
# PSEN opII Adv Bracket Kit

PILZ
THE SPIRIT OF SAFETY

- PSEN sensor technology

**Operating Manual 1003737-EN-01**

This document is a translation of the original document.



Source code from third-party manufacturers or open source software has been used for some components. The relevant licence information is available on the Internet on the Pilz homepage.




SD means Secure Digital

# 1 Introduction

## 1.1 Validity of documentation

This documentation is valid for the product PSEN opII Adv Bracket Kit. It is valid until new documentation is published.

This operating manual explains the function and operation, describes the installation and provides guidelines on how to connect the product.

## 1.2 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.

## 1.3 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.

# 2 Overview

### Unit features

- Installing a safety light grid from the series PSEN opII
- After installation, can be rotated around 3 axes

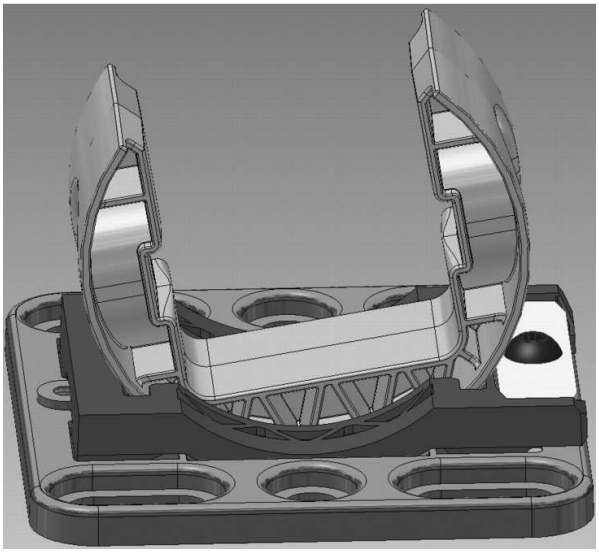
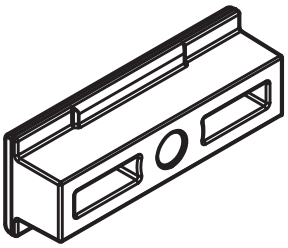
### Free from dead zones on both sides

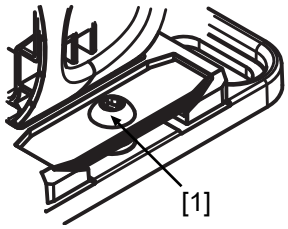
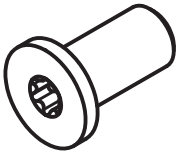
When using the PSEN opII Adv Bracket Kit, safety light grids with protected field heights from 300 mm can be installed without creating a dead zone during operation.

### Free from dead zones on one side

When using the PSEN opII Adv Bracket Kit, the safety light grid can be used with a protected field height of 150 mm with a one-sided dead zone.

**Scope**

| Number | Description | Illustration |
|---|---|---|
| 4 | Clamping units |  |
| 8 | ▸ Slot nuts for fastening the transmitter/receiver to the terminal unit (2 slot nuts per unit) |  |
| 8 | ▸ Fastening screw M4x10, Torx T20, with U-washer for slot nut |  |

| Num-ber | Description | Illustration |
|---|---|---|
| 4 | ▸ Clamping screw [1] M4x8, Torx T20 already installed on the clamping unit |  |
| 8 | ▸ Mounting screw M6x12, Torx T20, strength class 8.8 |  |

## 2.1 Intended use

The PSEN opII Adv Bracket Kit can be used to install a safety light grid from the series PSEN opII, when there is limited space on the safety light grid's end caps.

Their application must fulfil the site’s relevant national regulations (e. g. EN 60204-1, NFPA 79:17-7).

