*-0V	TFM4/1*-0V	TFM2/3*-0V	TFM1/8*-0V
detection range	0...180 mm (white 90% - gray 18% - black 6%)	0...600 mm (white 90%) 0...350 mm (gray 18%) 0...300 mm (black 6%)	0...360 mm (white 90%) 0...240 mm (gray 18%) 0...200 mm (black 6%)	0...180 mm (white 90%) 0...140 mm (gray 18%) 0...110 mm (black 6%)
resolution	1 mm	3 mm	2 mm	1 mm
hysteresis	± 4 mm	± 6 mm	± 12 mm	± 12 mm
emission	LASER infrared 850 nm (LASER class1)			
spot dimension	divergent (25°) wide angle			
operating voltage	24 Vdc ± 20%			
ripple	< 10%			
no-load current	< 40 mA			
output current	50 mA			
leakage current	≤ 10 µA (Vdc max.)			
output voltage drop	2.0 V max. (II = 50 mA)			
output type	2 outputs selectable: PNP / Pushpull			
switching frequency	≤ 10 Hz		≤ 27 Hz	≤ 80 Hz
supply electrical protections	polarity reversal, transient			
output electrical protections	short circuit (auto reset), over voltage pulses			
temperature range	-10°...+50° C			
temperature storage	-30°...+90° C			
umidity	< 80%			
interference to external light	TBD			
standard conformity	EN60947-5-2			
housing material	plastic (PA66) + ABS			
optic material	glass			
LED indicators	Green : RUN (sensor working, target inside the detection distance) Orange 1 : OUTPUT 1 Red: WARNING : target out of operative range Yellow 2 : OUTPUT 2			
protection degree	IP67			
weight	26 g (pig-tail version)			

spot diameter

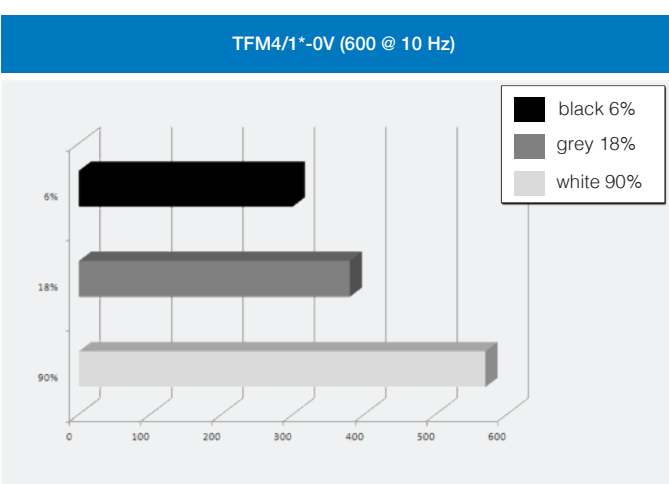
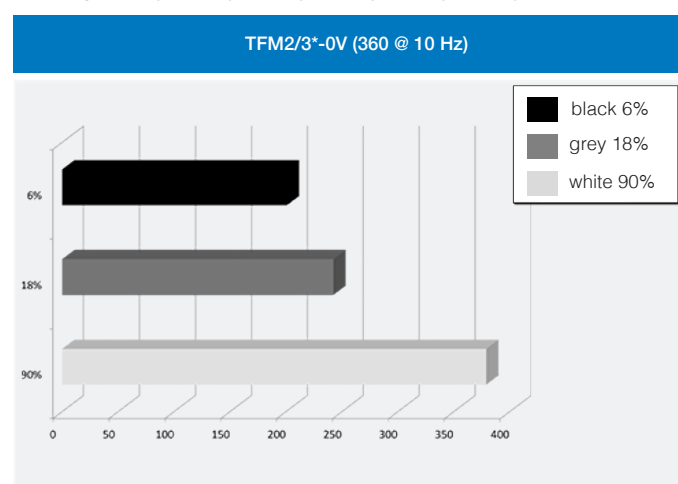
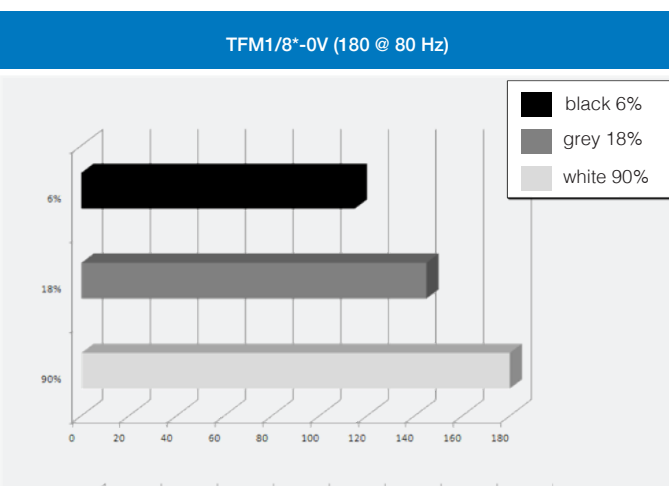
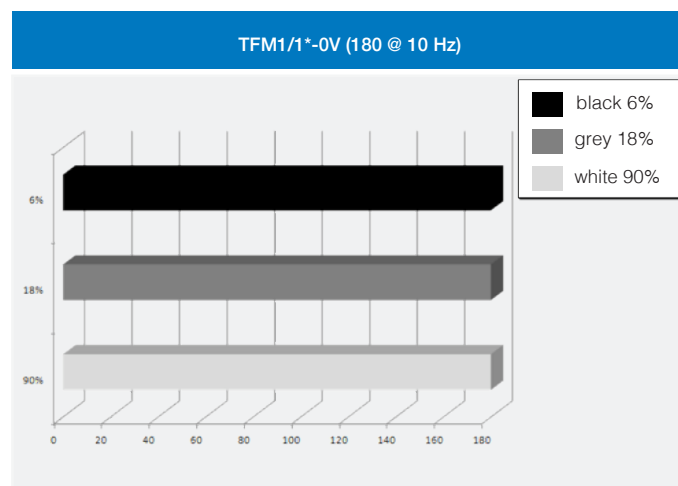


distance (mm)	spot dimension (mm)
50	22
100	44
200	88
300	133
400	177
500	222
600	240

electrical diagrams of the connections plug



response diagrams

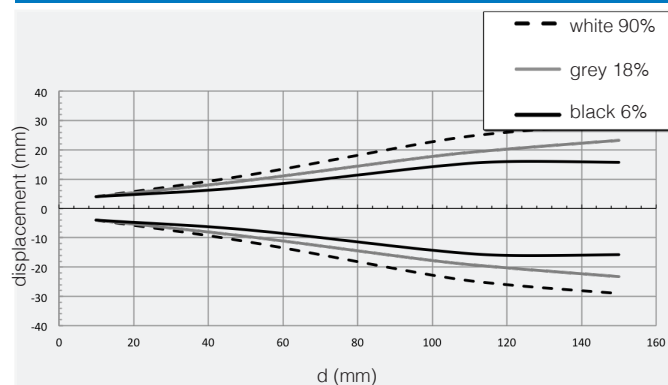




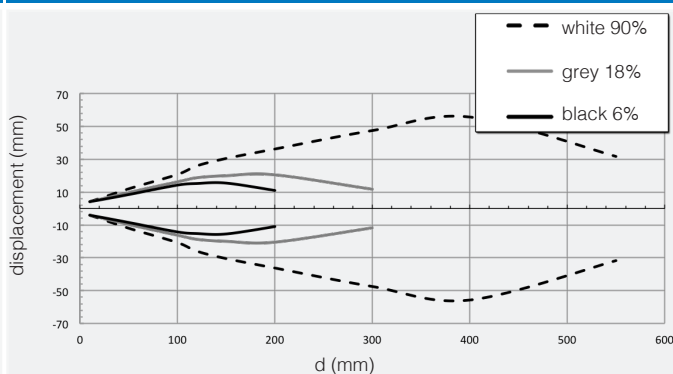
response diagrams

Time of flight
miniaturized Sensor

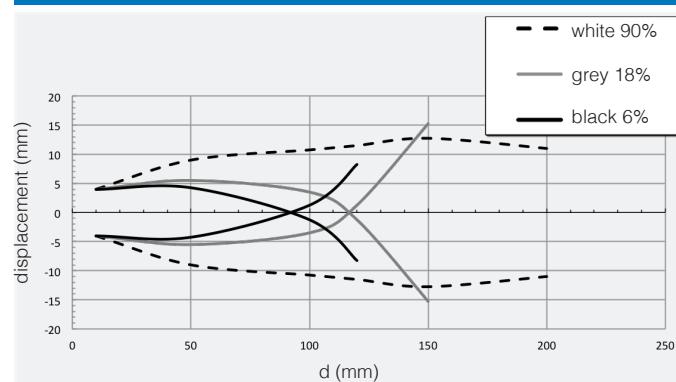
TFM1/1*-0V (180 mm @ 10 Hz)



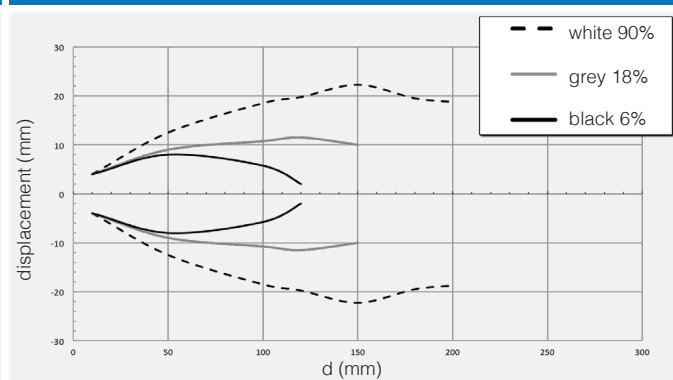
TFM4/1*-0V (600 mm @ 10 Hz)



TFM1/8*-0V (180 mm @ 80 Hz)

