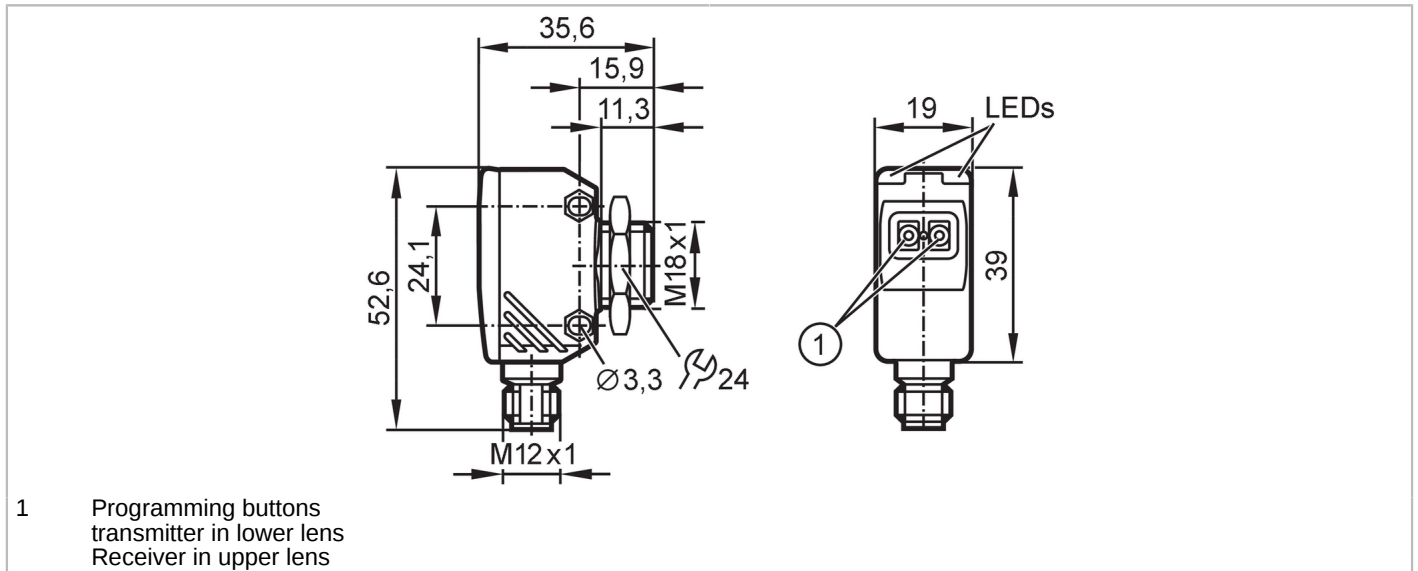




## Diffuse reflection sensors with background suppression

OGH-FNKG/US/CUBE



Product characteristics	
Type of light	red light
Housing	rectangular with M18 thread
Application	
Special feature	Background suppression
Function principle	Diffuse reflection sensor
Electrical data	
Operating voltage [V]	10...30 DC
Current consumption [mA]	25
Protection class	III
Reverse polarity protection	yes
Type of light	red light
Wave length [nm]	645
Outputs	
Electrical design	NPN
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	yes (non-latching)
Overload protection	yes
Monitoring range	
Range [mm]	15...200; (white paper 200 x 200 mm 90 % remission)
Range on white object (90 % remission) [mm]	15...200



## Diffuse reflection sensors with background suppression

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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	Smart Sensor - SSP 3.1	Measuring Sensor
	Common - I&D	Identification and Diagnosis
	Function	Multiple switching signal
	Function	Teach channel
SIO mode	yes	
Required master port class	A	
Min. process cycle time [ms]	10	
IO-Link process data (cyclical)	<b>Function</b>	<b>bit length</b>
	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	<b>Type of operation</b>	<b>DeviceID</b>
	default	1165
Note	For further information please see the IODD PDF file at "Downloads"	

### Operating conditions

Ambient temperature [°C]	-25...60
Storage temperature [°C]	-40...60
Protection	IP 65; IP 67

### 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
Housing	rectangular with M18 thread
Dimensions [mm]	52.6 x 19 x 35.6
Thread designation	M18 x 1
Material	housing: diecast zinc; rear of the housing: PEI