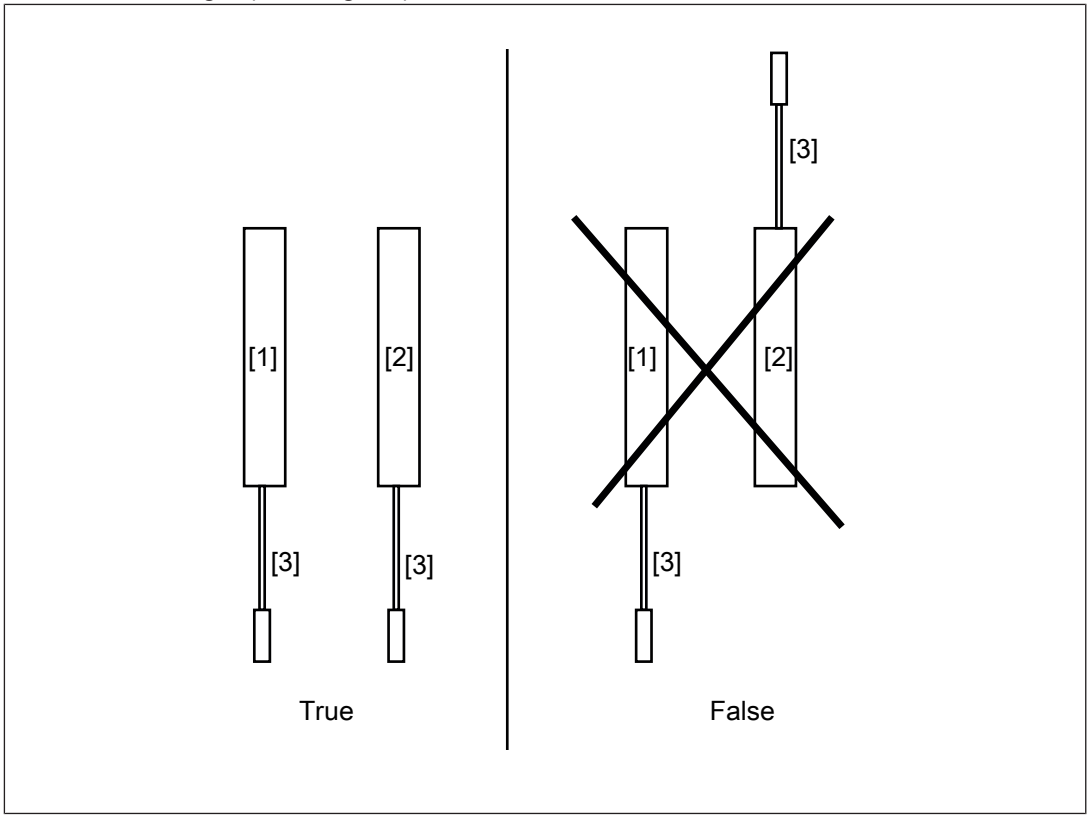
The following is deemed improper use in particular

- Any component or technical modification to the product
- Use of the product outside the areas described in this manual

# 3 Installation and alignment

Please note:

- The optical surfaces of the transmitter and receiver must be parallel to each other and oriented opposite to each other.
- The connection sides of the transmitter and receiver must be on the same side and at the same height (see diagram).




**Legend**

[1] Transmitter

[2] Receiver

[3] Connection cable

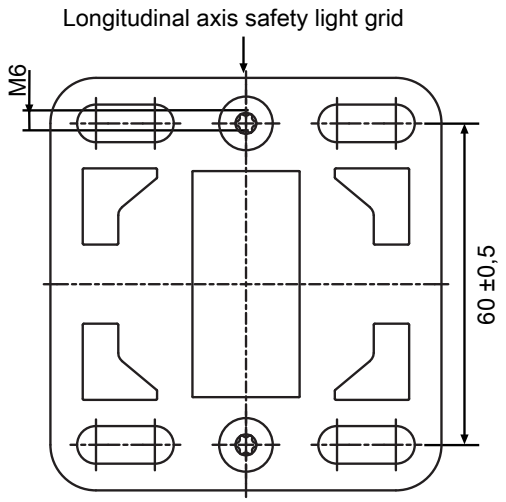
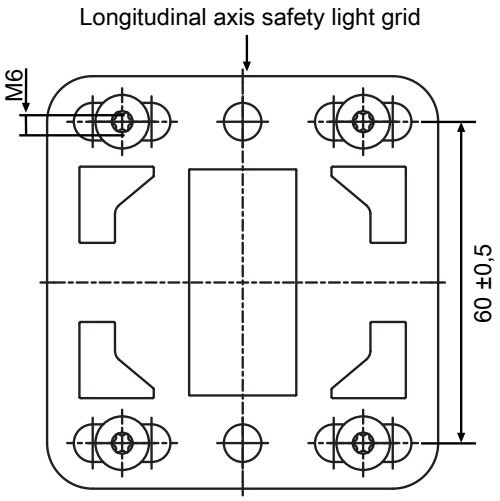
- The distance between the transmitter and receiver must be within the operating range of the safety light grid used (see Technical details [📖 17]).
- The mounting surface must be at least the width of the PSEN opII Adv Bracket Kit
- The mounting surface must have a max. unevenness of 0.2 mm.