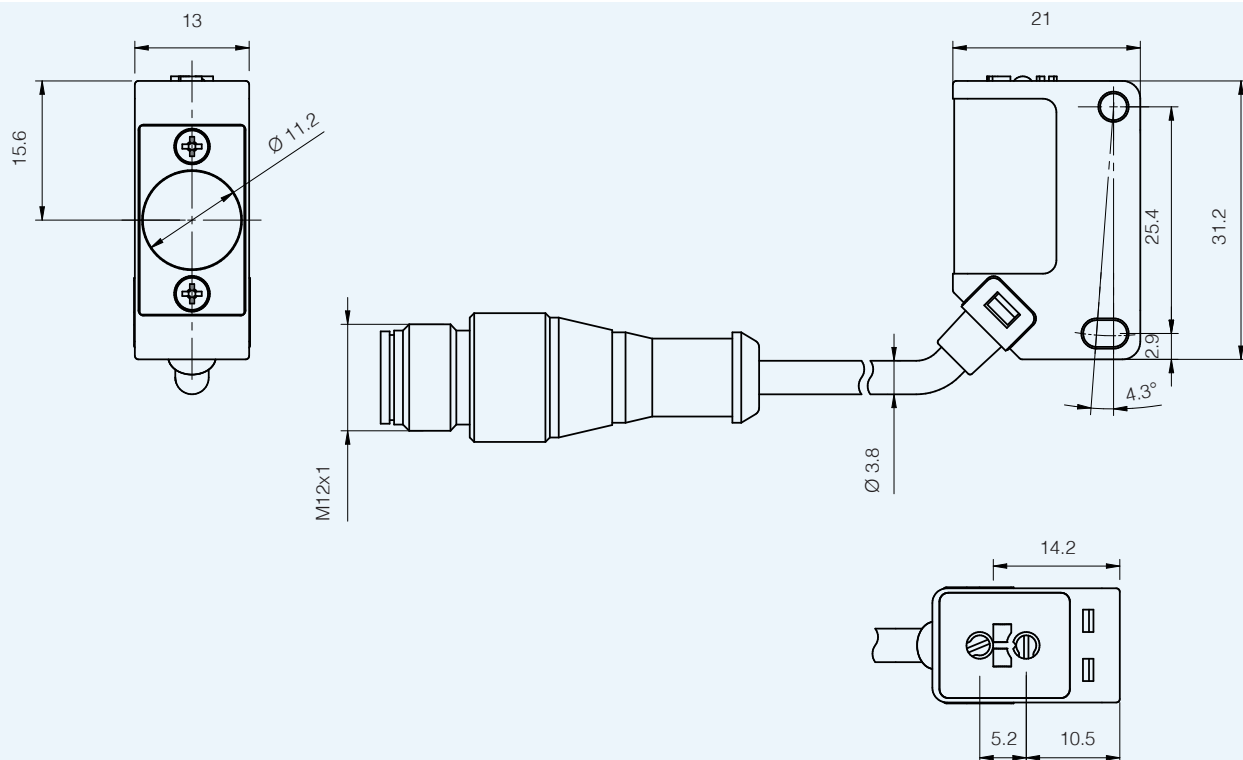


TFM1/8*-0V (180 mm @ 80 Hz)



dimensions (mm)

TFM*/*-**-0*



TFM



UR series

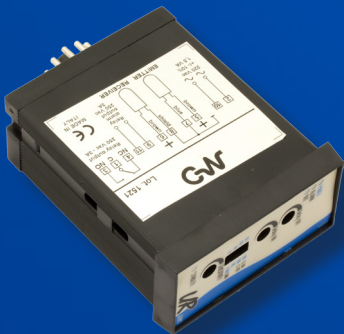
Control unit for miniaturized sensors



Control unit for
miniaturized sensors

features

- The unit allows the mouting of miniature pair of sensors suitable for very harsh environments (DG series)
- LED indicators: alignment (stability), operating voltage, alarm and output state
- Operating voltage AC or DC
- Relay output and relay alarm output
- Double timer with indipendent adjustments
- Sensitivity adjustment
- Possibility of mounting on panel



web contents



- Application notes
- Photos
- Catalogue / Manuals



code description

	UR	A	/	0	A
series	UR	Amplifier unit (Undecal mounting)			
supply voltage	A	Operating voltage 24 Vdc			
	D	Operating voltage 24 Vac			
trimer	0	Without timer			
	T	With timer			
output	0	Relay, without alarm output			
	A	Relay, with alarm output			

available models

supply voltage	relay without alarm output		relay with alarm output	
	with timer	without timer	with timer	without timer
24 Vdc	URA/T0	URA/00	URA/TA	URA/OA
24 Vac	URD/T0	URD/00	URD/TA	URD/OA



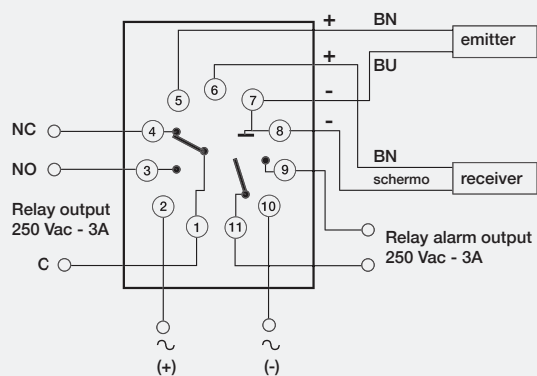
technical specification

Control unit for
miniaturized sensors

	URA/**	URD/**
operating voltage	24 Vdc	24 Vac
frequency	-	50...60 Hz
ripple	≤ 10 %	-
voltage tolerance	± 20 %	+ 10 %...- 15 %
no-load supply current	≤ 100 mA	1,5 VA
operating output	relè NO + NC	
alarm output	relè NO	
max. output voltage	250 V	
max. output current	3 A (resistive load)	
temperature range	- 10°C...+ 50°C (without freeze)	
switching frequency	10 Hz	
electrical life	1.5 x 10 ⁵ operations	
timer functions	3s delay ON and delay OFF selectable with Dip-switch and adjustables separately	
operating time (relay de-energized)	40 ms max	
reset time (relay energized)	40 ms max	
protection degree	IP20 (EN60529)	
EMC	conforming to the EMC directive according with EN 60947-5-2	
LED indicators	green (supply), red (output state), green (stability), red (alarm)	
housing material	Noryl 90 V - 0	
weight (approximate)	110 g	

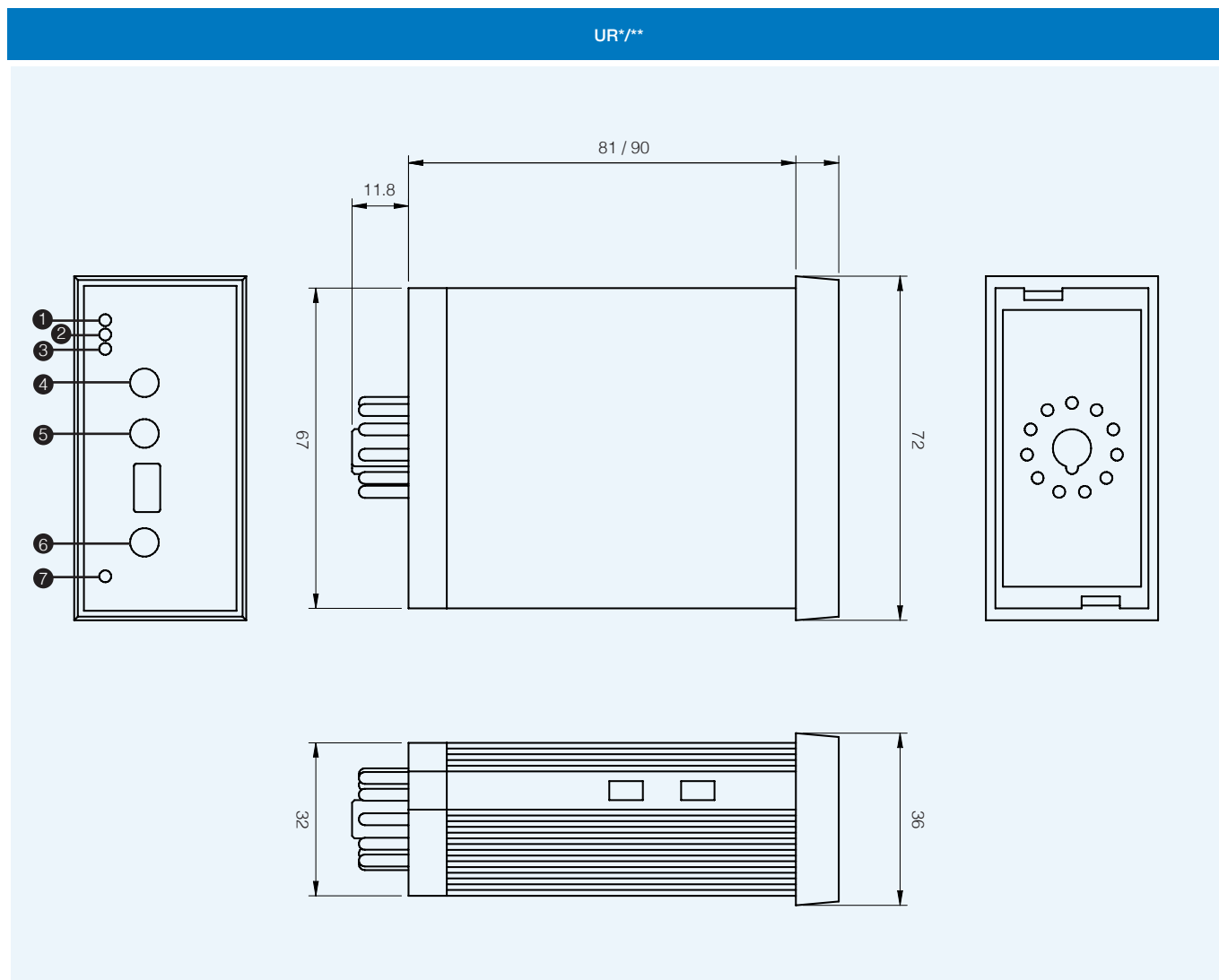
electrical diagrams of the connections

UR*/**



BN brown
BU blue
BK black
WH white
PK pink
GY gray

UR



Holes dimensions for mounting on panel: 68x33 mm.

Undecal Socket (STZ3) supplied separately.

