

O1D300



Optical level sensor

O1DLF3KG/IO-LINK



- 1 alphanumeric display 4-digit
2 programming buttons



Product characteristics

Laser protection class	2
Housing	rectangular

Electrical data

Operating voltage	[V]	18...30 DC; ("supply class 2" to cULus)
Current consumption	[mA]	< 150
Protection class		III
Reverse polarity protection		yes
Typ. lifetime	[h]	50000
Measuring principle		photoelectric

Inputs / outputs

Number of inputs and outputs	Number of digital outputs: 2; Number of analogue outputs: 1
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Outputs

Total number of outputs	2
Electrical design	PNP
Number of digital outputs	2
Output function	normally open / normally closed; (programmable)
Max. current load per output	[mA] 200
Number of analogue outputs	1

O1D300



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Analogue current output	[mA]	4...20; (IEC 61131-2)
Max. load	[Ω]	250
Analogue voltage output	[V]	0...10; (IEC 61131-2)
Min. load resistance	[Ω]	5000
Short-circuit protection		yes
Type of short-circuit protection		pulsed
Overload protection		yes

Detection zone

Max. light spot width	[mm]	15
Max. light spot height	[mm]	15
Light spot dimensions refer to		10 m
Background suppression	[m]	10...100

Measuring/setting range

Measuring range	[m]	0.2...10; (white paper 200 x 200 mm 90% remission)
Sampling rate	[Hz]	1...33

Interfaces

Communication interface	IO-Link	
Transmission type	COM2 (38,4 kBaud)	
IO-Link revision	1.1	
SDCI standard	IEC 61131-9	
Profiles	Smart Sensor: Sensor Identification; Binary Data Channel; Process Value; Sensor Diagnosis	
SIO mode	yes	
Required master port type	A	
Process data analogue	2	
Process data binary	2	
Min. process cycle time	[ms]	6
Supported DeviceIDs	Type of operation	DeviceID
	default	813

Operating conditions

Ambient temperature	[°C]	-10...60
Protection		IP 67

Tests / approvals

EMC	EN 60947-5-2	
Laser protection class		2

O1D300



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Notes on laser protection	Caution:	laser light
	Power:	$\leq 4,0 \text{ mW}$
	Wave length:	650 nm
	pulse:	1,3 ns
	Do not stare into beam.	
	Avoid exposure to the laser light.	
	laser class:	2
		EN / IEC60825-1:2007 EN / IEC60825-1:2014 Complies with 21 CFR 1040 except for deviations pursuant to Laser Notice No. 50, dated June 2007.
MTTF	[years]	107

Mechanical data		
Weight	[g]	240
Housing		rectangular
Dimensions	[mm]	59 x 42 x 52
Materials		housing: diecast zinc; front pane: glass; LED window: PC
Lens alignment		side lens

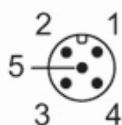
Displays / operating elements		
Display	switching status	2 x LED, yellow
	operation	LED, green
	distance value, programming	alphanumeric display, 4-digit

Accessories	
Accessories (optional)	Protective cover, E21133

Remarks	
Remarks	operating voltage "supply class 2" according to cULus
Pack quantity	1 pcs.

Electrical connection

Connector: 1 x M12; coding: A



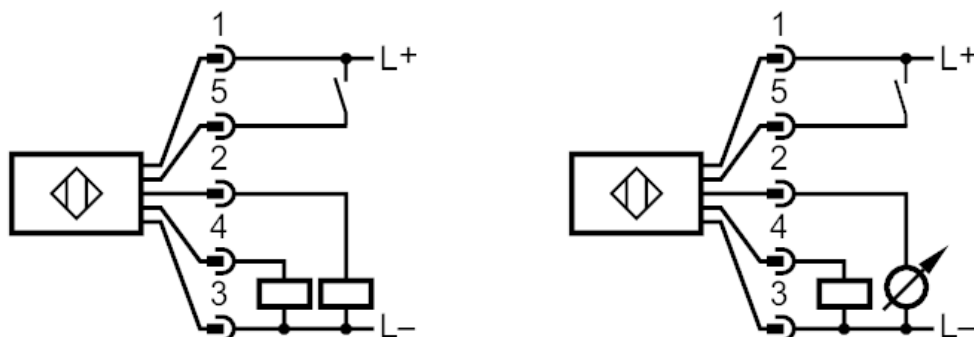
O1D300



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Connection



- 2: OUT2 switching output or 4...20 mA / 0...10 V
 4: OUT1 switching output or IO-Link
 5: IN Laser On/ Off Ein / Aus

