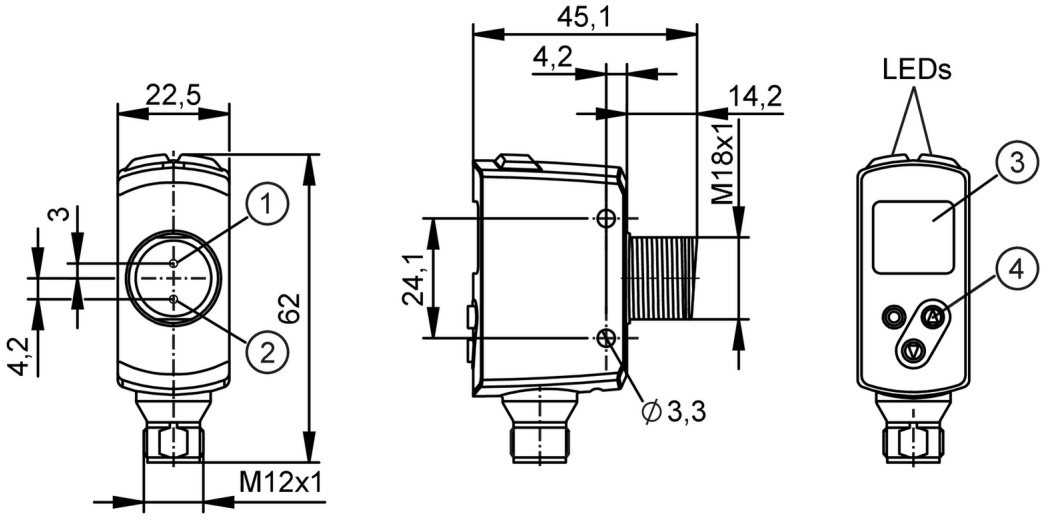
OGD250

Photoelectric distance sensor

OGDLFCKG/IO-LINK/US



1 receiving element
2 transmitting element
3 alphanumeric display , 4-digit
4 programming buttons

Product characteristics		
Type of light		red light
Laser protection class		1
Housing		rectangular with M18 thread
Application		
Application		Industrial applications / factory automation
Electrical data		
Operating voltage	[V]	10...30 DC; ("supply class 2" to cULus)
Current consumption	[mA]	45; (24 V)
Protection class		III
Reverse polarity protection		yes
Type of light		red light
Wave length	[nm]	650
Inputs		
Inputs		Laser On/ Off
Outputs		
Electrical design		PNP/NPN; (parameterisable)
Output function		2 x normally open / normally closed; (parameterisable)
Max. current load per output	[mA]	100
Short-circuit protection		yes
Type of short-circuit protection		pulsed
Overload protection		yes
Operating mode: FINE		
Switching frequency DC	[Hz]	20

OGD250

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OGDLFCKG/IO-LINK/US

Operating mode: STD			
Switching frequency DC	[Hz]	40	
Operating mode: FAST			
Switching frequency DC	[Hz]	60	
Detection zone			
Max. light spot diameter	[mm]	5	
Light spot dimensions refer to		at maximum range	
Background suppression	[m]	< 20	
Measuring/setting range			
Setting range object reflectivity	[%]	6...900; (reflectivity; 6 % black paper; 100 % white paper)	
Operating mode: FINE			
Measuring range	[m]	0.05...2	
Sampling rate	[Hz]	60	
Operating mode: STD			
Measuring range	[m]	0.05...2	
Sampling rate	[Hz]	120	
Operating mode: FAST			
Measuring range	[m]	0.05...1	
Sampling rate	[Hz]	180	
Software / programming			
Parameter setting options		Distance / reflectivity; hysteresis / window; sequence modulation to avoid mutual interference between up to 5 similar devices; sensitivity	
Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	
IO-Link revision		1.1.3	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Locator
		Function	ProductURI
SIO mode		yes	
Required master port type		A	
Min. process cycle time	[ms]	5	
IO-Link process data (cyclical)		**function**	**bit length**
		distance	16
		reflectivity	16
		device status	4
		binary switching information	2
IO-Link functions (acyclical)		application specific tag; operating hours counter; switching cycles counter	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1581
Note		For further information please see the IODD PDF file under "Downloads"	

