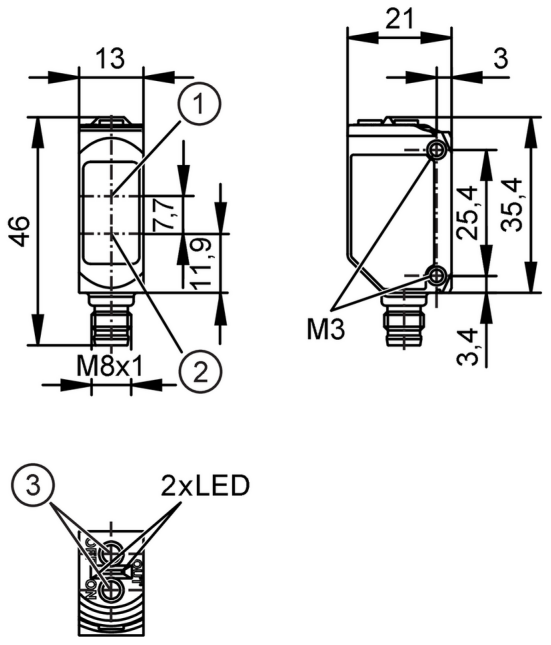
O6D100

Laser distance sensor

O6DLFCKG/IO-LINK/AS/4P



1 receiver
2 transmitter
3 Programming buttons

Product characteristics		
Type of light		red light
Laser protection class		1
Housing		rectangular
Application		
Application		For applications in robotics, assembly and handling technology
Electrical data		
Operating voltage	[V]	10...30 DC; (cULus - Class 2 source required)
Current consumption	[mA]	< 30; (24 V)
Protection class		III
Reverse polarity protection		yes
Type of light		red light
Wave length	[nm]	680
Outputs		
Electrical design		PNP/NPN; (configurable)
Output function		normally open / closed; (configurable)
Max. current load per output	[mA]	50
Factory setting		Electrical design: PNP (adjustable via IO-Link)
		Output function: normally open (adjustable via IO-Link)
Short-circuit protection		yes
Overload protection		yes
Operating mode: FINE (adjustable via IO-Link)		
Switching frequency DC	[Hz]	10

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Operating mode: STD (adjustable via IO-Link)			
Switching frequency DC	[Hz]	22	
Operating mode: FAST (adjustable via IO-Link)			
Switching frequency DC	[Hz]	42	
Monitoring range			
Max. light spot diameter	[mm]	5	
Light spot dimensions refer to		3 m	
Background suppression	[m]	< 20	
Measuring/setting range			
Setting range object reflectivity	[%]	6...200; (reflectivity; 6 % black paper; 100 % white paper)	
Operating mode: FINE (adjustable via IO-Link)			
Measuring range	[m]	0.02...3.3	
Setting range distance	[m]	0.05...3	
Sampling rate	[Hz]	22	
Operating mode: STD (adjustable via IO-Link)			
Measuring range	[m]	0.02...1.1	
Setting range distance	[m]	0.05...1	
Sampling rate	[Hz]	70	
Operating mode: FAST (adjustable via IO-Link)			
Measuring range	[m]	0.02...0.55	
Setting range distance	[m]	0.05...0.5	
Sampling rate	[Hz]	140	
Software / programming			
Parameter setting options		Distance / reflectivity; hysteresis / window	
Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	
IO-Link revision		1.1.3	
SDCI standard		IEC 61131-9	
Profiles		Smart Sensor - SSP 4.1.2	Measuring and Switching Sensor, 2 channel
		Common - I&D	Identification and Diagnosis
		Extension	Sensor control
		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**
		Distance	16
		reflectivity	16
		device status	4
		binary switching information	4
IO-Link functions (acyclical)		application specific tag; operating hours counter; switching cycles counter	

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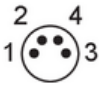
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1773
Note		For further information please see the IODD PDF file at "Downloads"	
Operating conditions			
Ambient temperature	[°C]	-25...50	
Storage temperature	[°C]	-30...80	
Protection		IP 65; IP 67	
Tests / approvals			
EMC		EN 61000-4-2 ESD	4 kV CD / 8 kV AD
		EN 61000-4-3 HF radiated	10 V/m
		EN 61000-4-4 Burst	2 kV
		EN 61000-4-6 HF conducted	10 V
		EN 55011	class B
Vibration resistance		DIN EN 60068-2-6	10 g (10...55 Hz) / 120 min. per axis (x, y, z)
Shock resistance		DIN EN 60068-2-27	50 g 6 shocks / 11 ms half-sine (x, y, z)
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]	832	
UL approval		Ta	-25...50 °C
		Enclosure type	Type 1
		voltage supply	Class 2
		File number UL	174191
Mechanical data			
Weight	[g]	32.668	
Housing		rectangular	
Dimensions	[mm]	46 x 13 x 21	
Thread designation		M8 x 1	
Material		housing: PPSU; ABS; EPDM; front lens: glass	
Lens alignment		Side sensing	
Displays / operating elements			
Display		Switching status	1 x LED, yellow
		operating status	1 x LED, green
Operating elements		2	pushbuttons
Remarks			
Pack quantity		1 pcs.	