Legend:

- ① Green LED (supply)
- ② Red LED (alarm)
- ③ Red LED (output state)
- ④ Delay OFF adjustment trimmer
- ⑤ Delay ON adjustment trimmer
- ⑥ Sensitivity adjustment trimmer
- ⑦ Green LED (stability)



notes

Control unit for
miniaturized sensors

DG



DG series

Miniature photoelectric sensors



Photoelectric sensors
with preamplifier

features

- IP68 photoelectric sensors for applications in harsh environment
- Sensing distance 60 m (HI), 30 m (LO)
- Approvals: CE



web contents



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code description

DG E / 0 0 - 0 A

series	DG	Miniaturized sensors Ø 10 mm
emitter / receiver	E	Emitter
	R	Receiver
type	0	Emitter and receiver with preamplifier
	0	46 mm (only available in aluminium)
	1	41 mm (only available in polycarbonate and in M12 steel)
	2	36 mm (only available in polycarbonate and in M12 steel)
housing materials	0	Polycarbonate housing ø10 mm
	1	Aluminium housing with glass optic ø10 mm
	2	M12 steel housing
cable length	A	5 m cable
	B	10 m cable
	C	15 m cable

available models

housing	housing length (mm)	emitter			receiver		
		5 m cable	10 m cable	15 m cable	5 m cable	10 m cable	15 m cable
polycarbonate housing ø10 mm	41	DGE/01-0A	DGE/01-0B	DGE/01-0C	DGR/01-0A	DGR/01-0B	DGR/01-0C
	36	DGE/02-0A	DGE/02-0B	DGE/02-0C	DGR/02-0A	DGR/02-0B	DGR/02-0C
aluminium housing with glass optic ø10 mm	46	-	DGE/00-1B	DGE/00-1C	-	DGR/00-1B	DGR/00-1C
M12 stainless steel	41	DGE/01-2A	DGE/01-2B	DGE/01-2C	DGR/01-2A	DGR/01-2B	DGR/01-2C
	36	DGE/02-2A	DGE/02-2B	DGE/02-2C	DGR/02-2A	DGR/02-2B	DGR/02-2C

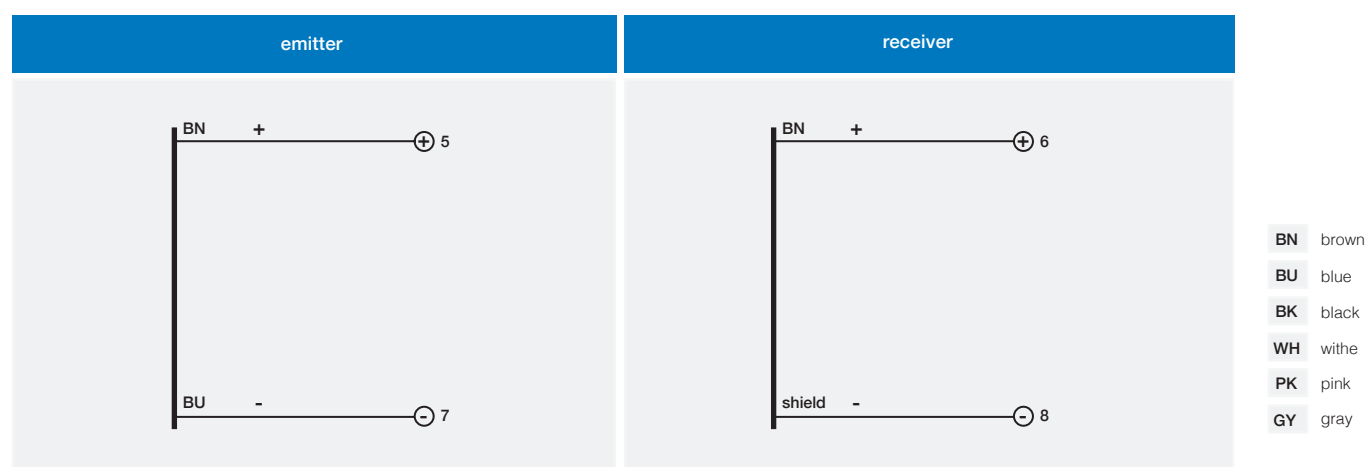


technical specification

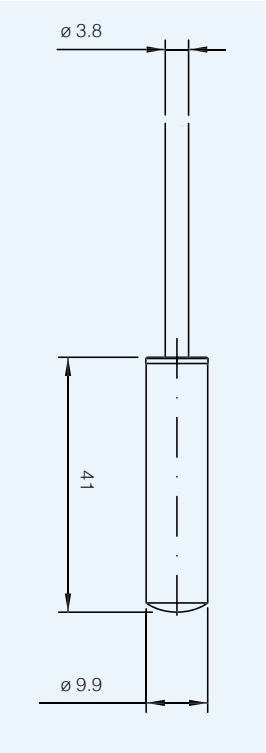
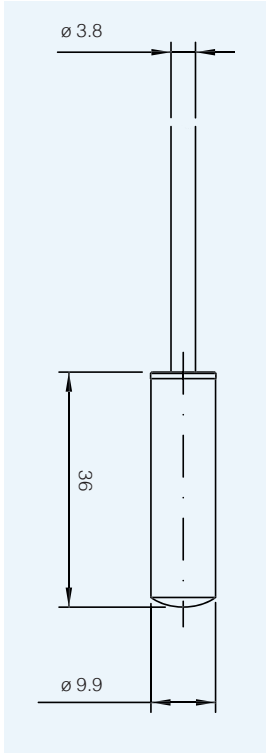
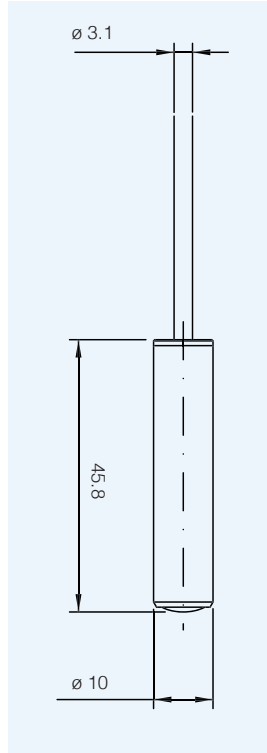
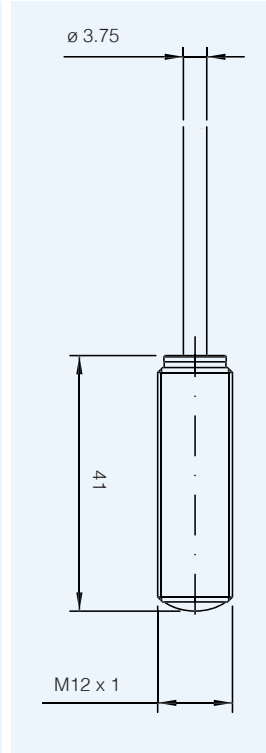
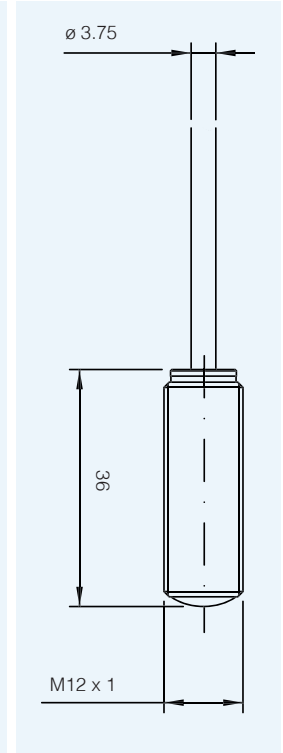
	DG*/1-0	DG*/2-0*	DG*/0-1*	DG*/1-2*	DG*/2-2*
housing length	41 mm	36 mm	46 mm	41 mm	36 mm
sensing distance	75 m	32 m	60 m	75 m	32 m
emission	infrared (880 nm)				
operating voltage	from UR				
beam angle ⁽¹⁾	± 5°*	± 10°*	± 5°*	± 5°*	± 10°*
interference to external light	20.000 lux				
temperature range	- 20°C...+ 60°C				
protection degree	IP67 (EN60529)				
EMC	in conformity with the EMC Directive according to EN 60947-5-2				
housing type	Ø 10 mm			M12	
housing material	polycarbonate		anodized aluminium	steel	
lens material	polycarbonate		glass	polycarbonate	
cable exit material	PVC				

⁽¹⁾ See characteristic curves

electrical diagrams of the connections

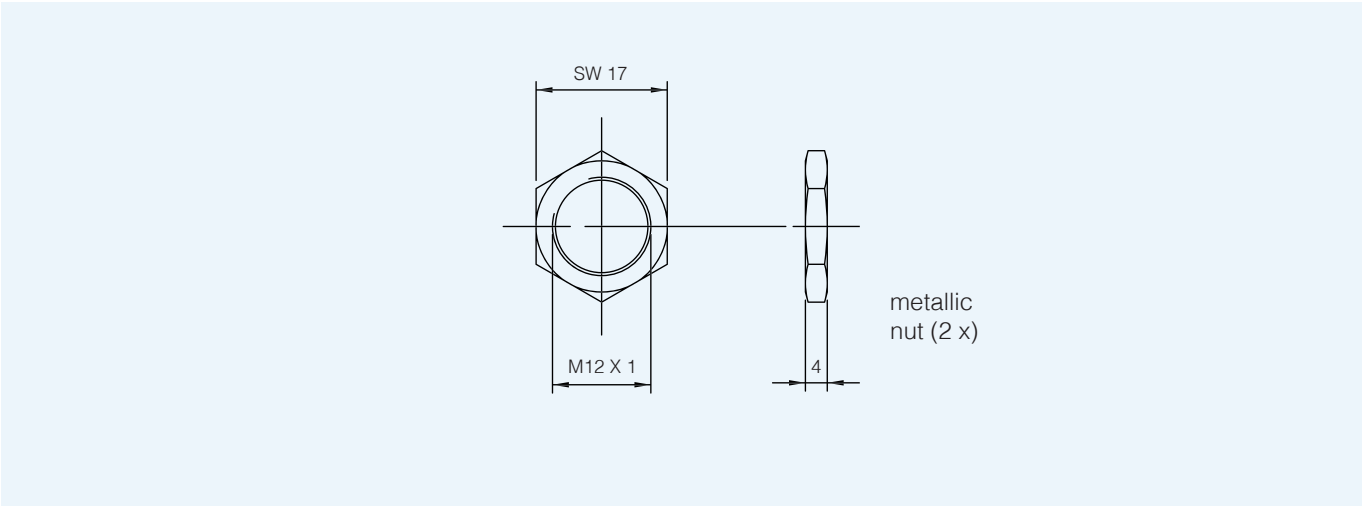


dimensions (mm)

