PSENop 3.3

PILZ

THE SPIRIT OF SAFETY

▸ PSEN sensor technology
▸ Accessories

Introduction

Validity of documentation

This documentation is valid for the product PSEN op3.3. It is valid until new documentation is published.

This documentation explains the function and operation of an accessory for a safety light grid. When using the product, please refer to the operating manual for the safety light grid.

Warranty and liability

All claims to warranty and liability will be rendered invalid if

▸ The product was used contrary to the purpose for which it is intended

▸ Damage can be attributed to not having followed the guidelines in the manual

▸ Operating personnel are not suitably qualified

▸ Any type of modification has been made (e.g. exchanging components on the PCB boards, soldering work etc.).

Using the documentation

This document is intended for instruction. Only install and commission the product if you have read and understood this document. The document should be retained for future reference.

Definition of symbols

Information that is particularly important is identified as follows:

> ⚠ **DANGER!**
>
> This warning must be heeded! It warns of a hazardous situation that poses an immediate threat of serious injury and death and indicates preventive measures that can be taken.

> ⚠ **WARNING!**
>
> This warning must be heeded! It warns of a hazardous situation that could lead to serious injury and death and indicates preventive measures that can be taken.

> ⚠ **CAUTION!**
>
> This refers to a hazard that can lead to a less serious or minor injury plus material damage, and also provides information on preventive measures that can be taken.

NOTICE

This describes a situation in which the product or devices could be damaged and also provides information on preventive measures that can be taken. It also highlights areas within the text that are of particular importance.

INFORMATION

This gives advice on applications and provides information on special features.

Overview

Intended use

The PSEN op3.3 may only be used to implement the muting function on a safety light grid without muting sensors.

Use of the reflected light scanner in conjunction with the reflector as muting sensor
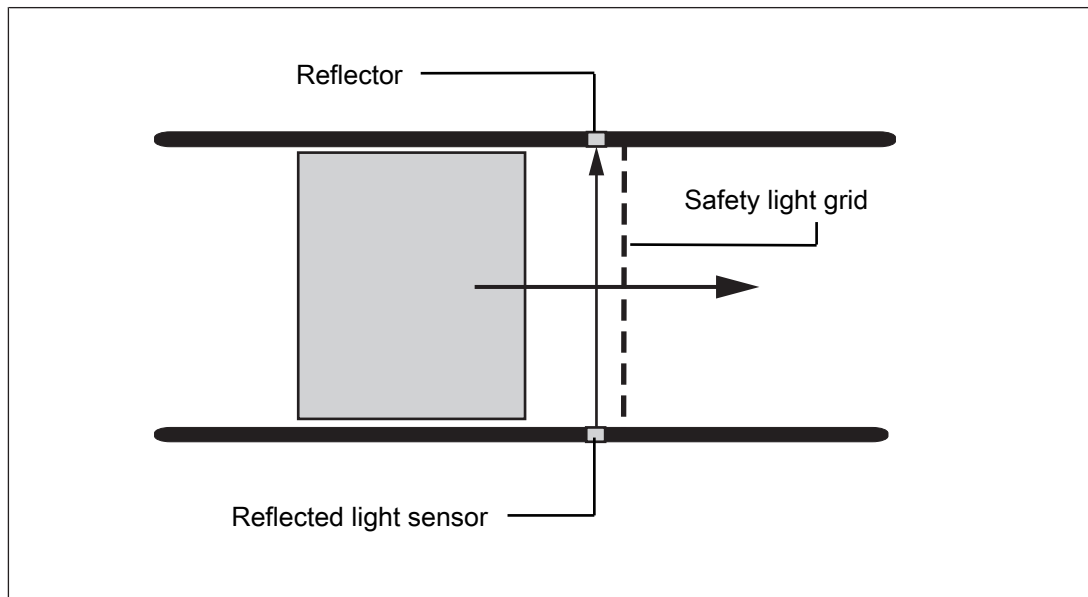
The reflected light scanner emits a light beam, which is reflected by the reflector. This reflection is received by the receiver. If an object interrupts the light beam, the receiver detects this and the reflected light scanner switches. The transmitter and receiver are in the same housing.