**Number of clamping units per light grid, based on the height of the protected field**

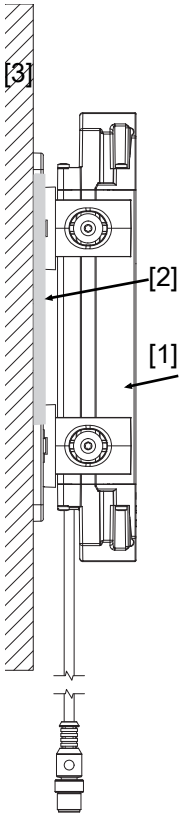
| Height of protected field | Number of clamping units per light grid |
|---|---|
| 150 - 600 | 4 (2 clamping units per transmitter and receiver) |
| 750 - 1200 | 6 (3 clamping units per transmitter and receiver) |
| 1350 - 1800 | 8 (4 clamping units per transmitter and receiver) |

**Shock resistance based on the screw connections**

The number of screws required per clamping unit depends on the shock resistance you need.

| Shock resistance | Position of mounting screws | Number |
|---|---|---|
| 10 g |  | 2 mounting screws M6, positioned centrally |
| 50 g |  | 4 mounting screws M6, in the corners |

## 3.1 Attach the safety light grid to the mounting surface



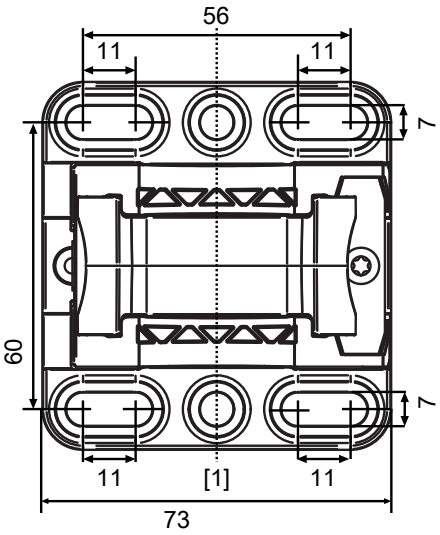

**Please note the following when installing the safety light grid [1]:**

The gap [2] between the safety light grid [1] and mounting surface [3] must be less than the resolution of the safety light grid.

**Prepare the installation surface.**

Clean the installation surface. The installation surface must be free of dust and grease.

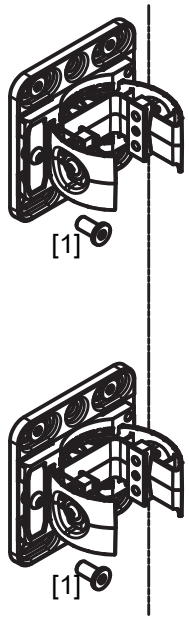
### 3.1.1 Installation free of dead zones with a protected field height of 300-1800 mm




Drill holes (for M6 screws) on the mounting surfaces for the transmitter/receiver.

[1] Position of the optical central axis of the safety light grid

- Number of clamping units, based on the height of the protected field
  - Height of protected field 150 – 600 mm: 4 clamping units
  - Height of protected field 750 – 1200 mm: 6 clamping units
  - Height of protected field 1350 – 1800 mm: 8 clamping units
- The clamping units of the transmitter or receiver must be attached in a straight line.
- From a protected field height of 750 mm, the clamping units must be positioned at regular intervals.
- Position the clamping units near the end caps in the area of the safety light grid's front plate.
- Each clamping unit can be attached using two screws, centrally positioned, or with four screws in the corners of the clamping unit. The number required depends on the shock resistance you need (see Shock resistance based on the screw connections [📖 9]).
- Each clamping unit for the transmitter must be positioned at the same height as the clamping unit for the same side of the receiver.