DG*/1-0*	DG*/2-0*	DG*/0-1*	DG*/1-2*	DG*/2-2*
				

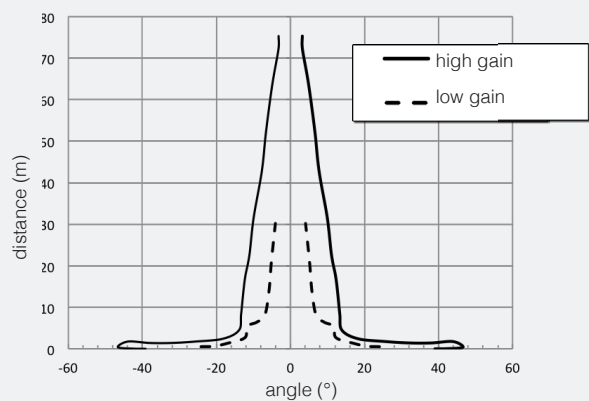
dimensions (mm)

accessories included in DG*/2*-2* models

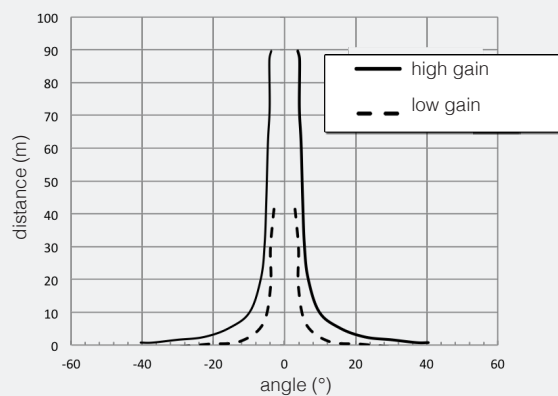




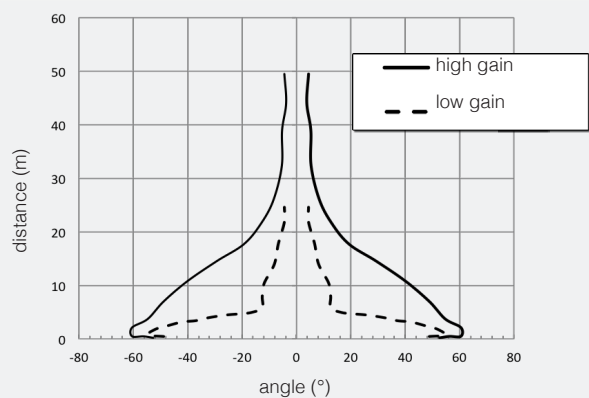
DG*/0-*



DG*/1-*



DG*/2-*



A circular gold seal with a black center. The word "WARRANTY" is arched across the top, the number "3" is in the center, and the word "YEARS" is arched across the bottom. There are eight small gold stars around the central "3".

- CE

- Application notes
- Photos
- Catalogue / Manuals

LDL U / 0 N - 0 C

STF-12 mm focalizer adapter
STF-225 mm focalizer adapter

description	NPN - LO/DO	PNP - LO/DO
right-angle cable exit	LDLU/0N-0C	LDLU/0P-0C
right-angle plug exit	LDLU/0N-0K	LDLU/0P-0K



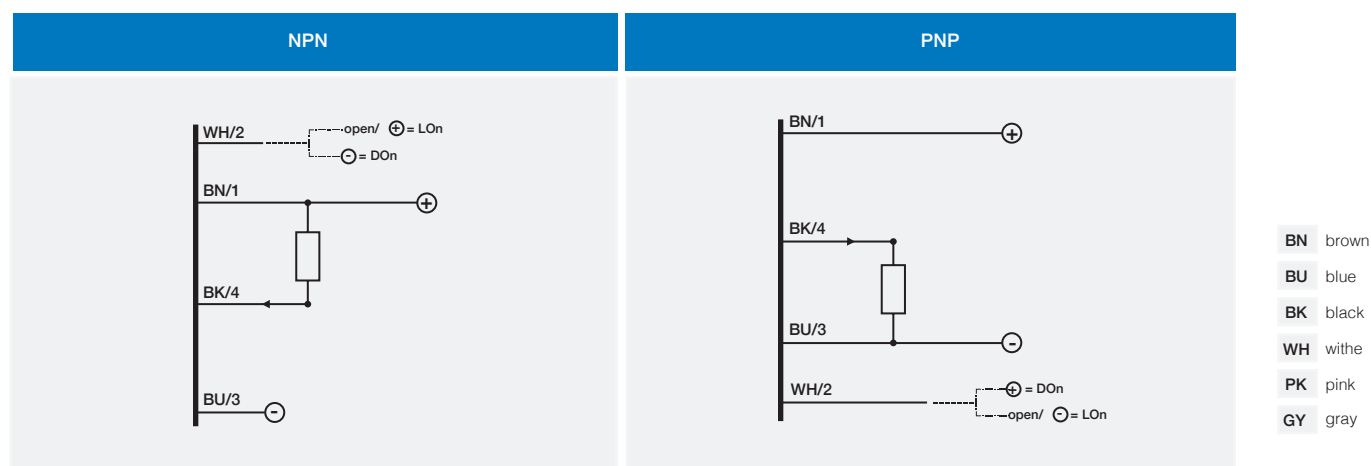
technical specification

	LDLU/**-** + STF-12 ⁽¹⁾	LDLU/**-** + STF-25 ⁽¹⁾
nominal sensing distance ⁽¹⁾	12 mm	25 mm
spot dimension	Ø 1 mm	Ø 0,8 mm
operating voltage	10...30 Vdc	
ripple	< 10 %	
no-load supply current	40 mA	
load current	100 mA	
leakage current	< 10 µA	
voltage drop	≤ 1,2 V max. IL = 100 mA	
output type	NPN or PNP L0/D0 selectable	
switching frequency	10 kHz	
response time	50 µs	
time delay before availability	200 ms	
power supply protections	polarity reversal, transient	
output protection	short circuit (autoreset)	
temperature range	-5°C...+55°C (without freeze)	
EMC	in conformity with the EMC Directive according to EN 60947-5-2	
temperature drift	10 %	
interference to external light	3.000 lux (incandescent lamp), 10.000 lux (sunlight)	
protection degree	IP65 (EN60529) ⁽²⁾	
LED indicators	yellow (output state) - green (supply)	
housing material	PBT	
cable exit material	polycarbonate	
optical material	PMMA	
tightening torque	1 Nm	
weight (approximate)	50 g	

⁽¹⁾ STF-12 & STF-25 - to be ordered separately

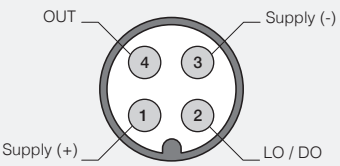
⁽²⁾ Protection guaranteed only with plug cable well mounted

electrical diagrams of the connections



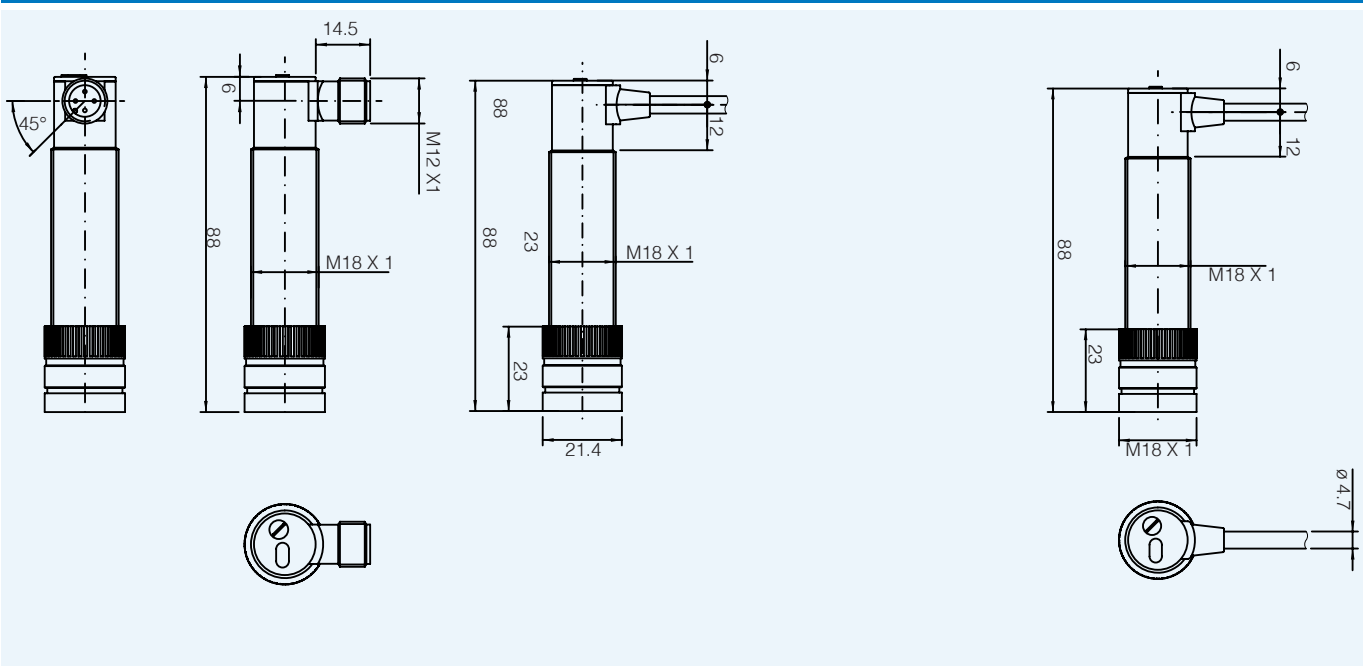
NOTE: In case of combined load, resistive and capacitive, the maximum admissible capacity (C) is 0,2 µF for maximum output voltage and current

