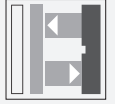




## Triangulation sensor (BGS)

### OBT650-R200-E5F-0,3M-V1-Y0393

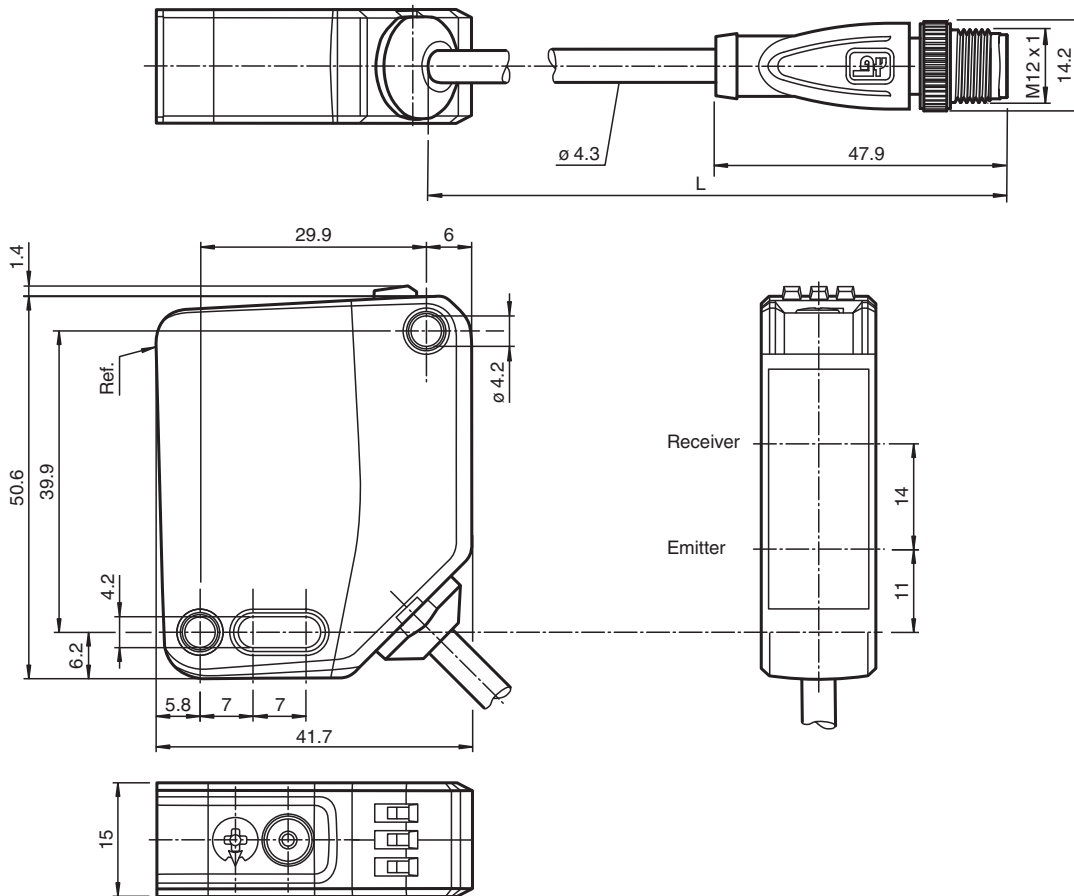


- Particularly suitable for conveyor systems
- Best background suppressor in its class
- Automatic switching threshold adaptation eliminates soiling effects
- Precision object detection, almost irrespective of the color
- Extended temperature range  
-40 °C ... 60 °C
- High degree of protection IP69K

Triangulation sensor with background suppression



### Dimensions



### Technical Data

#### General specifications

Detection range	10 ... 650 mm
Detection range min.	10 ... 100 mm
Detection range max.	10 ... 650 mm
Adjustment range	100 ... 650 mm

