

Retroreflective sensor (glass) OBG3000-18GM60A-E5-V1



- Strong metallic housing in cylindrical shape M18 x 1
- Sensitivity adjuster for optimal adaptation to the application
- Not sensitive to ambient light
- Degree of protection IP67
- Very high detection range

Retroreflective sensor (glass)









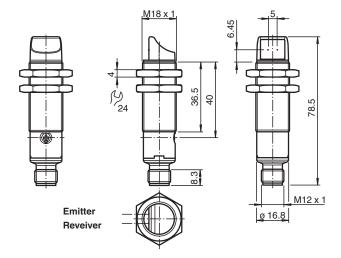
Function

The optical sensors of this series have an M18 threaded housing that is optionally available in plastic or metal.

The sensors are robust and versatile.

Focusing on the essential requirements simplifies selection and commissioning, saving time and costs.

Dimensions

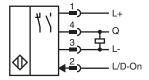


Technical Data

General specifications	
Effective detection range	0 3 m in glass mode;
Reflector distance	0 3 m in glass mode;
Threshold detection range	3 m
Reference target	reflector C110-2
Light source	LED
Light type	modulated visible red light
Polarization filter	yes
Diameter of the light spot	approx. 175 mm at a distance of 3 m
Angle of divergence	approx. 2.6 °

MTTFG 666 a Mission Time (Tru) 20 a Diagnostic Coverage (DC) 0 % Indicators/operating means LED green: power on flashing (4 Hz) - short circuit Function indicator Velow LED: Permanently lit. light path clear Permanently lit. ligh	Technical Data		
Functional safety related parameters MITF, 6	Optical face		lateral
MTTF₀ 666 a Mission Time (T₁) 20 a Diagnostic Coverage (DC) 0 % Indicators/operating means LED green: appression of lishing (4 Hz) - short circuit Function indicator LED green: appression of lishing (4 Hz) - short circuit Function indicator Yellow LED: Permanently in It ight path clear Permanently off - object detected Flashing (4 Hz) - insufficion operating reserve Control elements potentiometer for Teach-In Control elements light/dark on electrically switchable Contract detection levels 18 % - clear glass bottles 40 % - colored glass or opaque materials Control elements Electrical specifications wax. 10 % Operating voltage u max. 10 % No-load supply current lg < 25 mA	Ambient light limit		EN 60947-5-2 20000 Lux
Mission Time (T _M) 20 a Diagnostic Coverage (DC) 0 % Mindicator Sopreating means	Functional safety related parameters		
Diagnostic Coverage (DC)	MTTF _d		666 a
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Description	Indicators/operating means		
Permanently III - Iiight path clear Permanently III - Iiight path	Operation indicator		on - power on
Control elements	Function indicator		Permanently lit - light path clear Permanently off - object detected
Contrast detection levels \$18 \% \cdot \cap car glass bottles \\ 40 \% \cdot \	Control elements		potentiometer for Teach-In
Electrical specifications Operating voltage	Control elements		light/dark on electrically switchable
Operating voltage U _B 10 30 V DC Ripple max. 10 % No-load supply current I₀ <25 mA	Contrast detection levels		
Ripple max. 10 % No-load supply current I ₀ < 25 mA Protection class III Output Switching type The switching type of the sensor is adjustable. The default setting is: Q - Pin4: PNP output, fakr-on L/D-On - Pin2: Low-active input Signal output 1 PNP output, short-circuit protected, reverse polarity protected, open collector Switching voltage max. 30 V DC Switching current max. 100 mA, resistive load Voltage drop U _d ≤ 2 V DC Switching frequency f 500 Hz Response time ≤ 1 ms Conformity Product standard EN 60947-5-2 Approvals and certificates E87056, cULus Listed , class 2 power supply , type rating 1 Ambient conditions E87056, cULus Listed , class 2 power supply , type rating 1 Ambient temperature -40 60 °C (-40 140 °F) Storage temperature -40 60 °C (-40 158 °F) Mechanical specifications P67 Connection P67 Material Possion, inckel-plated Optical face PMMA Optical face PMMA	Electrical specifications		
No-load supply current I₀ < 25 mA Protection class III Output Incompany Incompany Switching type Incompany Incompany Signal output 1 PNP output, short-circuit protected, reverse polarity protected, open collector Switching voltage 1 PNP output, short-circuit protected, reverse polarity protected, open collector Switching current max. 30 V DC Switching frequency f 500 Hz Response time ≤ 1 ms Conformity Voltage and certificates UL approval E87056, cULus Listed , class 2 power supply , type rating 1 Ambient conditions E87056, cULus Listed , class 2 power supply , type rating 1 Ambient temperature -40 60 °C (-40 140 °F) Storage temperature -40 60 °C (-40 158 °F) Mechanical specifications P67 Connection IP67 Connection 4 -pin, M12 x 1 connector Material Poss, nickel-plated Optical face PMMA Optical face PMMA	Operating voltage	U_B	10 30 V DC
Protection class III Output The switching type of the sensor is adjustable. The default setting is: Q - Pin4: PNP output / dark-on L/D-On - Pin2: Low-active input Signal output 1 PNP output, short-circuit protected, reverse polarity protected, open collector Switching voltage max. 30 V DC Switching current max. 100 mA, resistive load Voltage drop U _d ≤ 2 V DC Switching frequency f 500 Hz Response time ≤ 1 ms Conformity Product standard EN 60947-5-2 Approvals and certificates EN 60947-5-2 UL approval E87056, cULus Listed , class 2 power supply , type rating 1 Ambient conditions E87056, cULus Listed , class 2 power supply , type rating 1 Ambient temperature -40 60 °C (-40 140 °F) Storage temperature -40 60 °C (-40 158 °F) Mechanical specifications P Degree of protection 1P67 Connection 4-pin, M12 x 1 connector Material P Housing brass, nickel-plated Optical face PMMA Optical face <td>Ripple</td> <td></td> <td>max. 10 %</td>	Ripple		max. 10 %
Output Switching type The switching type of the sensor is adjustable. The default setting is: Q - Pin4: PNP output / dark-on L/D-On - Pin2: Low-active input Signal output 1 PNP output, short-circuit protected, reverse polarity protected, open collector Switching voltage max. 30 V DC Switching current max. 100 mA , resistive load Voltage drop U _d < 2 V DC	No-load supply current	Io	< 25 mA
Switching type The switching type of the sensor is adjustable. The default setting is: Q - Pin4: PNP output / dark-on L/D-On - Pin2: Low-active input 1 PNP output, short-circuit protected, reverse polarity protected, open collector max. 30 V DC Switching current max. 100 mA , resistive load Voltage drop Ud	Protection class		III
Signal output 1 PNP output, short-circuit protected, reverse polarity protected, open collector max. 30 V DC Switching current max. 100 mA , resistive load Voltage drop Ud ≤2 V DC Switching frequency f 500 Hz Response time ≤1 ms Conformity Product standard E87056 , cULus Listed , class 2 power supply , type rating 1 Ambient conditions Ambient temperature 40 70 °C (-40 140 °F) Storage temperature -40 70 °C (-40 158 °F) Mechanical specifications Degree of protection IP67 Connection 4-pin, M12 x 1 connector Material Housing brass in ckell-plated Optical face PMMA plastic	Output		
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Switching current $max. 100 mA$, resistive load Voltage drop $U_d \le 2 V DC$ Switching frequency $f 500 Hz$ Response time $\le 1 ms$ Conformity Product standard $E N 60947-5-2$ Approvals and certificates UL approval $E N 60947-5-2$ Ambient conditions Ambient conditions Ambient temperature $4060 °C (-40140 °F)$ Storage temperature $4070 °C (-40158 °F)$ Mechanical specifications Degree of protection $P E N 60000000000000000000000000000000000$	Signal output		1 PNP output, short-circuit protected, reverse polarity protected, open collector
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Material Housing brass, nickel-plated Optical face PMMA Connector plastic	Degree of protection		IP67
Housing brass, nickel-plated Optical face PMMA Connector plastic	Connection		4-pin, M12 x 1 connector
Optical face PMMA Connector plastic	Material		
Connector plastic	Housing		brass, nickel-plated
	Optical face		PMMA
Mass approx. 24 g	Connector		plastic
	Mass		approx. 24 g

