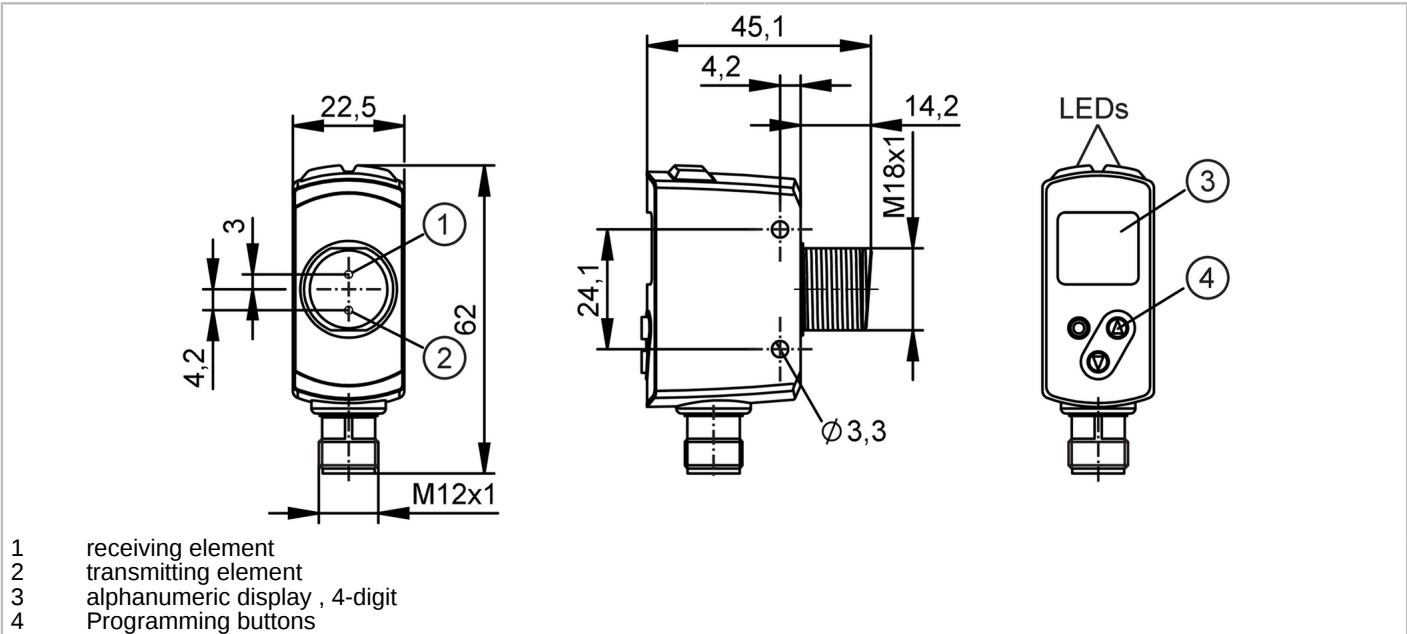


OGD560

Laser distance sensor

OGDLFCKG/IO-LINK/US



Product characteristics

Type of light	red light
Laser protection class	2
Housing	rectangular with M18 thread

Application

Application	Industrial applications
-------------	-------------------------

Electrical data

Operating voltage	[V]	10...30 DC; (cULus - Class 2 source required)
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; (configurable)
Output function	2 x normally open / normally closed; (configurable)
Max. current load per output [mA]	100
Short-circuit protection	yes
Type of short-circuit protection	yes (non-latching)
Overload protection	yes

Operating mode: FINE

Switching frequency DC	[Hz]	15
------------------------	------	----



Laser distance sensor

OGDLFCKG/IO-LINK/US

Operating mode: STD		
Switching frequency DC	[Hz]	22
Operating mode: FAST		
Switching frequency DC	[Hz]	40
Monitoring range		
Max. light spot diameter	[mm]	7
Light spot dimensions refer to		at maximum range
Background suppression	[m]	< 20
Measuring/setting range		
Setting range object reflectivity	[%]	6...200; (reflectivity; 6 % black paper; 100 % white paper)
Operating mode: FINE		
Measuring range	[m]	0.05...4
Sampling rate	[Hz]	30
Operating mode: STD		
Measuring range	[m]	0.05...4
Sampling rate	[Hz]	50
Operating mode: FAST		
Measuring range	[m]	0.05...2
Sampling rate	[Hz]	80
Software / programming		
Parameter setting options		Distance / reflectivity; hysteresis / window; sequence modulation to avoid mutual interference between up to 5 similar devices
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 class		A
Min. process cycle time	[ms]	5
IO-Link process data (cyclical)	Function	bit length
	process value	2 x 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	1955
Note		For further information please see the IODD PDF file at "Downloads"
Operating conditions		
Ambient temperature	[°C]	-25...60