M12



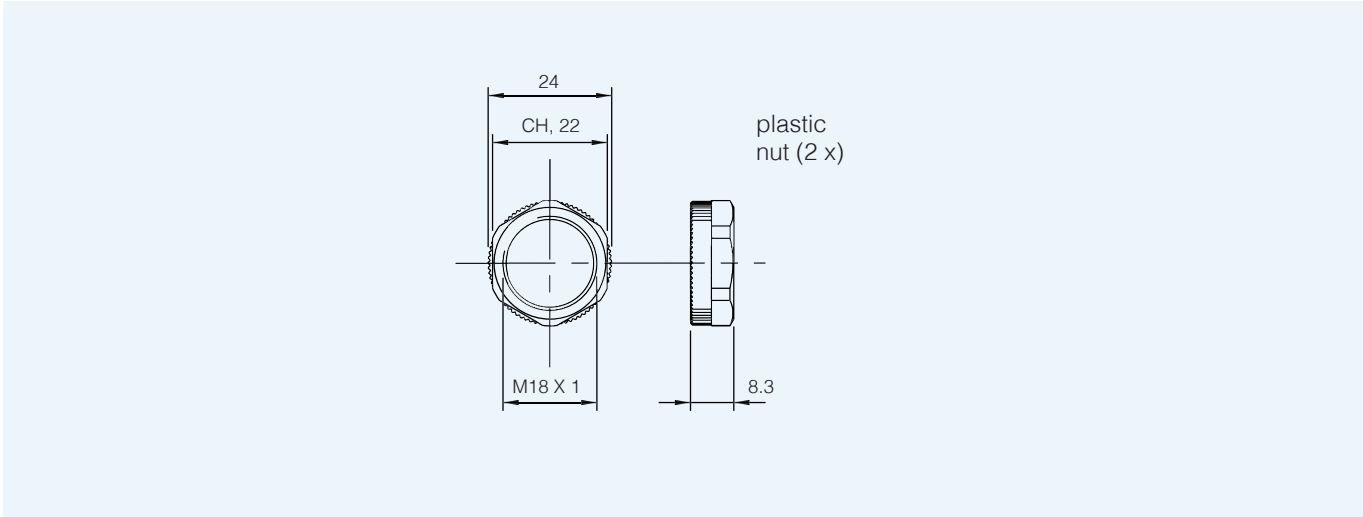
dimensions (mm)

LDLU/**-** sensor with STF (to be order separately)



dimensions (mm)

accessories included in all models





notes

712



LDLV series

Special photoelectric sensors
M30 luminescence scanner - DC



M30 luminescence scanner

features

- Ultraviolet light emission
- Local and remote Teach-in function
- Multifunction LED status indicator
- LO/DO selectable outputs
- Delay selectable
- Complete protection against electrical damages
- IP65 protection degree



web contents



- Application notes
- Photos
- Catalogue / Manuals



code description

	LDL	V	/	0	N	-	1	K
series	LDL	Ultraviolet light luminescence scanner						
housing type	V	M30 housing						
LO/DO	0	Selectable LO/DO						
output	N	NPN output						
	P	PNP output						
housing material	1	Metallic housing						
plug exit	K	Right-angle plug exit						

available models

description	NPN - LO/DO		PNP - LO/DO	
	LDLV/0N-1K	LDLV/0P-1K	LDLV/0N-1K	LDLV/0P-1K
right-angle plug cable exit				

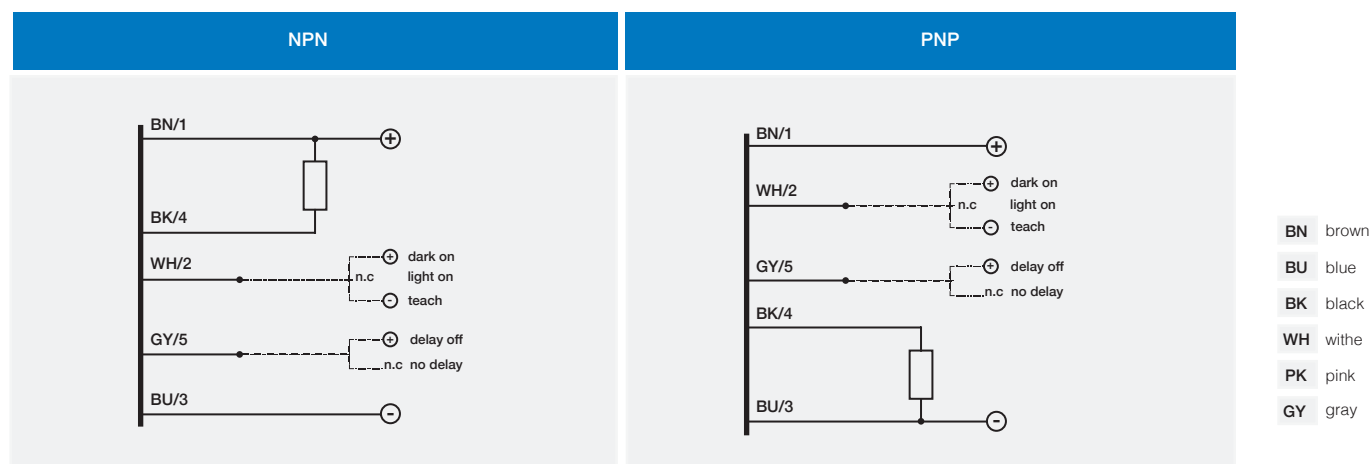


	LDLV/**_**
nominal sensing distance ⁽¹⁾	30 mm
spot dimension	3x1 mm
operating voltage	10...30 Vdc
ripple	< 10 %
no-load supply current	20 mA
load current	100 mA
leakage current	< 10 µA
voltage drop	≤ 1,4 V max. IL = 100 mA
output type	NPN or PNP LO/DO selectable
switching frequency	400 Hz
response time	1,1 ms
time delay before availability	200 ms
power supply protections	polarity reversal, transient
output protection	short circuit (autoreset)
temperature range	-5°C...+55°C (without freeze)
EMC	in conformity with the EMC Directive according to EN 60947-5-2
temperature drift	10 %
interference to external light	3.000 lux (incandescent lamp), 10.000 lux (sunlight)
protection degree	IP65 (EN60529) ⁽¹⁾
LED indicators	yellow (output state) ⁽²⁾
housing material	nickel-plated brass
cable exit material	polycarbonate
optical material	PMMA
tightening torque	50 Nm
weight (approximate)	400 g

⁽¹⁾ protection guaranteed only with plug cable well mounted

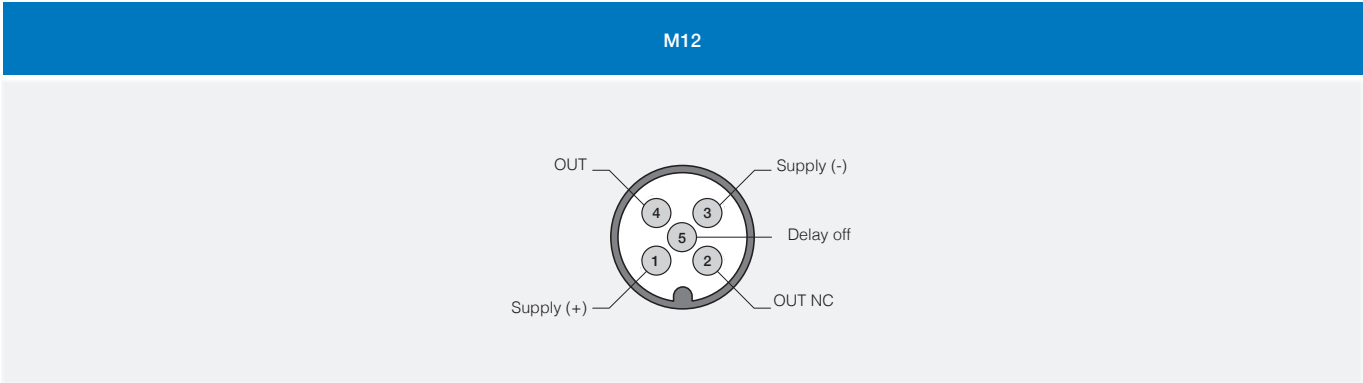
⁽²⁾ LED's functions are: output state, signal level, teach function

electrical diagrams of the connections

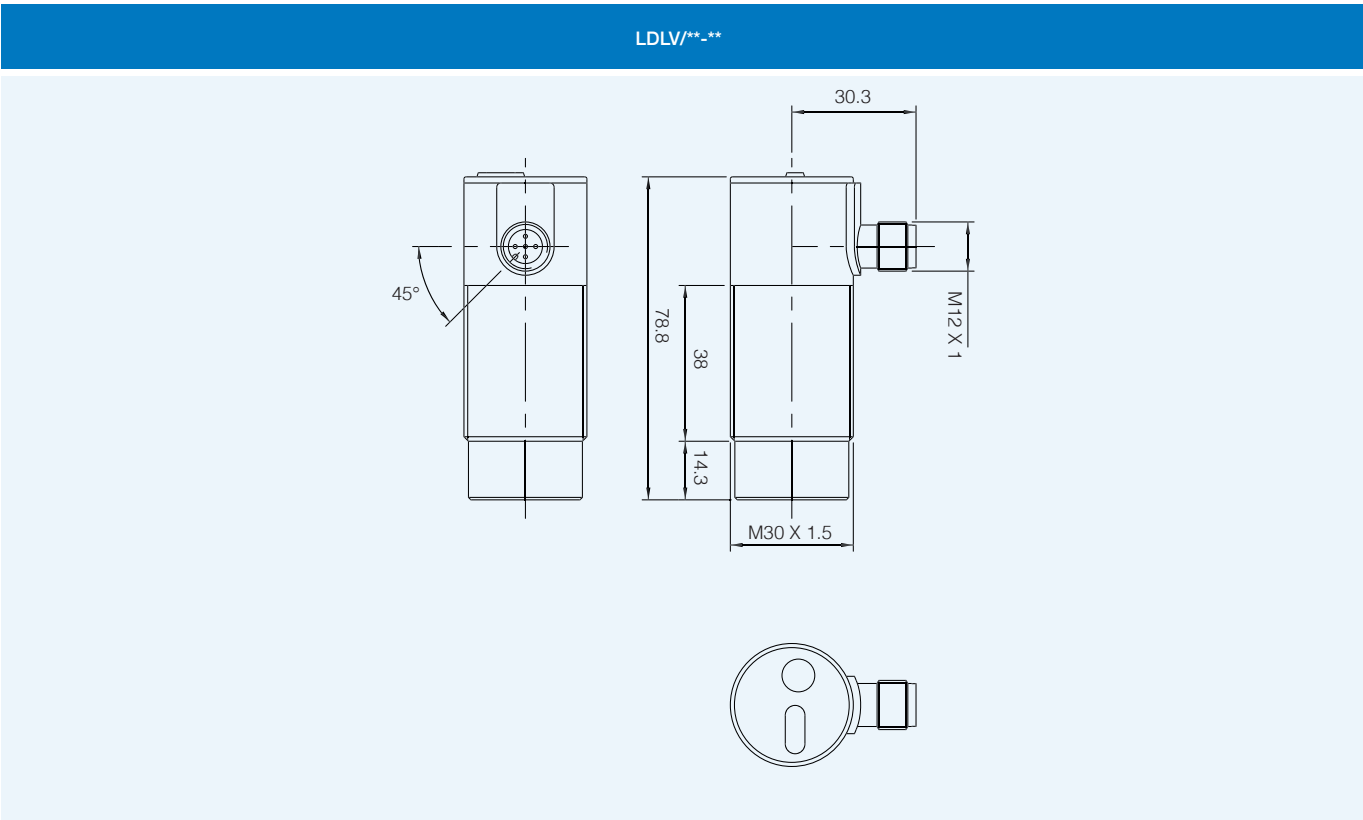


In case both dark on and remote teach functions are necessary, connect a pull-up resistor of 2,2 kΩ between WH/2 and BN/1

NOTE: In case of combined load, resistive and capacitive, the maximum admissible capacity (C) is 0,2 µF for maximum output voltage and current.

