



Triangulation sensor (BGS)

OBT650-R201-E5F-0,3M-V1-Y0394

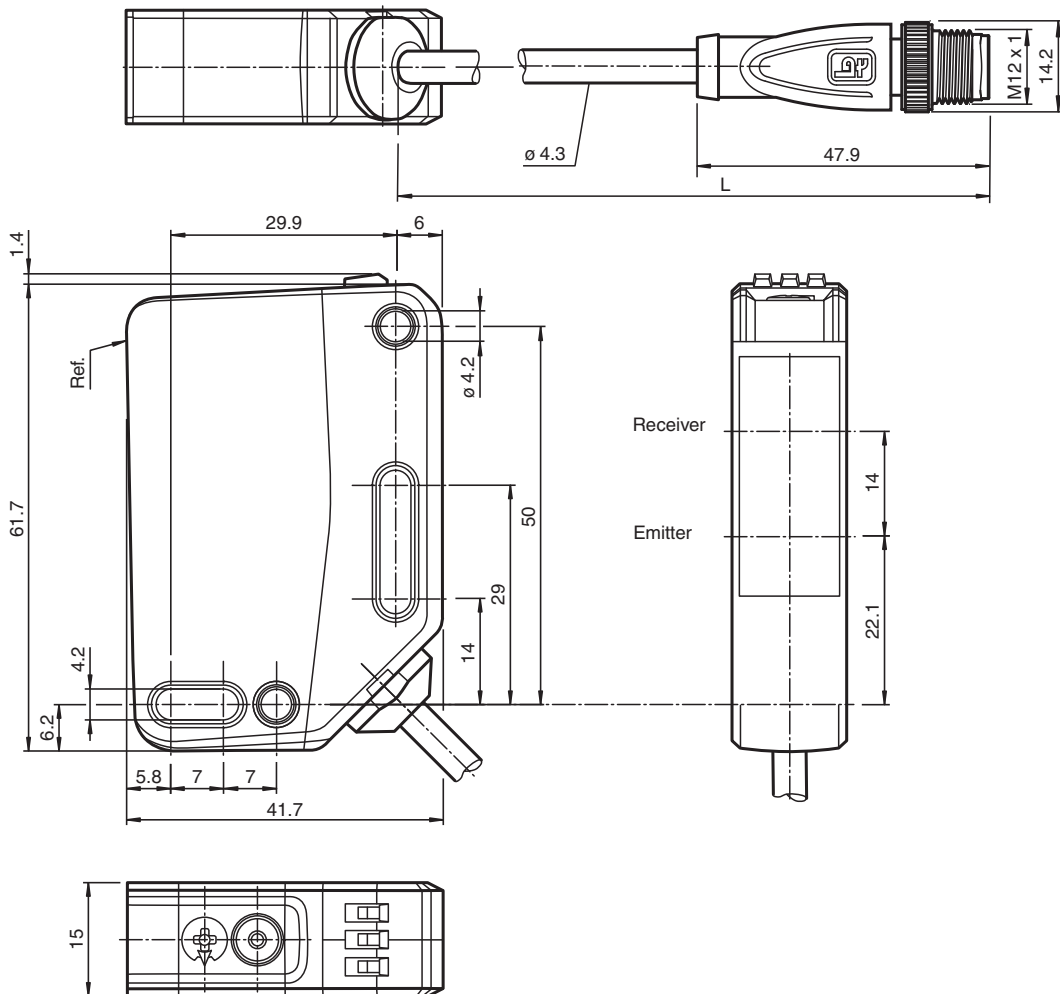


- Particularly suitable for conveyor systems
- Best background suppressor in its class
- Automatic switching threshold adaptation eliminates soiling effects
- Precision object detection, almost irrespective of the color
- Extended temperature range
-40 °C ... 60 °C
- High degree of protection IP69K

Triangulation sensor with background suppression



Dimensions



Technical Data

General specifications

Detection range 10 ... 650 mm

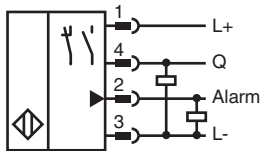
Technical Data

Detection range min.		10 ... 100 mm
Detection range max.		10 ... 650 mm
Adjustment range		100 ... 650 mm
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
Functional safety related parameters		
MTTF _d		600 a
Mission Time (T _M)		20 a
Diagnostic Coverage (DC)		0 %
Indicators/operating means		
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
Electrical specifications		
Operating voltage	U _B	10 ... 30 V DC
Ripple		max. 10 %
No-load supply current	I ₀	< 25 mA at 24 V supply voltage
Protection class		III
Output		
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 _d	≤ 1.5 V DC
Switching frequency	f	200 Hz
Response time		2.5 ms
Conformity		
Product standard		EN 60947-5-2
Approvals and certificates		
UL approval		E87056 , cULus Listed , class 2 power supply , type rating 1
CCC approval		CCC approval / marking not required for products rated ≤36 V
Ambient conditions		
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)
Mechanical specifications		
Housing width		15 mm
Housing height		61.7 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		