Laser distance sensor

OGDLFCKG/IO-LINK/US

Note on ambient temperature	In ambient temperatures < -10 °C a warm-up time is necessary. Laser is off.
Storage temperature [°C]	-35...80
Protection	IP 65; IP 67

Tests / approvals		
EMC	EN 60947-5-2	
Laser protection class		2
Notes on laser protection	Caution:	Laser light
	laser class:	2
		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.
UL approval	Ta	-25...60 °C
	Enclosure type	Type 1
	voltage supply	Class 2
	File number UL	E174191

Mechanical data		
Weight [g]		134.75
Housing		rectangular with M18 thread
Dimensions [mm]		62 x 22.5 x 45.1
Thread designation		M18 x 1
Material		housing: stainless steel (1.4404 / 316L); PPSU; ABS; PMMA; PBT / PC; EPDM; front lens: PMMA
Lens alignment		Side sensing

Displays / operating elements		
Display	Switching status	2 x LED, yellow
		1 x alphanumeric display, 4-digit
Operating elements	3	pushbuttons

Accessories		
Items supplied		lock nuts: 2

Remarks		
Pack quantity		1 pcs.

Electrical connection - plug		
Connector: 1 x M12; coding: A; Contacts: 5		

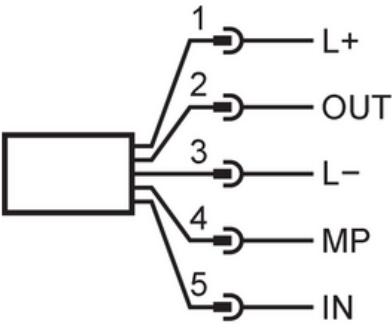
OGD560



Laser distance sensor

OGDLFCKG/IO-LINK/US

Connection



1	L+	
2	OUT	DO2 (NO/NC)
3	L-	
4	MP	DO1 (NO/NC), IO-Link
5	IN	DI (Laser On/ Off)

DI: digital input; DO: digital output; MP: multi-function connection; NC: normally closed; NO: normally open



Laser distance sensor

OGDLFCKG/IO-LINK/US

Other data		
Parameter	Setting range	Factory setting
SEL1	Dist / Refl	Dist
OU1	Hno, Hnc, Fno, Fnc.OFF	Hno
SP1 [mm]	50...4000	1000
SP1 [%]	6...200	10
nSP1 [mm]	50...4000	900
FSP1 [mm]	50...4000	1100
SF1 [mm]	10...500	50
bSP1 [%]	6...200	40
dSP1 [%]	6...200	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...4000	4000
SP2 [%]	6...200	6
nSP2 [mm]	50...4000	3800
FSP2 [mm]	50...4000	4000
SF2 [mm]	10...500	50
bSP2 [%]	6...200	20
dSP2 [%]	6...200	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

OGD560



Laser distance sensor

OGDLFCKG/IO-LINK/US

repeatability: $\pm 3 \sigma$

Operating mode: FINE	Repeatability of the measured values	
distance	white (90 % remission)	black (6 % remission)
50...300	$\pm 2 \text{ mm}$	$\pm 3 \text{ mm}$
300...2000	$\pm 3 \text{ mm}$	$\pm 5 \text{ mm}$
2000...3000	$\pm 3 \text{ mm}$	$\pm 10 \text{ mm}$
3000...4000	$\pm 4 \text{ mm}$	$\pm 15 \text{ mm}$
Operating mode: STD	Repeatability of the measured values	
50...500	$\pm 3 \text{ mm}$	$\pm 4 \text{ mm}$
500...1000	$\pm 3 \text{ mm}$	$\pm 4 \text{ mm}$
1000...2000	$\pm 5 \text{ mm}$	$\pm 10 \text{ mm}$
2000...4000	$\pm 5 \text{ mm}$	$\pm 23 \text{ mm}$
Operating mode: FAST	Repeatability of the measured values	
50...500	$\pm 3 \text{ mm}$	$\pm 5 \text{ mm}$
500...1000	$\pm 4 \text{ mm}$	$\pm 9 \text{ mm}$
1000...2000	$\pm 5 \text{ mm}$	$\pm 15 \text{ mm}$
2000...4000	$\pm 5 \text{ mm}$	-
Operating mode: FINE / STD / FAST	Repeatability of the measured values	
reflectivity		
6 %	$\pm 3 \%$	
50 %	$\pm 5 \%$	
90 %	$\pm 8 \%$	