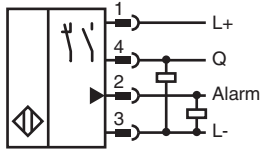
## Technical Data

Reference target	standard white, 100 mm x 100 mm	
Light source	LED	
Light type	modulated visible red light	
LED risk group labelling	exempt group	
Black-white difference (6 %/90 %)	< 6 % at 650 mm	
Diameter of the light spot	approx. 20 mm x 20 mm at a distance of 650 mm	
Opening angle	approx. 2 °	
Ambient light limit	EN 60947-5-2 : 70000 Lux	
<b>Functional safety related parameters</b>		
MTTF <sub>d</sub>	600 a	
Mission Time (T <sub>M</sub> )	20 a	
Diagnostic Coverage (DC)	0 %	
<b>Indicators/operating means</b>		
Operation indicator	LED green: power on ; flashing (4 Hz) - short-circuit	
Function indicator	LED yellow: lights when object is detected ; flashing (approx. 4 Hz) at Pollution	
Control elements	Light-on/dark-on changeover switch	
Control elements	Sensing range adjuster	
<b>Electrical specifications</b>		
Operating voltage	U <sub>B</sub>	10 ... 30 V DC
Ripple	max. 10 %	
No-load supply current	I <sub>0</sub>	< 25 mA at 24 V supply voltage
Protection class	III	
<b>Output</b>		
Stability alarm output	1 PNP, active when level falls below function reserve after approx. 5 s. Immediately active if the beam is interrupted 4 times during the flashtime.	
Switching type	The switching type of the sensor is adjustable. The default setting is: Q - Pin4: PNP normally open / light-on Alarm output - Pin2: PNP normally open / light-on detected when soiled	
Signal output	2 PNP outputs, short-circuit-proof, reverse polarity protection, surge-proof	
Switching voltage	max. 30 V DC	
Switching current	max. 100 mA , resistive load	
Usage category	DC-12 and DC-13	
Voltage drop	U <sub>d</sub>	≤ 1.5 V DC
Switching frequency	f	200 Hz
Response time	2.5 ms	
<b>Conformity</b>		
Product standard	EN 60947-5-2	
<b>Approvals and certificates</b>		
UL approval	E87056 , cULus Listed , class 2 power supply , type rating 1	
CCC approval	CCC approval / marking not required for products rated ≤36 V	
<b>Ambient conditions</b>		
Ambient temperature	-40 ... 60 °C (-40 ... 140 °F) , fixed cable -20 ... 60 °C (-4 ... 140 °F) , movable cable not appropriate for conveyor chains	
Storage temperature	-40 ... 70 °C (-40 ... 158 °F)	
<b>Mechanical specifications</b>		
Housing width	15 mm	
Housing height	50.6 mm	
Housing depth	41.7 mm	
Degree of protection	IP67 / IP69 / IP69K	
Connection	300 mm fixed cable with M12 x 1, 4-pin connector	
Material		
Housing	PC (Polycarbonate)	
Optical face	PMMA	
Mass	approx. 45 g	

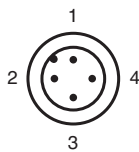
## Technical Data

Cable length 0.3 m

## Connection



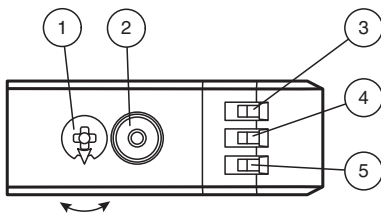
## Connection Assignment



Wire colors in accordance with EN 60947-5-2

- 1 | BN (brown)
- 2 | WH (white)
- 3 | BU (blue)
- 4 | BK (black)