Electrical connection - plug

Connector: 1 x M8; coding: A; Contacts: 4



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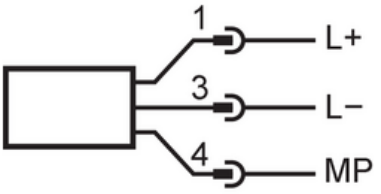
Connection



1	L+	
3	L-	
4	MP	DO (NO/NC), IO-Link

MP: multi-function connection; NO: normally open; NC: normally closed

Other data

repeatability: ± 3 σ

Operating mode: FINE	Repeatability of the measured values	
distance	white (90 % remission)	black (6 % remission)
50	± 6 mm	± 10 mm
500	± 6 mm	± 11 mm
1000	± 8 mm	± 13 mm
1500	± 11 mm	± 17 mm
3000	± 18 mm	± 33 mm
Operating mode: STD	Repeatability of the measured values	
50	± 6 mm	± 11 mm
500	± 7 mm	± 12 mm
1000	± 8 mm	± 14 mm
Operating mode: FAST	Repeatability of the measured values	
50	± 8 mm	± 14 mm
500	± 11 mm	± 21 mm
Operating mode: FINE / STD / FAST	Repeatability of the measured values	
reflectivity		
6 %	± 2 %	
50 %	± 7 %	
90 %	± 10 %	

The values apply at	
Extraneous light on the object	< 5 klx
constant ambient conditions	23 °C / 960 hPa
minimum power-on time in minutes	15

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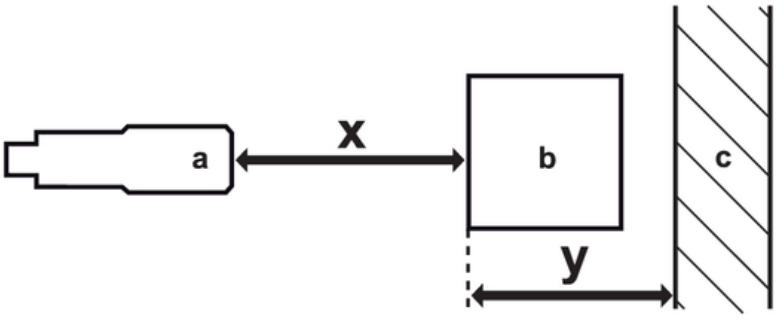
Diagrams and graphs