Connection



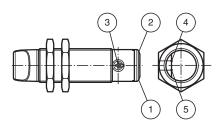
Connection



Wire colors in accordance with EN 60947-5-2

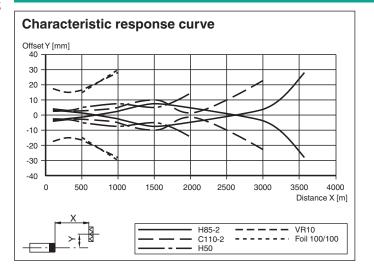
1 BN (brown)
2 WH (white)
3 BU (blue)
4 BK (black)

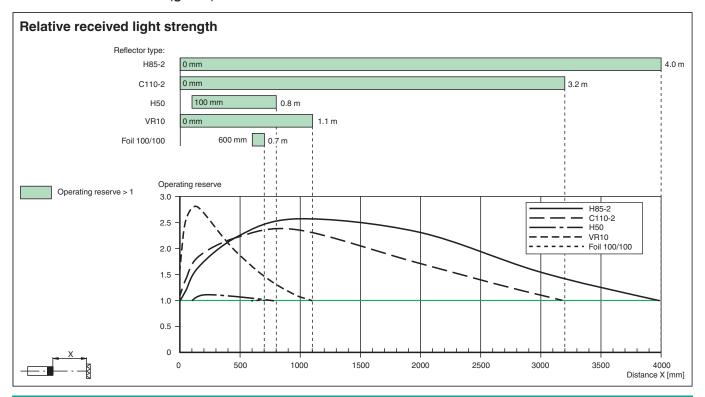
Indication



1	Operating display	green	
2	Signal display	yellow	
3	Teach-In and Mode selection		
4	Emitter		
5	Receiver		

Characteristic Curve





Teach-In

Apply the operating voltage to the sensor. The operating indicator lights up green. The sensor is automatically set to the last teach-in setting. Mount a suitable reflector opposite the sensor. The reflector can be taught-in in teach-in mode.

Switch position	Description
Т	Teach-in mode
Cl	Contrast 1
CII	Contrast 2

Teach-in mode:

- To start the teach-in mode, set the switch to the "T" position when light beam is free (no target).
- · Wait approx. 3 seconds until the yellow and green signal indicators flash slowly and simultaneously (2.5 Hz).
- Turn the switch to contrast I or contrast II.

- To indicate the end of the teach-in mode, the yellow and green signal indicators flash alternately for approx. 5 seconds.

 Teach-in successful: The green and yellow signal indicators flash slowly and alternately (2.5 Hz) for approximately 5 seconds. The contrast selected will be activated. The yellow signal indicator lights up permanently. The sensor is ready for operation.
- Teach-in unsuccessful: The green and yellow signal indicators flash quickly and alternately (8 Hz) for approx. 5 seconds. The contrast selected will be activated. The sensor is set to the previous valid teach-in setting.