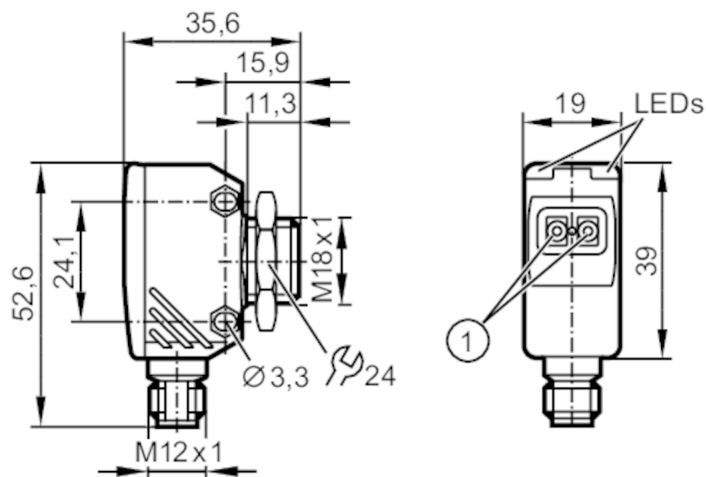


Diffuse reflection sensor with background suppression

OGH-FPKG/US/CUBE



- 1 programming buttons
transmitter in lower lens
receiver in upper lens



Product characteristics

Type of light	red light
Communication interface	IO-Link
Housing	rectangular
Dimensions [mm]	M18 x 1

Application

Special feature	Background suppression
Function principle	Diffuse reflection sensor

Electrical data

Operating voltage [V]	10...30 DC; ("supply class 2" to cULus)
Rated insulation voltage [V]	32
Current consumption [mA]	25
Protection class	III
Reverse polarity protection	yes
Max. power-on delay time [ms]	300
Type of light	red light
Wave length [nm]	645



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Outputs		
Electrical design		PNP
Output function		light-on/dark-on mode; (programmable)
Max. voltage drop switching output DC [V]		2.5
Permanent current rating of switching output DC [mA]		200
Switching frequency DC [Hz]		1000
Short-circuit protection		yes
Type of short-circuit protection		pulsed
Detection zone		
Range [mm]	15...200; (white paper 200 x 200 mm 90% remission)	
Range on white object (90 % remission) [mm]	15...200	
Range on grey object (18 % remission) [mm]	15...200	
Range on black object (6 % remission) [mm]	15...200	
Range adjustable	yes	
Max. light spot diameter [mm]	13	
Light spot dimensions refer to	at maximum range	
Background suppression available	yes	
Interfaces		
Communication interface	IO-Link	
Transmission type	COM2 (38,4 kBaud)	
IO-Link revision	1.1	
SDCI standard	IEC 61131-9	
Profiles	Measuring Sensor, Identification and Diagnosis, Switching Signal Channel, Teach Channel	
SIO mode	yes	
Required master port type	A	
Min. process cycle time [ms]	10	
IO-Link process data (cyclical)	function	bit length
	process value	16
	device status	4
	binary switching information	1
IO-Link functions (acyclical)	application specific tag; operating hours counter; switching cycles counter	
Supported DeviceIDs	Type of operation	DeviceID
	Default	1132
Note	For further information please see the IODD PDF file under "Downloads"	
Operating conditions		
Ambient temperature [°C]	-25...60	
Storage temperature [°C]	-40...60	
Protection	IP 65; IP 67	



Diffuse reflection sensor with background suppression

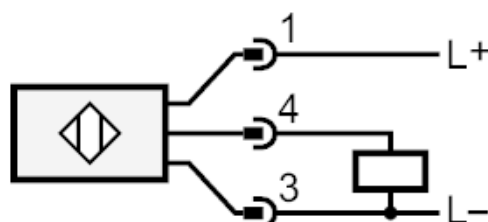
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Tests / approvals		
EMC	EN 60947-5-2	
MTTF [years]	782	
UL approval	Ta	-25...60 °C
	Enclosure type	Type 1
	voltage supply	Class 2
	File number UL	E174191
Mechanical data		
Weight [g]	60.5	
Housing	rectangular	
Dimensions [mm]	M18 x 1	
Thread designation	M18 x 1	
Materials	diecast zinc; PEI	
Lens material	PEI	
Displays / operating elements		
Display	switching status	1 x LED, yellow
	operation	1 x LED, green
Operating elements	switch point	pushbutton
	Output function	pushbutton
Accessories		
Items supplied	lock nut: 1 x	
Remarks		
Pack quantity	1 pcs.	
Electrical connection		
Connector: 1 x M12		
		

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Connection



Other data

Repeatability / precision: 6 σ

	repeatability of the measured values	
Abstand	white (90 % remission)	black (6 %...90 % remission)
20 mm	0.5 mm	1.0 mm
50 mm	0.8 mm	2.0 mm
100 mm	1.5 mm	4.5 mm
150 mm	3.0 mm	9.0 mm
200 mm	6.0 mm	20.0 mm
	Accuracy	
Abstand	white (90 % remission)	black (6 %...90 % remission)
20 mm	± 2.0 mm	± 2.5 mm
50 mm	± 3.5 mm	± 4.5 mm
100 mm	± 6.0 mm	± 7.5 mm
150 mm	± 7.5 mm	± 11.0 mm
200 mm	± 10.0 mm	± 17.0 mm

The values apply at

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

Diffuse reflection sensor with background suppression

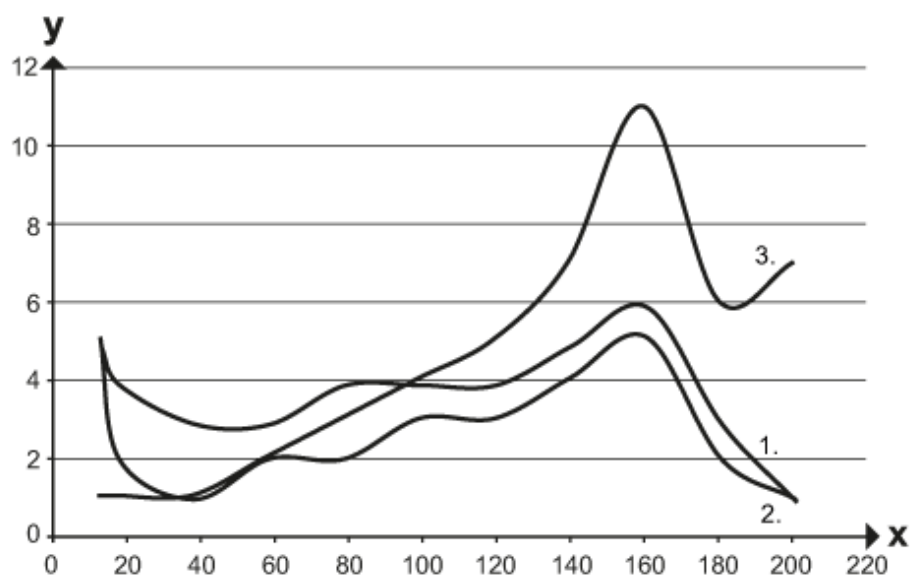
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Diagrams and graphs



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

accuracy graph



- x: distance sensor/object [mm]
- y: min. distance object/background [mm]
- 1 = object black (6 % remission) , background (white 90 % remission)
- 2 = object grey (18 % remission) , background (white 90 % remission)
- 3 = object white (90 % remission) , background (white 90 % remission)