# OGH581



## Diffuse reflection sensors with background suppression

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Lens material	front lens:PEI
Lens alignment	Side sensing

### Displays / operating elements

Display	Switching status	1 x LED, yellow
	Power	1 x LED, green

### Accessories

Items supplied	lock nut: 1
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### Remarks

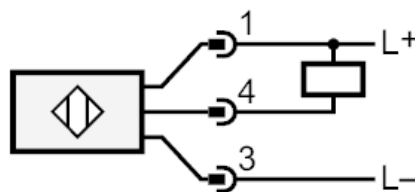
Pack quantity	1 pcs.
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### Electrical connection

Connector: 1 x M12; coding: A



### Connection



4 OUT / IO-Link



## Diffuse reflection sensors with background suppression

OGH-FNKG/US/CUBE

### Other data

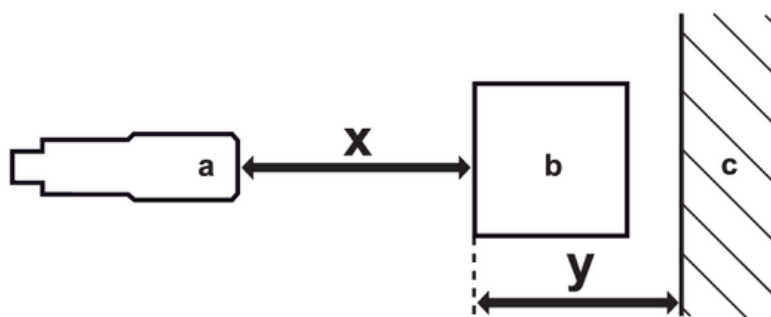
#### Repeatability / precision: 6 $\sigma$

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	$\pm 2.0$ mm	$\pm 2.5$ mm
50 mm	$\pm 3.5$ mm	$\pm 4.5$ mm
100 mm	$\pm 6.0$ mm	$\pm 7.5$ mm
150 mm	$\pm 7.5$ mm	$\pm 11.0$ mm
200 mm	$\pm 10.0$ mm	$\pm 17.0$ 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

### Diagrams and graphs



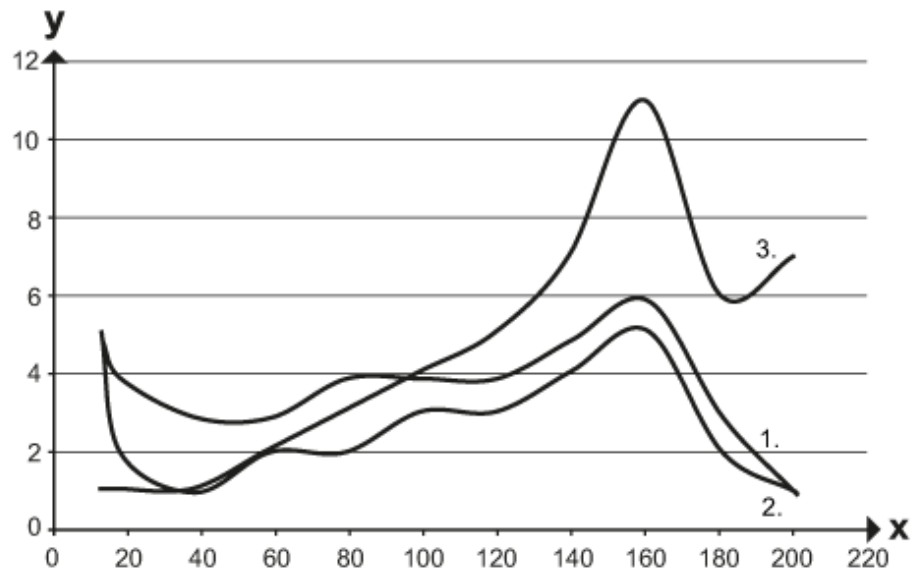
- a: sensor
- b: object
- c: background
- x: distance sensor/object [mm]
- y: min. distance object/background [mm]



## Diffuse reflection sensors with background suppression

OGH-FNKG/US/CUBE

Background suppression chart



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)