The values apply at

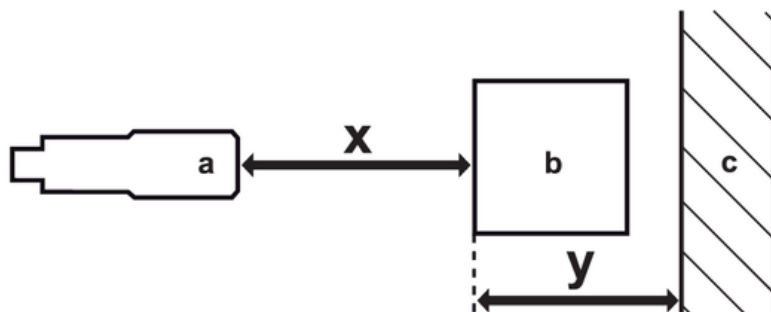
Extraneous light on the object	< 10 klx
constant ambient conditions	23 °C / 960 hPa
minimum power-on time in minutes	15



Laser distance sensor

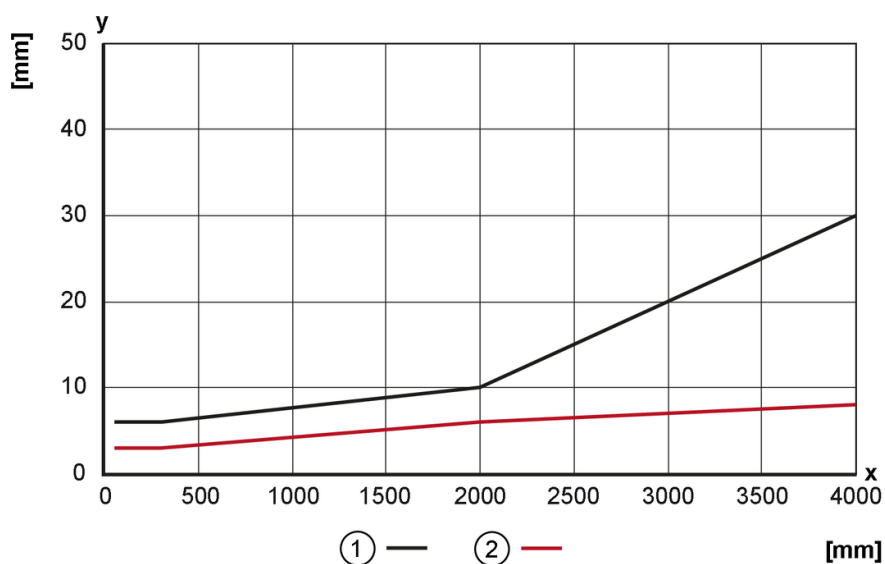
OGDLFCKG/IO-LINK/US

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



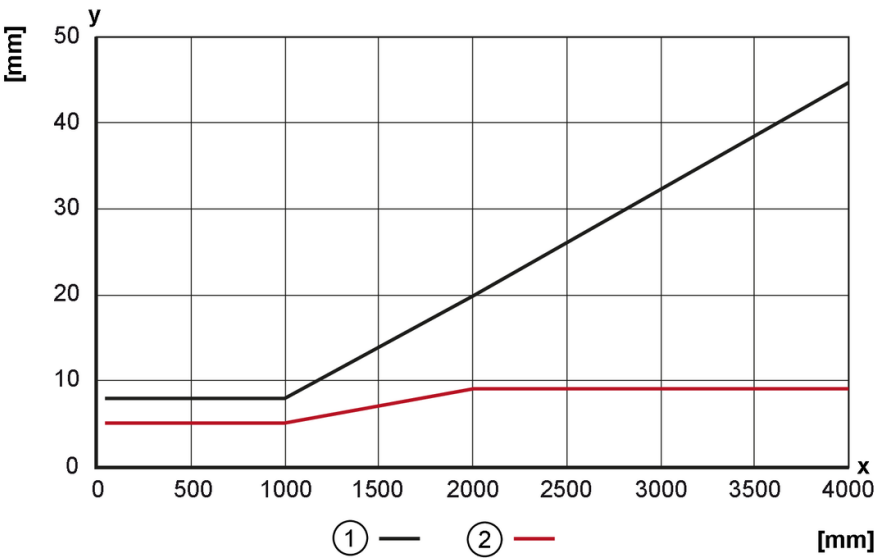
- 1: Background any (6...90 % remission)
- 2: Background white (90 % remission)