OGD250

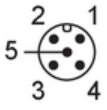
Photoelectric distance sensor

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Operating conditions			
Ambient temperature	[°C]	-25...55	
Note on ambient temperature		In ambient temperatures < -10 °C a warm-up time is necessary.	
		Laser is off.	
Storage temperature	[°C]	-30...80	
Protection		IP 65; IP 67	
Tests / approvals			
EMC		EN 60947-5-2	
Laser protection class		1	
Notes on laser protection		Caution:	laser light
		laser class:	1
			EN / IEC60825-1:2007
			EN / IEC60825-1:2014
			Complies with 21 CFR 1040.10 except for conformance with IEC 60825-1 Ed. 3, as described in Laser Notice No. 56, dated May 8, 2019.
MTTF	[years]	319	
UL approval		Ta	-25...60 °C
		Enclosure type	Type 1
		voltage supply	Class 2
		File number UL	E174191
Mechanical data			
Weight	[g]	52.06	
Housing		rectangular with M18 thread	
Dimensions	[mm]	62 x 22.5 x 45.1	
Thread designation		M18 x 1	
Materials		housing: PPSU; ABS; PMMA; PBT / PC; EPDM; front pane: PMMA	
Lens alignment		side lens	
Displays / operating elements			
Display		switching status	2 x LED, yellow
			1 x alphanumeric display, 4-digit
Operating elements		3	pushbutton
Accessories			
Items supplied		lock nuts: 2	
Remarks			
Pack quantity		1 pcs.	

Electrical connection - plug

Connector: 1 x M12; coding: A; Contacts: 5

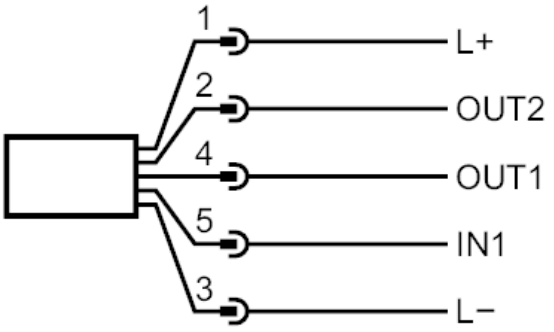


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Photoelectric distance sensor

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Connection



1 L+	
2 OUT 2	switching output
3 L-	
4 OUT 1	switching output or IO-Link
5 IN 1	Laser On/ Off

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Photoelectric distance sensor

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Other data		
Parameter	Setting range	Factory setting
SEL1	Dist / Refl	Dist
OU1	Hno, Hnc, Fno, Fnc.OFF	Hno
SP1 [mm]	50...2000	1000
SP1 [%]	6...900	10
nSP1 [mm]	50...2000	900
FSP1 [mm]	50...2000	1100
SF1 [mm]	10...500	50
bSP1 [%]	6...900	40
dSP1 [%]	6...900	30
SF1 [%]	1...100	10
dS1 [s]	0…0.1…5	0
dr1 [s]	0…0.1…5	0
SEL2	Dist / Refl	Dist
OU2	Hno, Hnc, Fno, Fnc, OFF	Hno
SP2 [mm]	50…2000	2000
SP2 [%]	6…900	6
nSP2 [mm]	50…2000	1800
FSP2 [mm]	50…2000	2000
SF2 [mm]	10…500	50
bSP2 [%]	6…900	20
dSP2 [%]	6…900	10
SF2 [%]	1…100	10
dS2 [s]	0…0.01...5	0
dr2 [s]	0…0.01...5	0
dSO [s]	0…0.01...5	0.1
diS	On / OFF	On
colr	rEd; GrEn; r1ou; G1ou; r2ou; G2ou; r-12; G-ou	G1ou
P-n	PNP,NPN	PNP
OPEr (operating mode)	FINE,STD, FAST	FINE
SEQ	auto; S1...S5	auto
CMPT	250 / 580 / 581 / 585 / 586 / 592 / 593 / 596 / 597 / 582 / 583	250

OGD250

Photoelectric distance sensor

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repeatability: ± 3 σ

Operating mode: FINE	repeatability of the measured values	
distance	white (90 % remission)	black (6 % remission)
50...300	± 2 mm	± 3 mm
300...500	± 2 mm	± 3 mm
500...1000	± 3 mm	± 5 mm
1000...2000	± 5 mm	± 8 mm
Operating mode: STD	repeatability of the measured values	
50...300	± 4 mm	± 5 mm
300...500	± 4 mm	± 5 mm
500...1000	± 4 mm	± 5 mm
1000...2000	± 8 mm	± 15 mm
Operating mode: FAST	repeatability of the measured values	
50...300	± 5 mm	± 8 mm
300...500	± 5 mm	± 8 mm
500...1000	± 5 mm	± 19 mm
1000...2000	± 10 mm	-
Operating mode: FINE / STD / FAST	repeatability of the measured values	
reflectivity		
6 %	± 3 %	
50 %	± 5 %	
90 %	± 8 %	