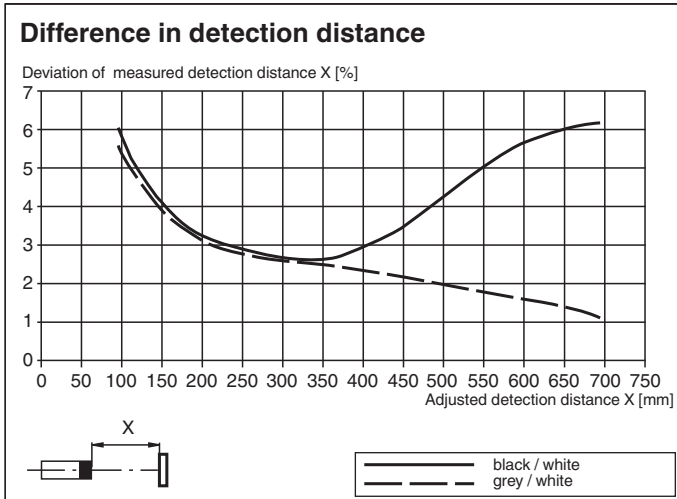
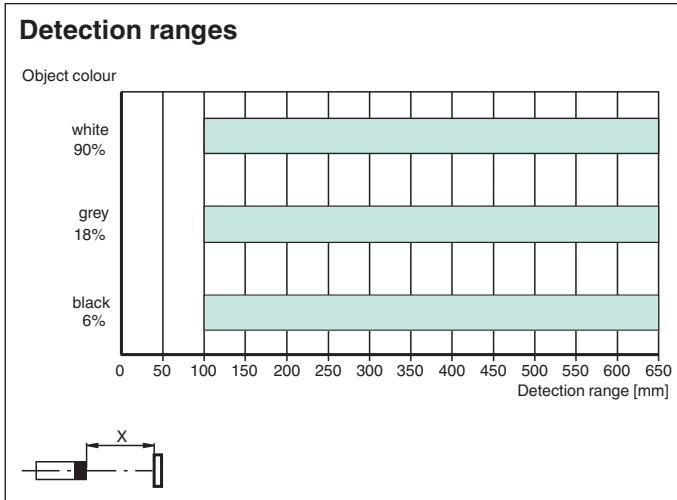
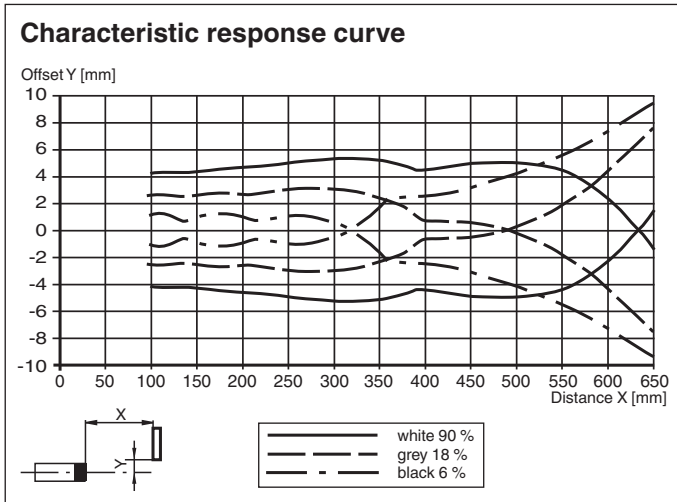
## Assembly



1	Sensitivity adjustment	
2	Light-on / dark-on changeover switch	
3	Operating indicator / dark on	GN
4	Signal indicator	YE
5	Operating indicator / light on	GN

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**Characteristic Curve**



**Commissioning**

To unlock the adjustment functions turn the sensing range / sensitivity adjuster for more than 180 degrees.

**Sensing Range / Sensitivity**

Turn sensing range / sensitivity adjuster clockwise to increase sensing range / sensitivity.  
 Turn sensing range / sensitivity adjuster counter clockwise to decrease sensing range / sensitivity.  
 If the end of the adjustment range is reached, the signal indicator starts flashing with 8 Hz.

**Light-on / Dark-on Configuration**

Press the light-on / dark-on changeover switch for more than 1 second (less than 4 seconds). The light-on / dark-on mode changes and the operating indicators are activated accordingly.  
 If you press the light-on / dark-on changeover switch for more than 4 seconds, the light-on / dark-on mode changes back to the original setting. On release of the light-on / dark-on changeover switch the current state is activated.

**Restore Factory Settings**





Release date: 2023-04-24 Date of issue: 2023-04-24 Filename: 295670-100393\_eng.pdf

## Commissioning

Press the light-on / dark-on changeover switch for more than 10 seconds (less than 30 seconds) until all LEDs turn off. On release of the light-on / dark-on changeover switch the signal indicator turns on. After 5 seconds the sensor resumes operation with factory default settings.

After 5 minutes of inactivity the sensing range / sensitivity adjustment is locked. In order to reactivate the sensing range / sensitivity adjustment, turn the sensing range / sensitivity adjuster for more than 180 degrees.

## Accessories

	<b>V1-G-2M-PUR</b>	Female cordset single-ended M12 straight A-coded, 4-pin, PUR cable grey
	<b>V1-W-2M-PUR</b>	Female cordset single-ended M12 angled A-coded, 4-pin, PUR cable grey
	<b>OMH-R20x-Quick-Mount</b>	Quick mounting accessory
	<b>MH-R20x/F77-03</b>	Mounting aid