Unit view: reflected light scanner

Connector plug block rotated on the back of the unit	Connector plug block rotated on the bottom of the unit
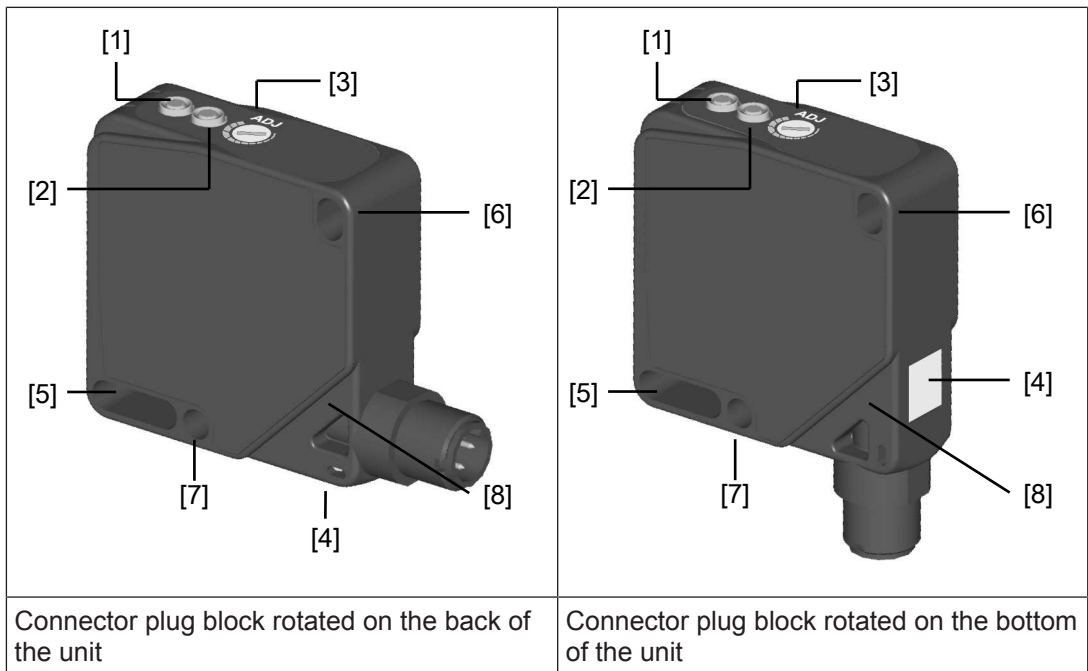
▸ [1]: LEDs for status display

▸ [2]: LED to display operating status

▸ [3]: Control for setting the sensitivity

▸ [4]: Retention spring for releasing the rotatable connection

▸ [5]: Slot (through hole) for attachment and horizontal adjustment

▸ [6]: Through hole for attachment

▸ [7]: Through hole for attachment

▸ [8]: Rotatable connector plug block

Wiring

▸ Information given in the Technical details [📖 8] must be followed.

▸ Use copper wiring with a temperature stability of 55 °C.

▸ The supply voltage must be provided from a power supply. Use a protection class II power supply in accordance with the regulations for extra low voltages with safe separation.

⇨ Wire the outputs from the reflected light sensor to the inputs provided on a safety light grid or control system for external muting sensors.

| Reflected light sensor		PIN	Function	Wire colour
Assignment of the 4-pin M12 male connector		1:	+10 ... 30 VDC	brown
		2:	Output NC	white
		3:	0 V	blue
		4:	Output NO	black

Installation and setting

General

▶ Torque setting: Please note the information provided under Technical details [📖 8].

If necessary, the connector plug block can be rotated by 180°.

Pull the retention spring in the direction of the connector (see diagram, [1]) and rotate the connector plug block by 180°.	[1]
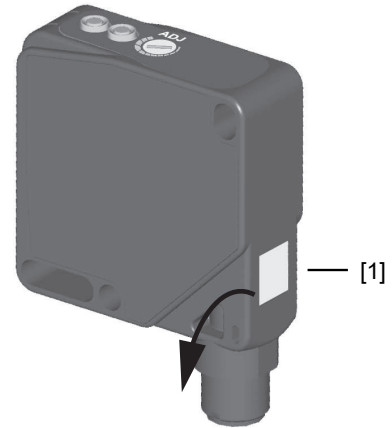
Setting

ℹ️	**INFORMATION** The sensitivity controller can be rotated by a maximum of 240°. If the trimmer is overwound the product will be destroyed. – Never rotate the trimmer beyond the maximum position.