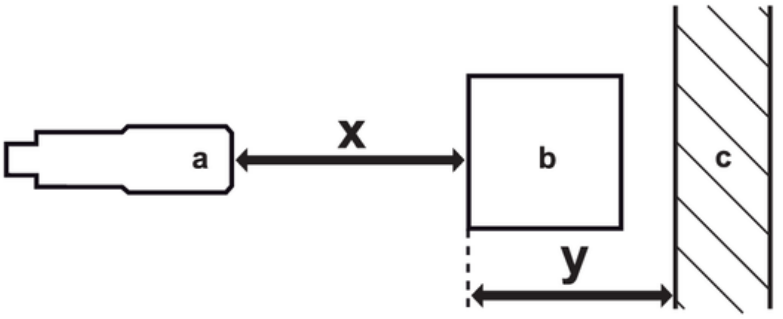
The values apply at	
Extraneous light on the object	< 10 klx
constant ambient conditions	23 °C / 960 hPa
minimum power-on time in minutes	15

OGD250

Photoelectric distance sensor

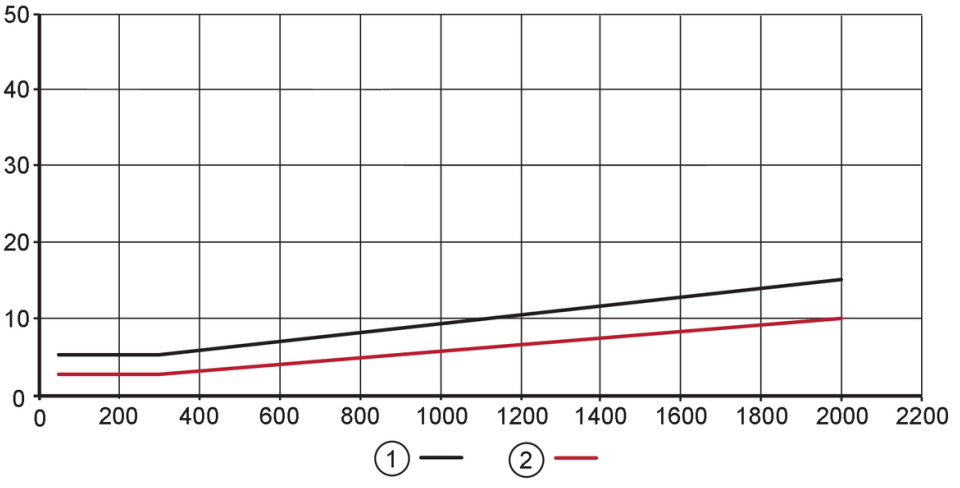
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Diagrams and graphs



a: sensor
b: object
c: background
x: distance sensor/object [mm]
y: min. distance object/background [mm]

Hysteresis graph for distance measurement / operating mode: FINE



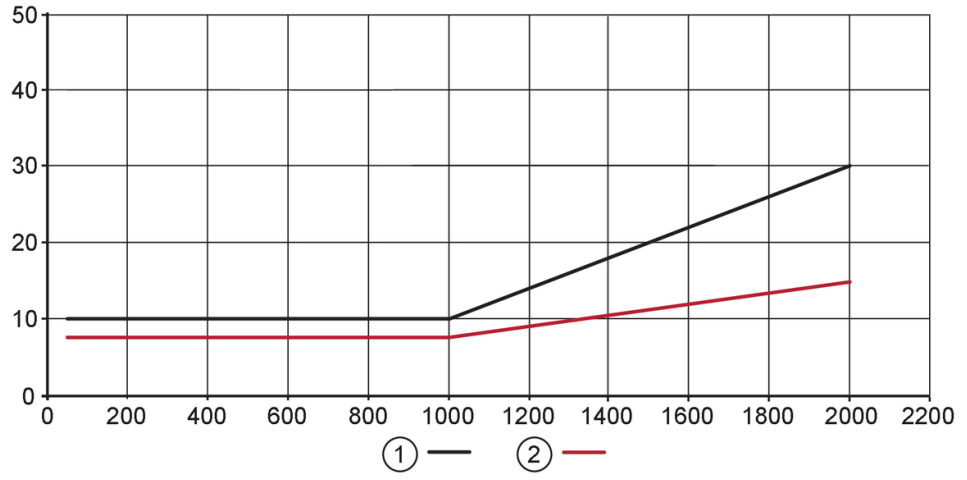
1: Background any (6...90 % remission)
2: background white (90 % remission)