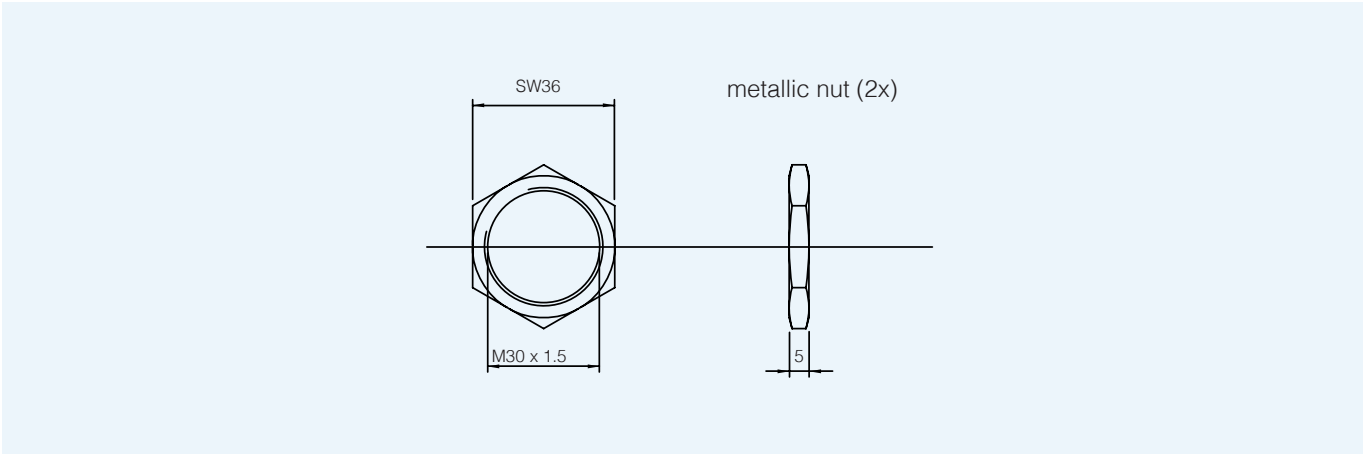


dimensions (mm)



dimensions (mm)

accessories included







LTB series

Special Photoelectric Sensors
M18 contrast scanner - DC



M18 contrast scanner

features

- With white light emission
- Sensitivity adjustment
- Short response time (50 µs)
- LO/DO selectable outputs
- P65 protection degree
- Complete protection against electrical damages
- Approvals: CE



web contents

- Application notes
- Photos
- Catalogue / Manuals



code description

LTB / 0 N - 0 C

series	LTB	White light contrast scanner
LO / DO	0	LO/DO selectable
NPN / PNP output	N	NPN output
	P	PNP output
housing	0	Plastic housing
cable / plug exit	C	Right-angle cable exit
	K	Right-angle plug exit
		STF-12 mm focalizer adapter
		STF-25 mm focalizer adapter

available models

description	NPN - LO/DO	PNP - LO/DO
right-angle cable exit	LTB/0N-0C	LTB/0P-0C
right-angle plug exit	LTB/0N-0K	LTB/0P-0K

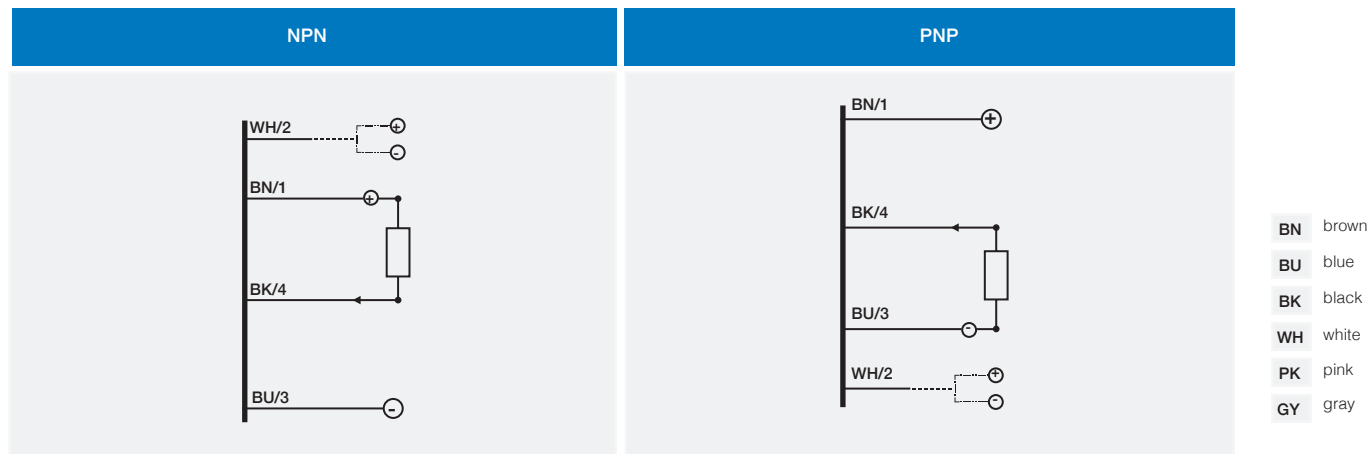


technical specification

	LTB/**-** + STF-12 ⁽¹⁾	LTB/**-** + STF-25 ⁽¹⁾
nominal sensing distance ⁽¹⁾	12 mm	25 mm
spot dimension	Ø 1 mm	Ø 0,8 mm
operating voltage	10...30 Vdc	
ripple	< 10 %	
no-load supply current	40 mA	
load current	100 mA	
leakage current	< 10 µA	
voltage drop	170 mV	
load current	100 mA on each outputs	
leakage current	≤ 1,2 V max. IL = 100 mA	
output type	NPN or PNP L0/D0 selectable	
switching frequency	10 kHz	
response time	50 µs	
time delay before availability	200 ms	
power supply protections	polarity reversal, transient	
output protection	short circuit (autoreset)	
temperature range	-5°C...+55°C (without freeze)	
EMC	in conformity with the EMC Directive according to EN 60947-5-2	
temperature drift	10 %	
interference to external light	3.000 lux (incandescent lamp), 10.000 lux (sunlight)	
protection degree	IP65 (EN60529) ⁽²⁾	
LED indicators	yellow (output state) - green (supply)	
housing material	PBT	
cable exit material	polycarbonate	
optical material	PMMA	
tightening torque	1 Nm	
weight (approximate)	50 g	

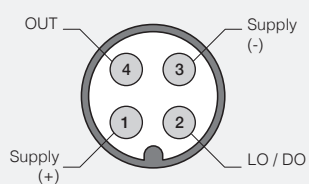
⁽¹⁾ STF-12 & STF-25 - to be ordered separately⁽²⁾ protection guaranteed only with plug cable well mounted

electrical diagrams of the connections



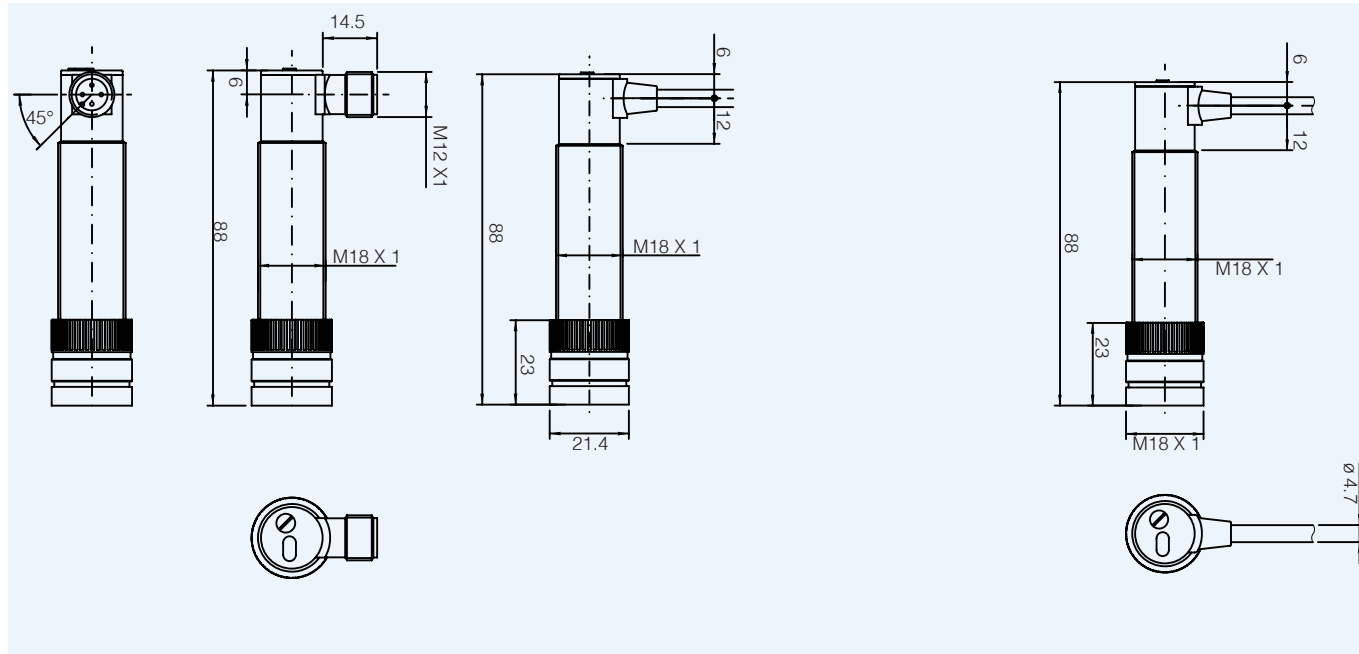
NOTE: In case of combined load, resistive and capacitive, the maximum admissible capacity (C) is 0,2 µF for maximum output voltage and current

