

Diffuse Mode Sensor (BGS)

OBT120-R2-E2-P

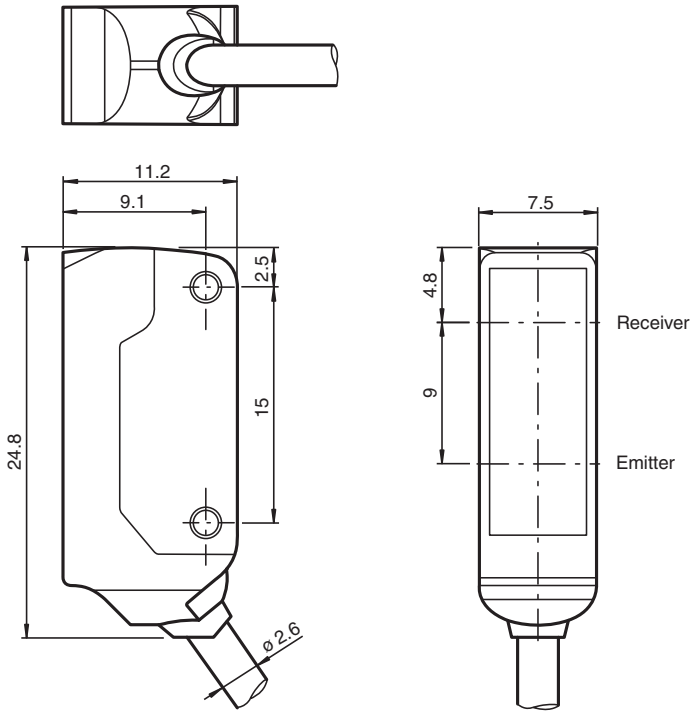
- Ultra-small housing design
- 45° cable outlet for maximum mounting freedom under extremely tight space constraints
- Highly visible light spot, even on dark materials
- Precision object detection, almost irrespective of the color
- Adjustable sensing range

Diffuse mode sensor based on triangulation principle with background suppression (BGS) for standard applications, miniature design, 120 mm adjustable sensing range, red light, light-on, PNP output, fixed cable

Function

The nano sensor has been developed for a broad range of applications. It offers excellent durability and is exceptionally easy to install. The housing is compact and, with its 45° cable outlet, can be installed in the smallest spaces. New functional principles and functionality open up a range of new options.

Dimensions



Technical Data

General specifications	
Detection range	1 ... 120 mm
Detection range min.	1 ... 20 mm
Detection range max.	1 ... 120 mm

Release date: 2026-11-03 Date of issue: 2026-11-03 Filename: 70133987_eng.pdf

Technical Data

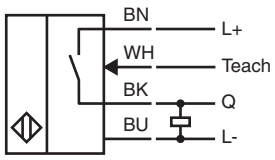
Adjustment range		20 ... 120 mm
Reference target		standard white, 100 mm x 100 mm
Light source		LED
Light type		modulated visible red light
LED risk group labelling		exempt group
Black-white difference (6 %/90 %)		< 10 % at 120 mm
Diameter of the light spot		approx. 10 mm at a distance of 120 mm
Opening angle		approx. 6 °
Optical face		frontal
Ambient light limit		EN 60947-5-2 : 5000 Lux
Functional safety related parameters		
$MTTF_d$		782 a
Mission Time (T_M)		20 a
Diagnostic Coverage (DC)		0 %
Indicators/operating means		
Operation indicator		LED green: Power on flashing (approx. 4 Hz) Short circuit/overload indication
Function indicator		LED yellow ON: lights when object is detected Start teach in: LED green/yellow in-phase flashing 2.5 Hz End teach in: LED green/yellow alternate flashing 2.5 Hz
Electrical specifications		
Operating voltage	U_B	12 ... 24 V DC , class 2
No-load supply current	I_0	< 25 mA
Protection class		III
Input		
Control input		external Teach-In
Output		
Switching type		PNP normally open / light on
Signal output		1 PNP output, short-circuit protected, reverse polarity protected, open collector
Switching voltage		max. 24 V DC
Switching current		max. 50 mA , resistive load
Voltage drop	U_d	≤ 1.5 V DC
Switching frequency	f	approx. 500 Hz
Response time		1000 µs
Conformity		
Product standard		EN 60947-5-2
Approvals and certificates		
UL approval		E87056 , cULus Recognized, Class 2 Power Source Further UL information see section "Additional Information"
Ambient conditions		
Ambient temperature		-25 ... 55 °C (-13 ... 131 °F)
Storage temperature		-30 ... 70 °C (-22 ... 158 °F)
Mechanical specifications		
Degree of protection		IP67
Connection		2 m fixed cable
Material		
Housing		PC/ABS and TPU
Optical face		Plastic
Cable		PUR
Installation		Fixing screws , 2 x M2 allen head screws included with delivery
Mass		approx. 18 g
Dimensions		
Height		24 mm
Width		7.5 mm