Laser distance sensor

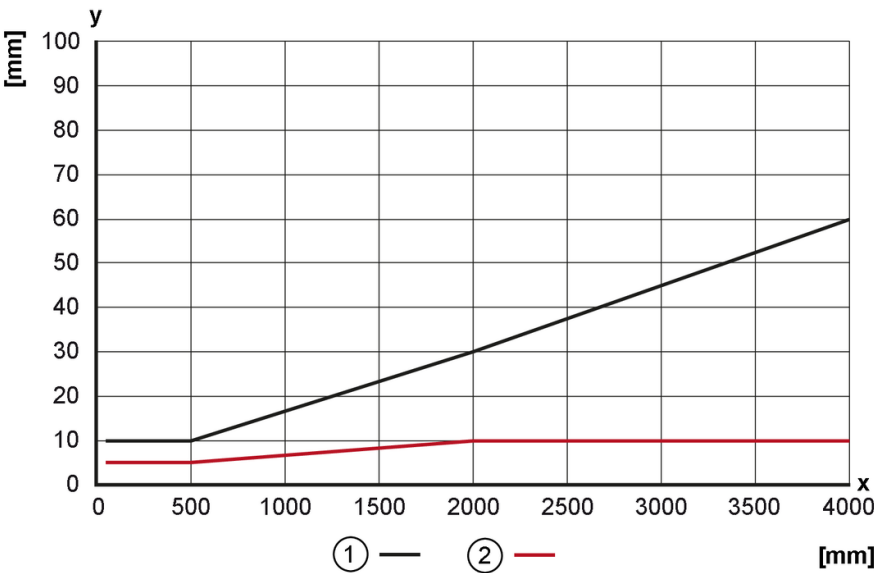
OGDLFCKG/IO-LINK/US

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

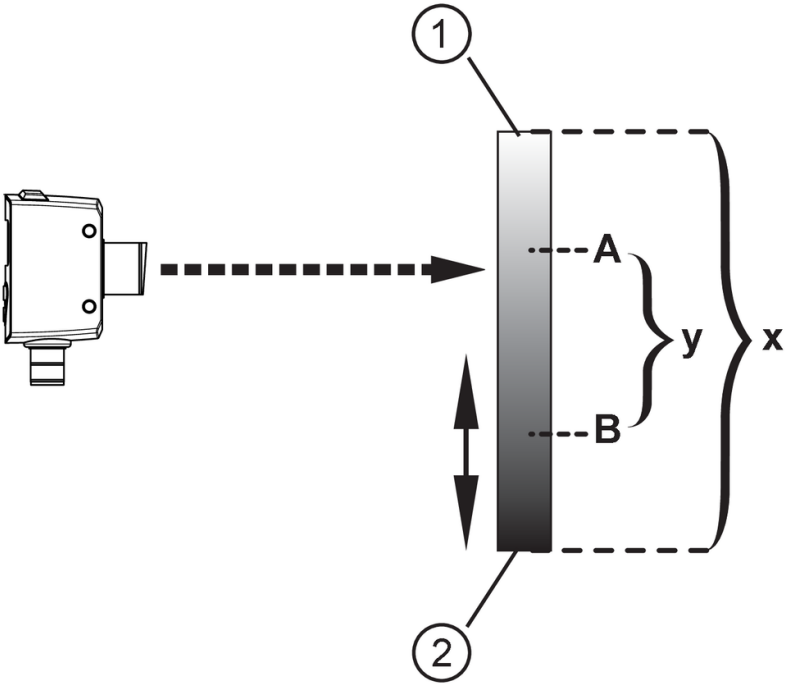


- 1: Background any (6...90 % remission)
- 2: Background white (90 % remission)



Laser distance sensor

OGDLFCKG/IO-LINK/US



- 1: bright
- 2: dark
- A: Set point
- B: Reset point
- x: object brightness (Object reflectivity)
- y: min. reflectivity difference to be detected safely

Hysteresis curve for object reflectivity