1. Set the sensitivity controller on the receiver to the highest level.

2. Position the transmitter on the muting sensor and the reflector opposite each other in parallel, in the required position in relation to the light grid. In both positions, a mounting surface must be available, to which the transmitter and reflector can be attached.

3. Move the transmitter and reflector horizontally and vertically until the orange LED illuminates and then goes out. Attach the transmitter and reflector in the middle between these points.

▶ If the muting sensors are to detect small objects, the sensitivity of the receiver can be reduced.

⇨ Reduce the sensitivity and determine the position in which the orange LED illuminates and then goes out.

Attach transmitter

1. On the mounting surface, drill three M4 holes in the required position for the transmitter, in accordance with the position of the through holes (see Dimensions [📖 8]).

2. Attach the transmitter to the mounting surface using three screws (M4, minimum length 25 mm).
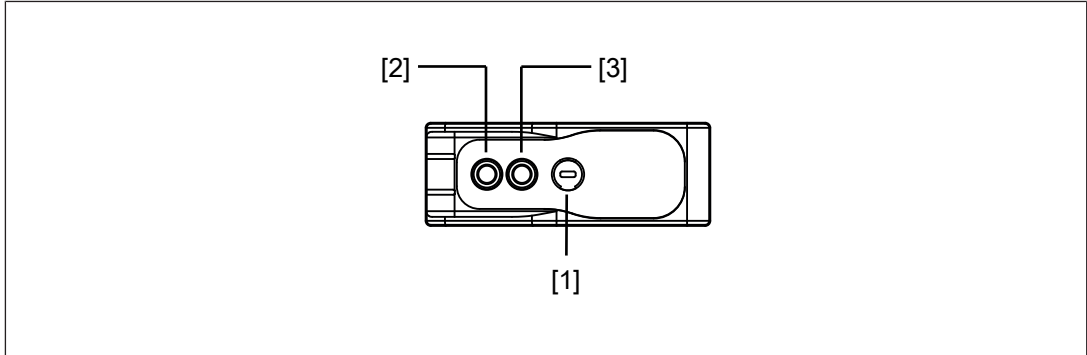
Attach reflector

1. On the mounting surface, drill two M4 holes in the required position for the reflector, in accordance with the position of the through holes.

2. Attach the reflector to the mounting surface using two screws (M4).

Display and operator elements

[1]	Control for setting the sensitivity	To detect smaller objects, set the control to a lower sensitivity (move control to the left).
		To detect larger objects, set the control to a higher sensitivity (move control to the right).
[2]	Yellow LED: Status indicator	LED on: Light beam is interrupted
		LED off: Light beam is not interrupted
[3]	Green LED: Operating status and luminosity	LED on: Light beam is detected, device is ready for operation
		LED off: Light beam is not detected (caused by contaminations, for example), device is not ready for operation
		LED goes out briefly when an object enters the light beam