M12



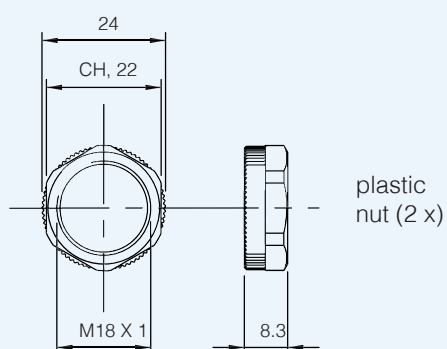
dimensions (mm)

LTB



dimensions (mm)

accessories included in all plastic models







FC3 series

Dual beams photoelectrics slot sensor
for sensor edge detection



Dual beams
slot sensor

features

- Dual beams photoelectric slot sensor
- RIAC output
- Light on/Dark on selectable by polarity inversion
- Approvals: CE



web contents



- Application notes
- Photos
- Catalogue / Manuals



ordering system

description	model
Dual beams photoelectric slot sensor for edge detection, Triac output, Output state Light ON/Dark ON selectable by polarity inversion.	FC3
Dual beams photoelectric slot sensor for edge detection, MOSFET output, Output state Light ON/Dark ON 24 Vdc/ac	FC3/A



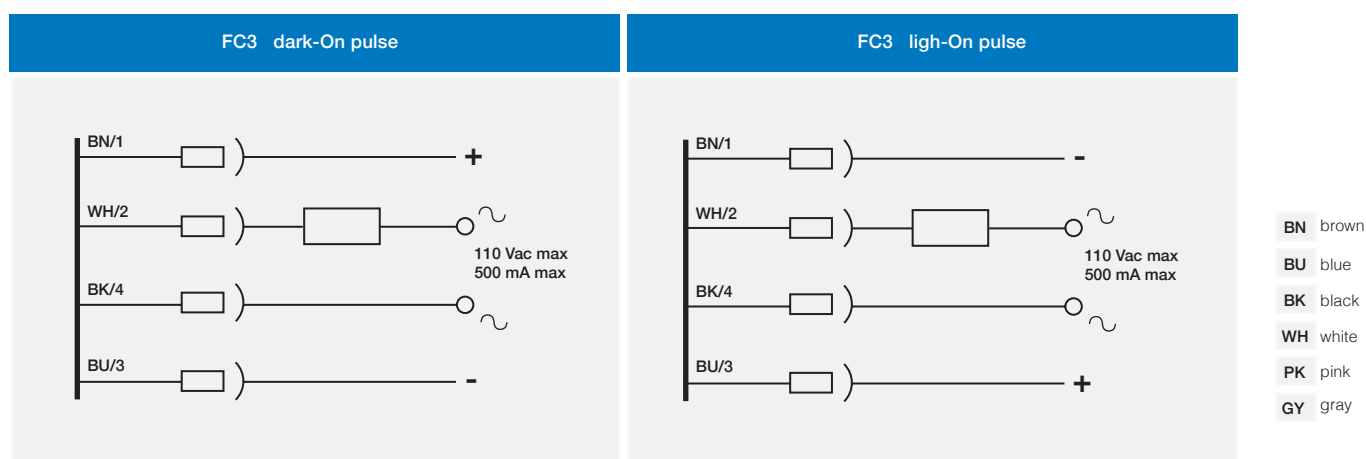
technical specification

Dual beams
slot sensor

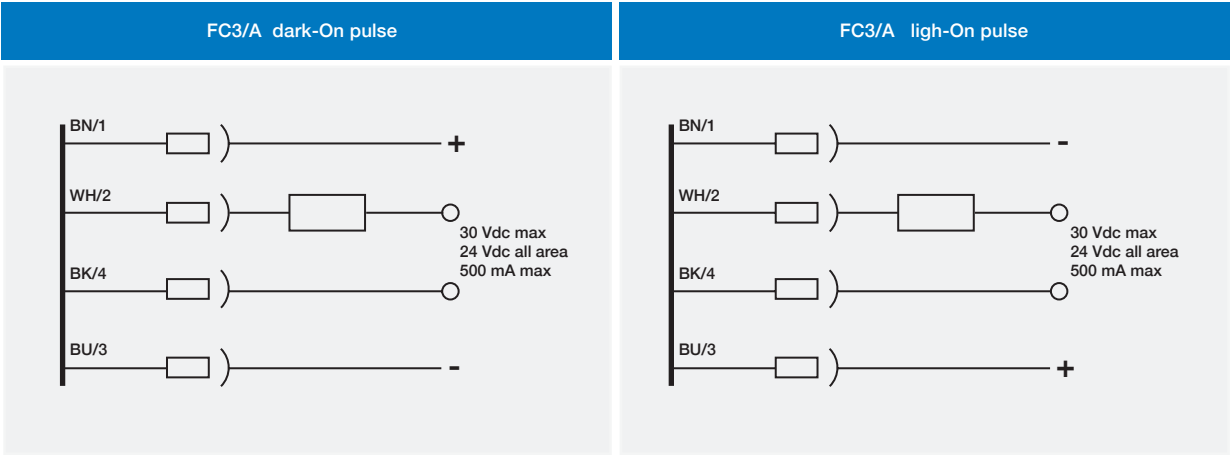
	dual beams photoelectric slot sensor for edge detection FC3	dual beams photoelectric slot sensor for edge detection FC3/A
optical axial distance	6,8 mm	
optics diameter	3 mm	
operating voltage	10...30 Vdc	
ripple	< 10 %	
no-load supply current	≤ 30 mA	
load current	max 500 mA (V = 110 Vac)	max 500 mA (V = 30 Vdc / 24 Vac)
leakage current	≤ 250 µA (V = 250 V max)	250 µA (V = 30 V max)
inrush current	5 A (T = 10 µsec)	
output voltage drop	≤ 1,2 V max. (500 mA)	
output type	TRIAC, L0/D0 selectable	MOSFET, L0/D0 selectable
blocking voltage / operating voltage	± 400 V / 110 Vac eff.	± 40 / 30 Vdc - 24 Vac eff.
zero-voltage switching	•	-
emission	infrared (880 nm)	
sampling frequency	3,7 kHz	
switching frequency	25 Hz	
supply electrical protection	transient	
EMC	in conformity with the EMC Directive according to EN 60947-5-2	
protection degree	IP64 (EN60529) ⁽¹⁾	
LED indicators	green (supply) - red (output)	
housing material	PCB	
weight (approximate)	122 g	