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Photoelectric distance sensor

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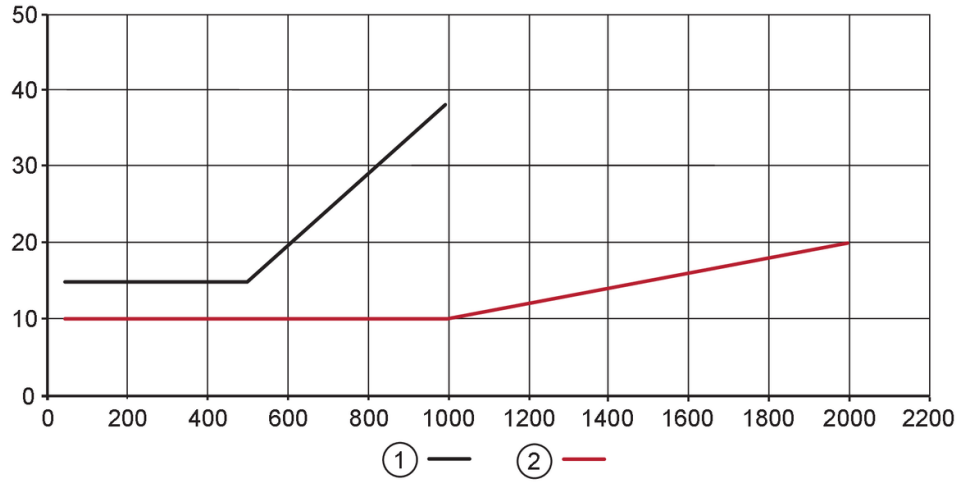
Hysteresis graph for distance measurement / operating mode: STD



1: Background any (6...90 % remission)

2: background white (90 % remission)

Hysteresis graph for distance measurement / operating mode: FAST



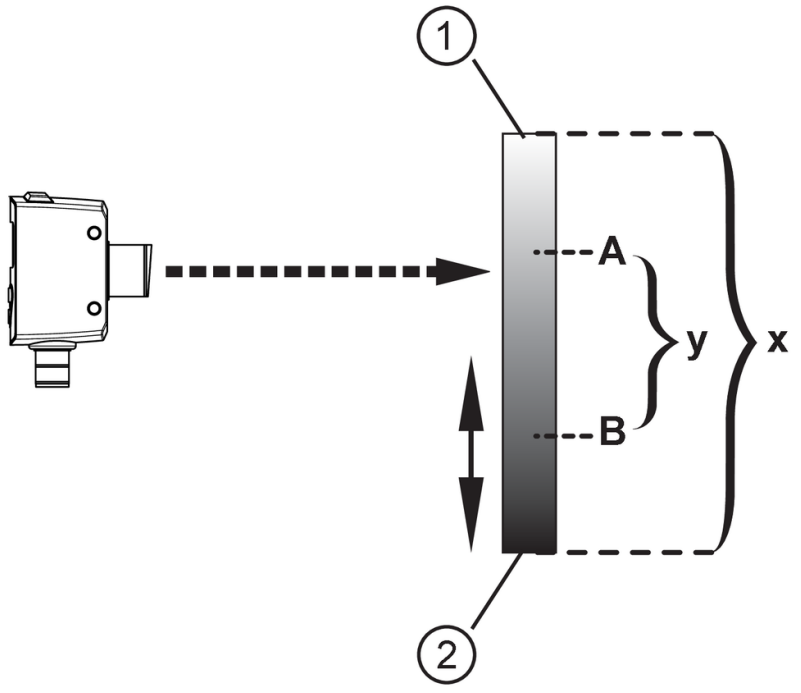
1: Background any (6...90 % remission)

2: background white (90 % remission)

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1: bright
2: dark
A: switch point
B: reset point
x: object brightness (object reflectivity)
y: min. reflectivity difference to be detected safely

hysteresis curve for object reflectivity