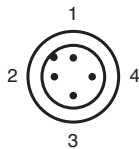
Technical Data

Housing	PC (Polycarbonate)
Optical face	PMMA
Mass	approx. 55 g
Cable length	0.3 m

Connection



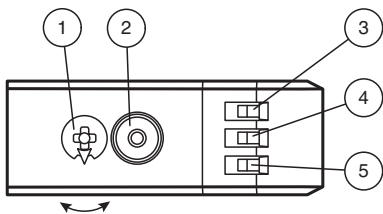
Connection Assignment



Wire colors in accordance with EN 60947-5-2

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

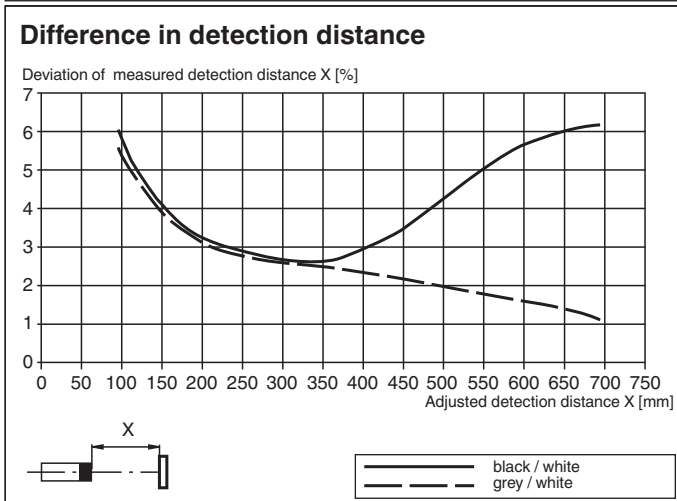
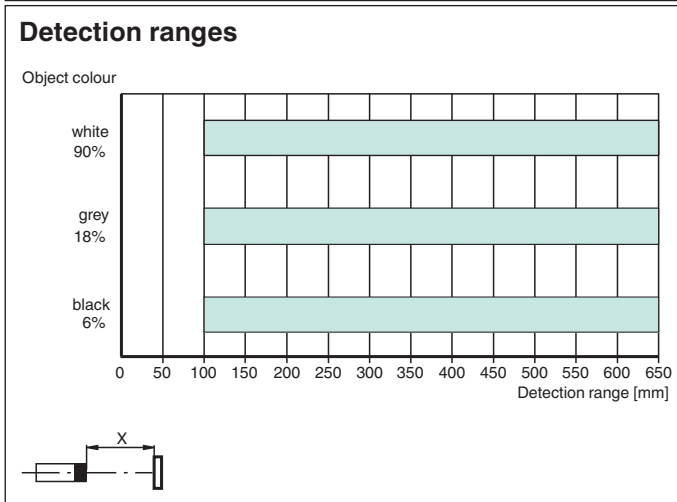
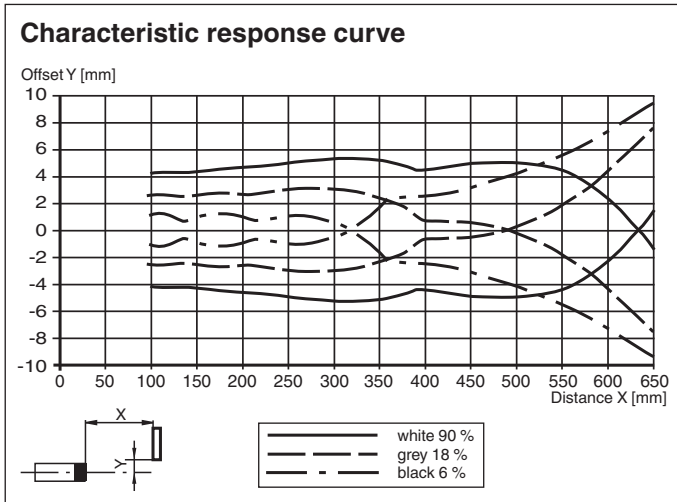
Assembly



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

Release date: 2023-04-24 Date of issue: 2023-04-24 Filename: 295670-100394_eng.pdf

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: 295670-100394_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

	V1-G-2M-PUR	Female cordset single-ended M12 straight A-coded, 4-pin, PUR cable grey
	V1-W-2M-PUR	Female cordset single-ended M12 angled A-coded, 4-pin, PUR cable grey
	MH-R20x/F77-03	Mounting aid