⁽¹⁾ Protection guaranteed only with plug cable well mounted

electrical diagrams of the connections

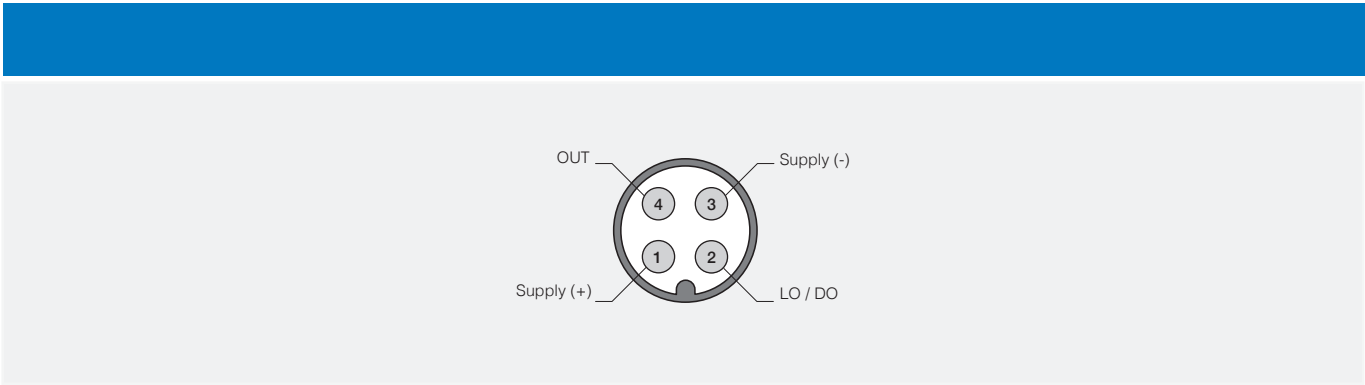


electrical diagrams of the connections

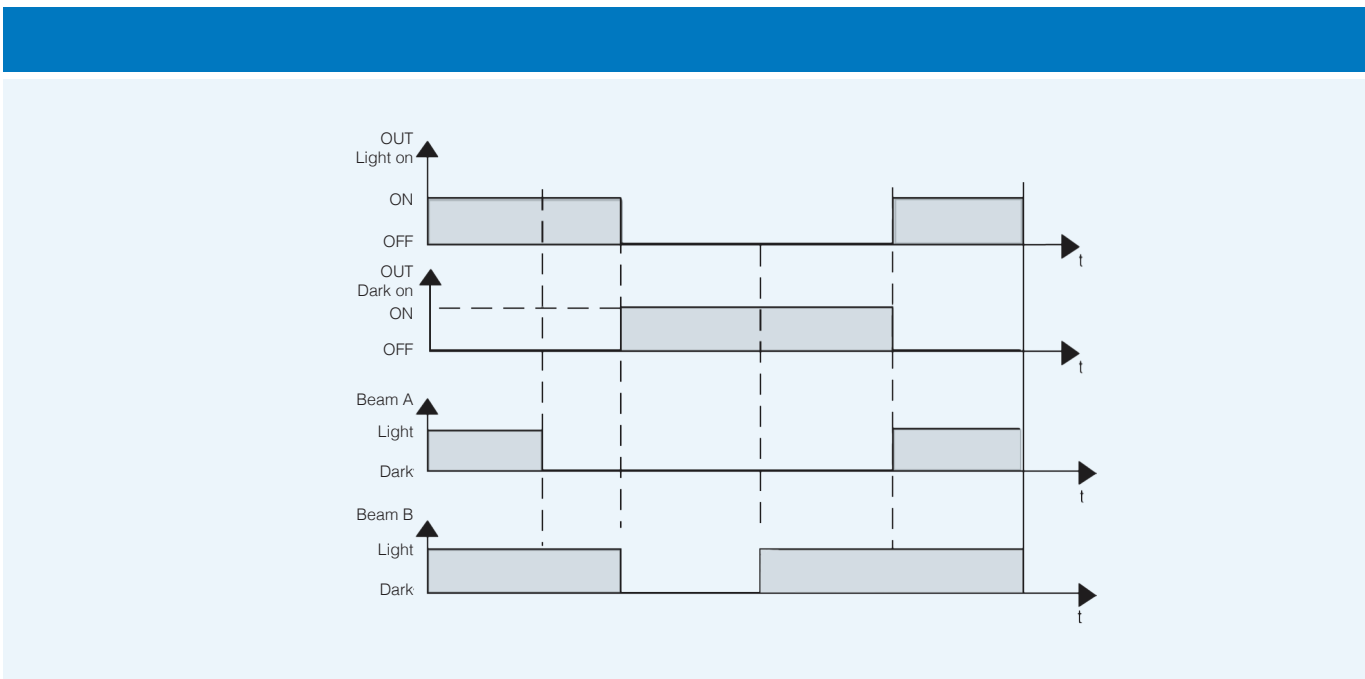


- BN brown
- BU blue
- BK black
- WH white
- PK pink
- GY gray

plug



logic diagram

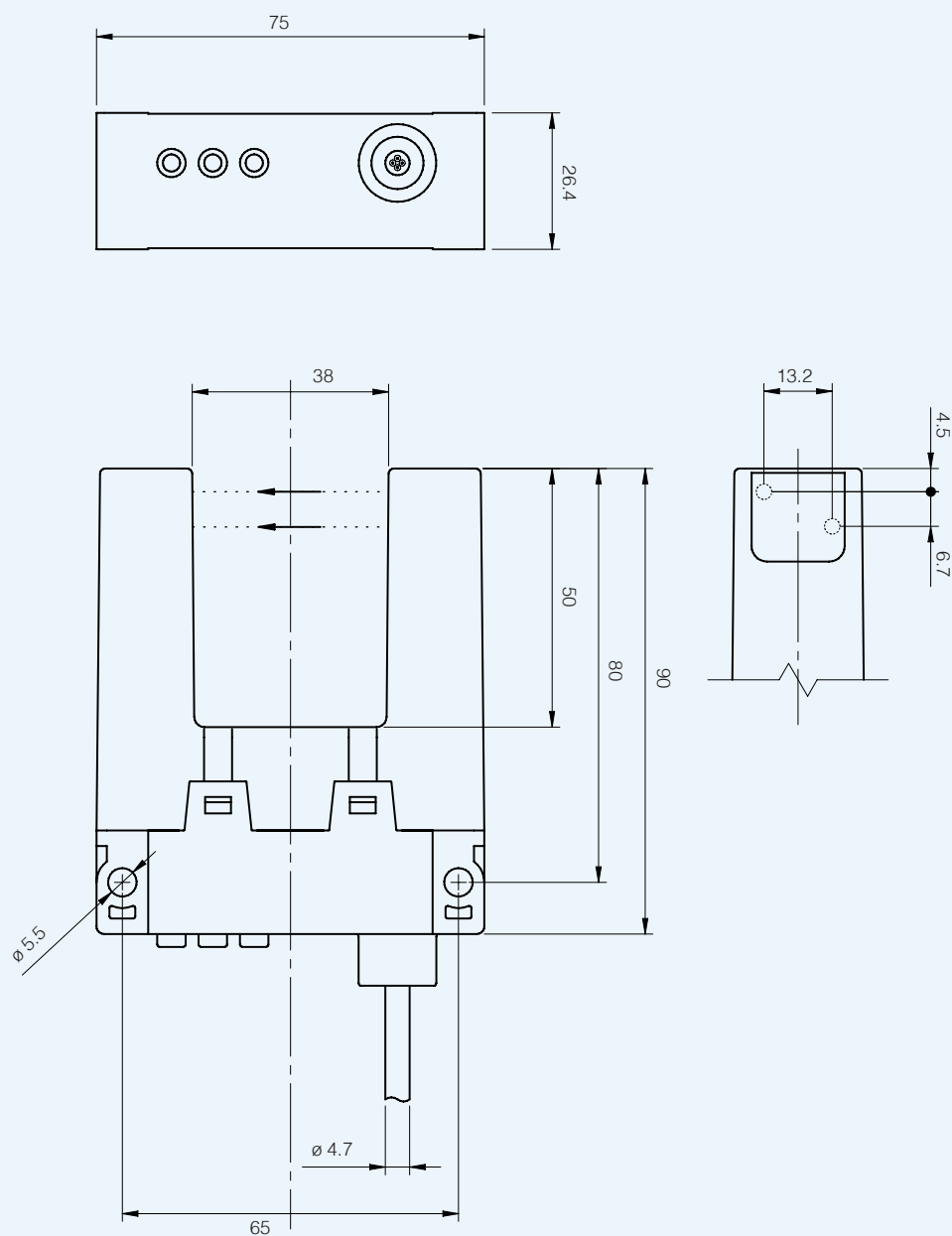


Considering A as the outer ray and B as the inner ray referring to the fork input and the DARK ON operation mode, the output is activated when both A and B are intercepted by the edge and is deactivated when both A and B are free. The hysteresis is so equal to the optical interaxes 6 mm.

A: outer ray referring to the fork input
B: inner ray referring to the fork input



FC3/**-**





Серия FC4

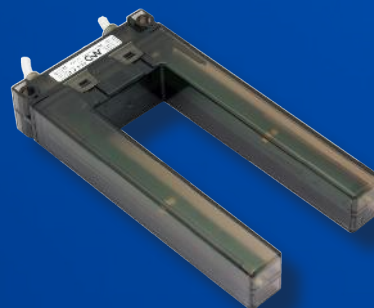
Щелевой датчик с 4 лучами для контроля кромки



Щелевой датчик
с 4 лучами

Особенности

- Щелевой датчик с 4 лучами для контроля кромки
- Двойной бесконтактный выход + сигнальный выход
- Сертификация: CE



Содержание



- Применение
- Изображение
- Каталог / Инструкции



Код для заказа

описание	модель
Два коннектора M12 пигтейл "папа", 4-пин., длина кабеля 600 мм	FC4/V-00
Два коаксиальных кабеля, 4-пин., длина кабеля 2,000 мм	FC4/A-00

Разъём



разъём J1			
пин	цвет	функция	описание
1	корич.	входное напряжение 24 В пост. тока	подача питания и общий полож. для нагрузок
2	белый	выход НЗ, контроль кромки	выход PNP НЗ с защитой от корот. замыкан.
3	синий	силовой вход 0 В пост. тока	отдаваемая мощность на выходе
4	чёрный	выход НО, контроль кромки	выход PNP НО с защитой от корот. замыкан.
разъём J2			
пин	цвет	функция	описание
1	корич.	не подключён	может быть использован как выход
2	белый	сигнальный выход А	пин а1 от контакта сигнального выхода
3	синий	не подключён	отдаваемая мощность на выходе
4	чёрный	сигнальный выход А	пин а2 от контакта сигнального выхода



Техническое описание

в соответствии с директивой IEC EN 60947-5-2

параметры	минимум	норма	максимум
чувствительность ⁽¹⁾	-	1 лист белой бумаги 80 г/м ²	-
длина волны	-	880 нм	-
диаметр светового пучка (максимальный диаметр препятствия)	-	-	3 мм
апертурный угол	± 15°		
колебания гистерезиса	7 мм		
класс мощности оптики	1 (нет опасности)		
подавление рассеянного света		10,000 лк, искусственный свет	
напряжение питания ^{(2) (3)}	10 В пост. тока	24 В пост. тока	30 В пост. тока
пульсация ⁽⁴⁾	≤ 5 В на импульс		
ток питания ⁽⁵⁾	30 мА	-	70 мА
выход А (сигнальный) ⁽⁶⁾	электрохимический контакт, 1 А, 30 В пост. тока, без защиты от короткого замыкания		
выходы ОНЗ и ОНО (контроль кромки)	два переключаемых PNP выхода класс DC13 (защита от индуктивной нагрузки) защита от короткого замыкания и перенапряжения		
выходное напряжение	-	200 мА	300 мА
защита от короткого замыкания	430 мА @ 25°C		
падение напряжения	-	-	2,5 В @ 100 мА
ток утечки	-	≤ 10 мкА	-
макс. ток нагрузки		5 мкФ	
период выборки ⁽⁷⁾		4 мс	
продолжительность сканирования четырёх лучей ⁽⁸⁾		600 мкс	
выходы ОНО и ОНЗ время отклика		4,7 мс	
максимальная частота переключения выхода	70 Гц с 1/2 темно/светло	-	100 Гц с 1/1 темно/светло
время отклика выхода А	-	-	8 мс (откр.); 500 мс (закр.)
задержка при включении ⁽⁹⁾	-	-	700 мс
уровни контрольного входа (только обеспечение, без подкл.)	НИЗ. ≤ 5 В (или открытый), ВЫС. * 15 В в соответствии с IEC 61131-2 (2007)		
класс защиты VDE	III (макс. напряжение 50 В перем. тока), 500 В изоляция		
степень защиты	IP67		
ударопрочность IEC 60068-2-27	3 оси x 6, полисинусоидальный импульс, расчёт.: 30 гн, продолжительность.: 11 мс		
виброустойчивость IEC 60068-2-6	частота.: 10...55 Гц, амплитуда.: 0.5 мм, развёртка: 5 мин. частота: 3 x 30 мин		
EMC	в соответствии с директивой EN 60947-5-2		
рабочая температура	-	-20 °C ...+55 °C	-
температура хранения	-	-40 °C ...+75 °C	-
влажность	15 %	-	95 %
вес	200 г		
подключение	4-пин., см. таблицу 1, модели, таблица 4 и таблица 5		
материал корпуса	поликарбонат		
материал кабеля	ПВХ		



- (1) Обнаружение состояния "темно", действует для каждого луча в отдельности.
- (2) Мы рекомендуем использовать внешний источник питания для компенсации кратковременных сбоев электроснабжения до 20 мс в соответствии с EN 60204.
- (3) Мы рекомендуем использовать внешний источник питания с макс. защитой от короткого замыкания 1 А.
- (4) Не должен превышать макс. или мин. пределы диапазона рабочего напряжения.
- (5) Исключая нагрузки; действителен для всего диапазона напряжения питания.
- (6) Минимальная нагрузка: 10 В пост. тока, 0.01 мА. Механич. ресурс: 50х106 опер. мин. (при 3 Гц). Электрич. ресурс: 100 х 103 опер. мин. при 1 А 3 0 В п.т. (при 0.5 Гц)
- (7) Продолжительность двух циклов считывания с интеграцией.
- (8) Интервал сканирования между лучами составляет 200 мкс.
- (9) Время, затрачиваемое после включения питания на переключение выходов из состояния ВЫКЛ в состояние, соответствующее состоянию луча.

Размеры (мм)

FC4/**-**