a: sensor

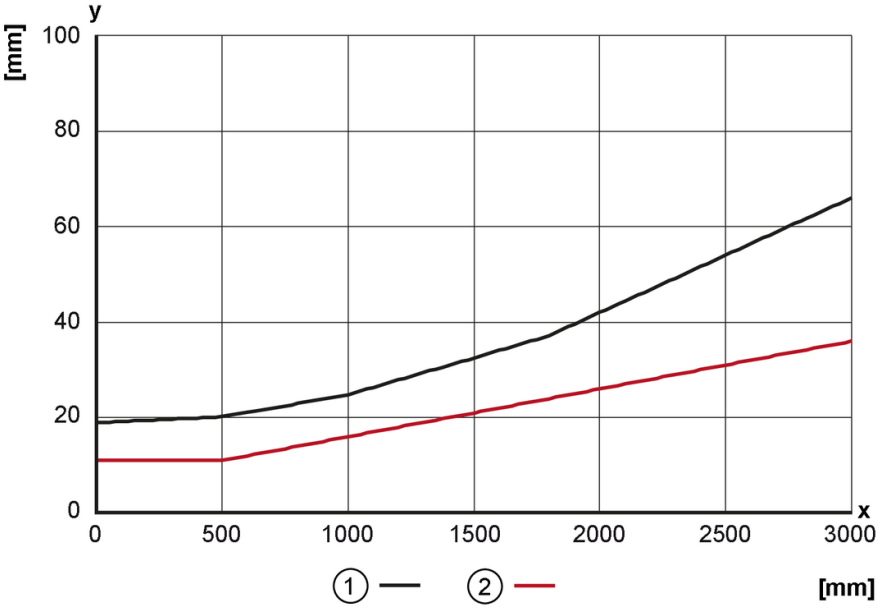
b: object

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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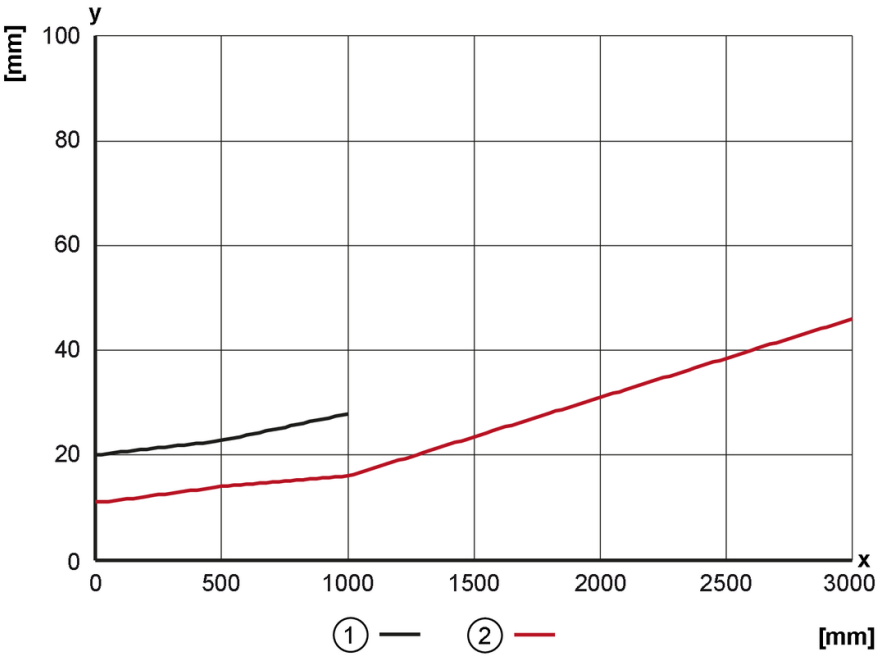
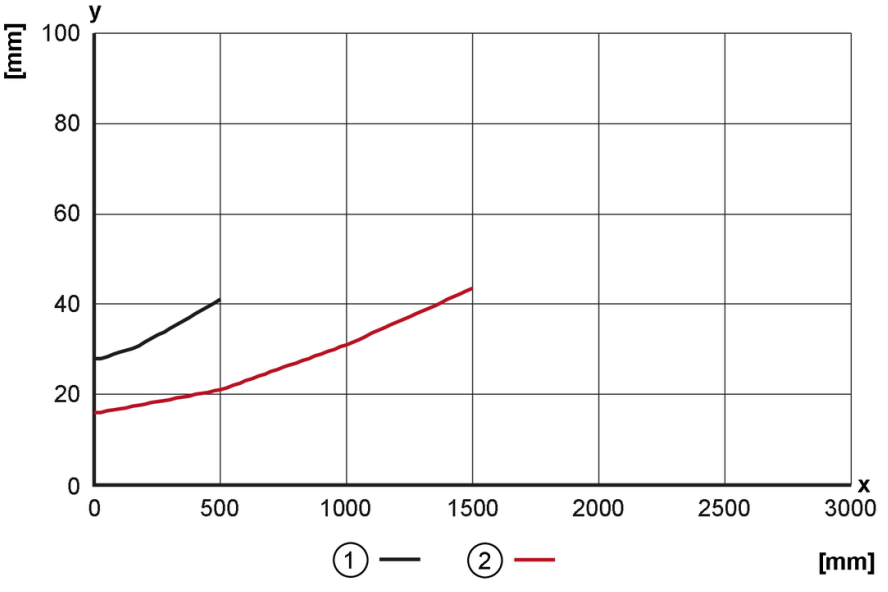
Hysteresis graph for distance measurement / operating mode: STD



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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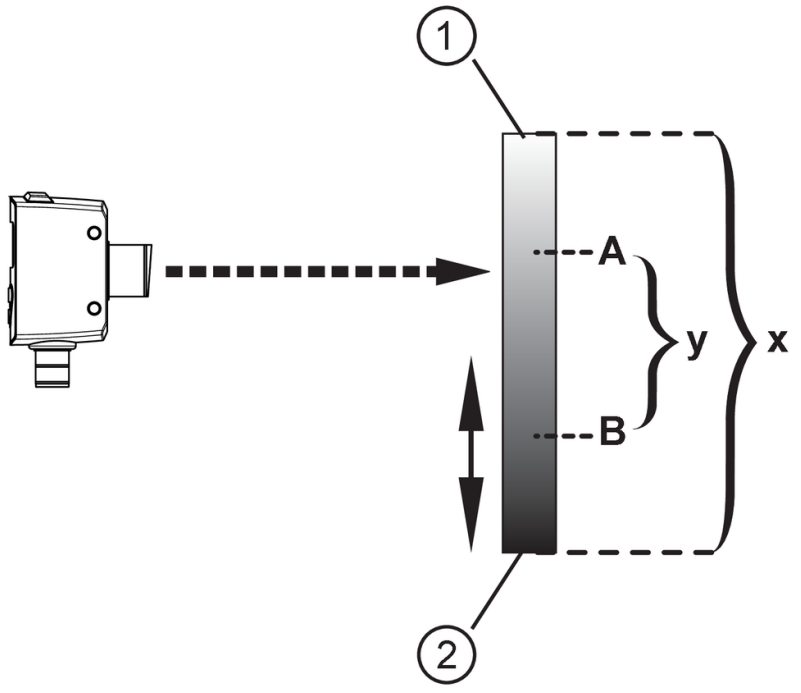

1: bright

2: dark

A: Set point

B: Reset point

x: object brightness (Object reflectivity)

y: min. reflectivity difference to be detected safely

Hysteresis curve for object reflectivity