Dimensions in mm

Side view	Front view	
		[1]: Sensor's receiver range [2]: Sensor's transmitter range
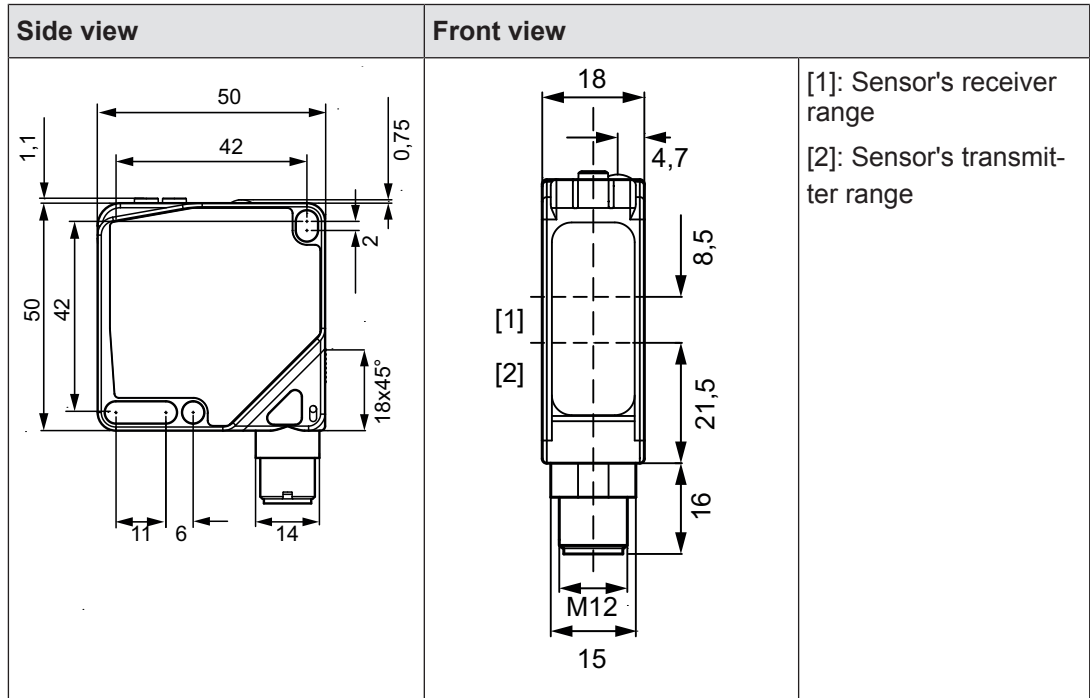
Technical details

General	
Approvals	**CE, cULus Listed**
Electrical data	
Supply voltage	
Voltage	**10,0 - 30,0 V**
Optical data	
Operating range	**0,0 - 9,0 m**
Used wavelength range	**640 nm**
Semiconductor outputs	
Switching current per output	**100 mA**
Times	
Response time t1	**0,50 ms**
Environmental data	
Ambient temperature	
Temperature range	**-10 - 55 °C**
Storage temperature	
Temperature range	**-20 - 70 °C**
Vibration	
In accordance with the standard	**EN 60068-2-6**
Frequency	**10,0 - 55,0 Hz**
Amplitude	**0,50 mm**

Environmental data	
Shock stress	
In accordance with the standard	**EN 60068-2-27**
Number of shocks	**6**
Acceleration	**30g**
Duration	**11 ms**
Protection type	
Housing	**IP67**
Mechanical data	
Material	
Housing	**ABS**
Max. torque setting for fixing screws	**1,50 Nm**
Dimensions	
Height	**50,0 mm**
Width	**66,0 mm**
Depth	**18,0 mm**
Weight	**30 g**

Safety characteristic data

> 🛈 **NOTICE**
>
> You must comply with the safety-related characteristic data in order to achieve the required safety level for your plant/machine.

Safety characteristic data	
EN ISO 13849-1:2015 PL	**PL a**

Order reference

Product type	Features	Order no.
PSEN op3.3 Reflex NO/NC M12	Reflected light sensor with NO/NC outputs	630 830
PSEN op Reflector	Reflector for reflected light sensor	630 323

▶ Support

Technical support is available from Pilz round the clock.

Americas

Brazil
+55 11 97569-2804

Canada
+1 888-315-PILZ (315-7459)

Mexico
+52 55 5572 1300

USA (toll-free)
+1 877-PILZUSA (745-9872)

Asia

China
+86 21 60880878-216

Japan
+81 45 471-2281

South Korea
+82 31 450 0680

Australia
+61 3 95446300

Europe

Austria
+43 1 7986263-0

Belgium, Luxembourg
+32 9 3217575

France
+33 3 88104000

Germany
+49 711 3409-444

Ireland
+353 21 4804983

Italy
+39 0362 1826711

Scandinavia
+45 74436332

Spain
+34 938497433

Switzerland
+41 62 88979-30

The Netherlands
+31 347 320477

Turkey
+90 216 5775552

United Kingdom
+44 1536 462203

You can reach our international hotline on:
+49 711 3409-444
support@pilz.com

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