Release date: 2026-11-03 Date of issue: 2026-11-03 Filename: 70133987_eng.pdf

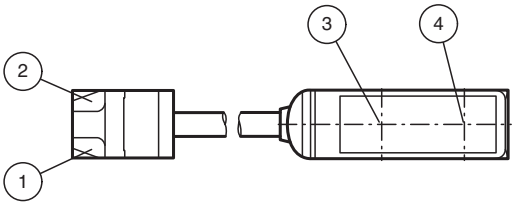
Technical Data

Depth	11.2 mm
Cable length	2 m

Connection Assignment



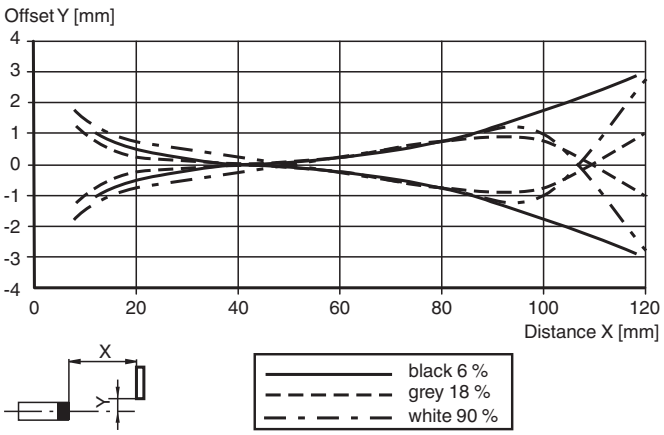
Indication



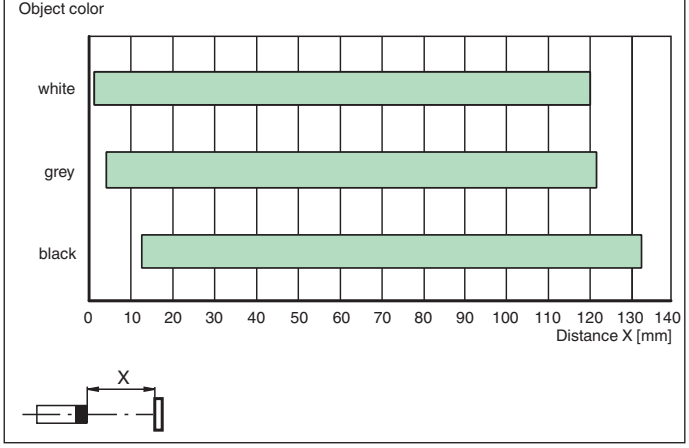
1	Operation indicator	green
2	Signal indicator	yellow
3	Emitter	
4	Receiver	

Characteristic Curve

Characteristic response curve

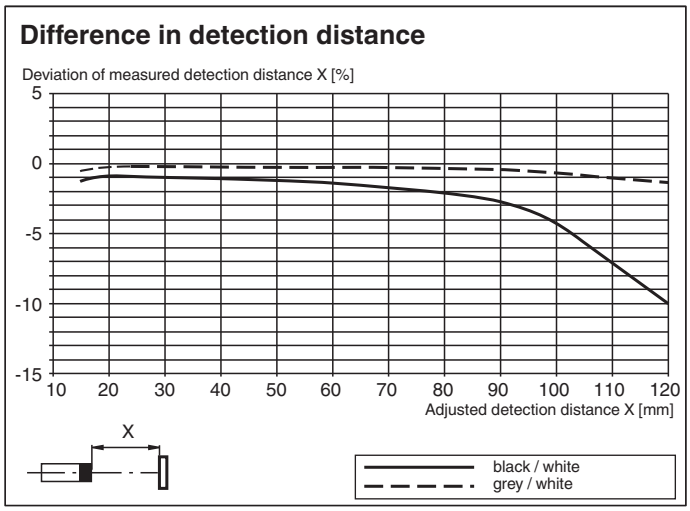


Detection ranges



Release date: 2026-11-03 Date of issue: 2026-11-03 Filename: 70133987_eng.pdf

Characteristic Curve



Additional Information

Additional UL Information
Conditions of Acceptability:
These devices should be mounted within a suitable ultimate enclosure with proper end products spacings.
These devices shall be used within their recognized electrical ratings.
These devices are intended for factory wiring only. The suitability of the power cord and strain relief should be determined in the end use application.
These proximity switches are intended to be powered by Listed Class 2 power supply or are located in a limited voltage / limited current circuit.

Release date: 2026-11-03 Date of issue: 2026-11-03 Filename: 70133987_eng.pdf