Other data

Parameter	Setting range	Factory setting
Uni	cm, m, inch	cm
OU1	Hno, Hnc, Fno, Fnc	Hno
SP1 [cm]	20.0...999.5	100.0
rP1 [cm]	20.0...999.5	80.0
OU2	Hno, Hnc, Fno, Fnc, I, U	I
SP2 [cm]	20.0...999.5	200.0
rP2 [cm]	20.0...999.5	180.0
ASP [cm]	20.0...999.5	0
AEP [cm]	20.0...999.5	979.5
dr1 [s]	0...0.1...5	0
dr2 [s]	0...0.1...5	0
FOU1	ON ; OFF	OFF
FOU2	ON ; OFF	OFF
dFO [s]	0...0.1...5	0
EMP [cm]	20.0...999.5	20.0
cMEd [cm]	20.0...999.5	-
dIS	ON ; OFF	ON
mEAn [s]	OFF ; 1...60	OFF
rATE [Hz]	1...33	15

O1D300



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repeatability/accuracy

	repeatability of the measured values		accuracy	
	white (90 % remission)	grey (18 % remission)	white (90 % remission)	grey (18 % remission)
20.0...100.0 cm	± 0.45 cm	± 0.6 cm	± 1.5 cm	± 1.6 cm
100.0...200.0 cm	± 0.5 cm	± 0.8 cm	± 1.5 cm	± 1.8 cm
200.0...400.0 cm	± 1.6 cm	± 1.9 cm	± 2.5 cm	± 3.0 cm
400.0...600.0 cm	± 2.4 cm	± 3.3 cm	± 3.5 cm	± 4.5 cm
600.0...1000.0 cm	± 5.0 cm		± 6.5 cm	
Sampling rate	15Hz			
Extraneous light on the object	< 40 klx			

repeatability/accuracy

	repeatability of the measured values		accuracy	
	white (90 % remission)	grey (18 % remission)	white (90 % remission)	grey (18 % remission)
20.0...200.0 cm	± 1.4 cm	± 1.4 cm	± 2.4 cm	± 2.4 cm
200.0...400.0 cm	± 2.5 cm	± 3.0 cm	± 3.5 cm	± 4.0 cm
400.0...600.0 cm	± 3.1 cm	± 4.5 cm	± 4.1 cm	± 5.5 cm
600.0...1000.0 cm	± 6.0 cm		± 7.0 cm	
Sampling rate	15Hz			
Extraneous light on the object	40...100 klx			

repeatability/accuracy

	repeatability of the measured values		accuracy	
	white (90 % remission)	grey (18 % remission)	white (90 % remission)	grey (18 % remission)
20.0...100.0 cm	± 0.4 cm	± 0.45 cm	± 1.4 cm	± 1.5 cm
100.0...200.0 cm	± 0.45 cm	± 0.6 cm	± 1.5 cm	± 1.6 cm
200.0...400.0 cm	± 1.35 cm	± 1.4 cm	± 2.3 cm	± 2.4 cm
400.0...600.0 cm	± 1.9 cm	± 2.1 cm	± 2.9 cm	± 3.1 cm
600.0...1000.0 cm	± 3.7 cm		± 4.7 cm	
Sampling rate	1 Hz			
Extraneous light on the object	< 40 klx			

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repeatability/accuracy

	repeatability of the measured values		accuracy	
	white (90 % remission)	grey (18 % remission)	white (90 % remission)	grey (18 % remission)
20.0...200.0 cm	± 1.0 cm	± 1.0 cm	± 2.0 cm	± 2.0 cm
200.0...400.0 cm	± 1.8 cm	± 1.9 cm	± 2.8 cm	± 2.9 cm
400.0...600.0 cm	± 2.3 cm	± 2.7 cm	± 3.3 cm	± 3.7 cm
600.0...1000.0 cm	± 3.8 cm		± 4.8 cm	

Sampling rate	1 Hz
Extraneous light on the object	40...100 klx
Range on black object (6 % remission)	<= 4000 mm
The values apply at	
constant ambient conditions	23 °C / 960 hPa
minimum power-on time in minutes	10