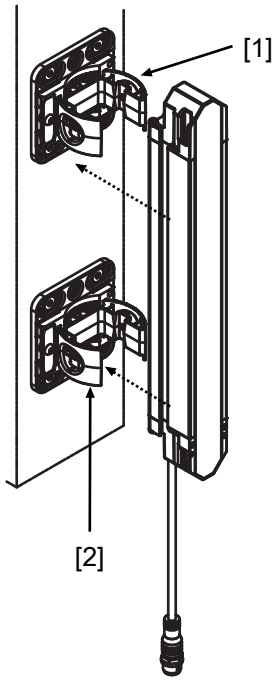



Use mounting screws to fix the clamping units for the PSEN opII Adv Bracket Kit to the mounting surface.

If necessary it is possible to use mounting screws of a different length.

Number and positioning of the mounting screws [1]: see Shock resistance based on the screw connections [📖 9]

Screws are only tightened to the final torque during alignment.



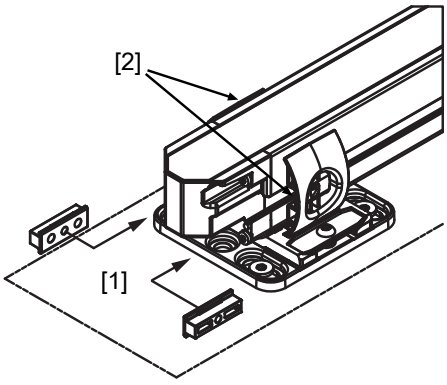

Insert the safety light grid's transmitter/receiver into the clamping units on the mounting surface. If necessary, loosen the mounting screws and push the clamping units until it possible to install the transmitter/receiver.

The front plate of the transmitter/receiver must be positioned on the open side of the clamping units.

[1] clamping unit termination side

[2] clamping unit connection side

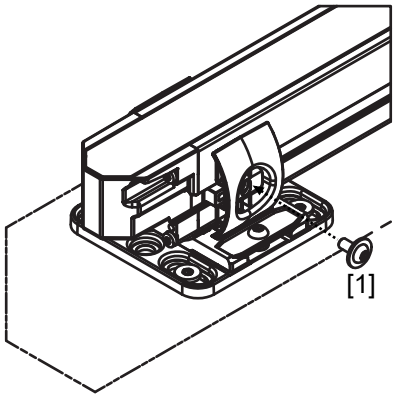
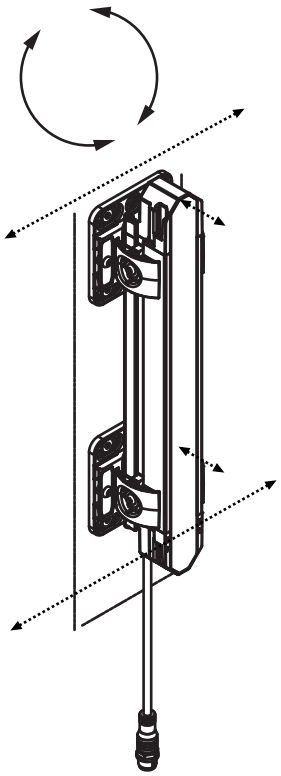
Carry out this step for the transmitter and the receiver.




On each clamping unit, insert two slot nuts [1] into the clamping unit's guide bushing

[1] Slot nuts

[2] Guide bushing on the clamping unit

| | |
|---|---|
|  | Fix the slot nuts on both sides of the clamping unit using the supplied fastening screws with U-washer.<br>[1] Fastening screw with U-washer<br>Screws are only tightened to the final torque during alignment. |
|  | Transmitters/receivers can be rotated in the clamping devices and moved vertically.<br>The clamping devices can be moved horizontally and vertically.<br>Use a spirit level or laser alignment aid to align the transmitter/receiver at the same height and parallel to each other.<br>Tighten all mounting screws and the fastening screws with U-washer.<br>Tightening torque of mounting screw: 1,5 Nm<br>Tightening torque of fastening screw with U-washer: 2,4 Nm |

### 3.1.2 Installation free of dead zones with a protected field height of 150 mm

When installed using thePSEN opII Adv Bracket Kit, the safety light grid series PSEN opII with a protected field height of 150 mm has a dead zone on the side of the safety light grid that is opposite to the connection cable.

Make sure that the side without connection cable is on the side that is to contain the dead zone.

The safety light grid with a protected field height of 150 mm should be installed in the same way as described under Installation free of dead zones with a protected field height of 300-1800 mm [📖 11]

## 3.2 Alignment

Once installed, the transmitter and receiver can be positioned exactly.

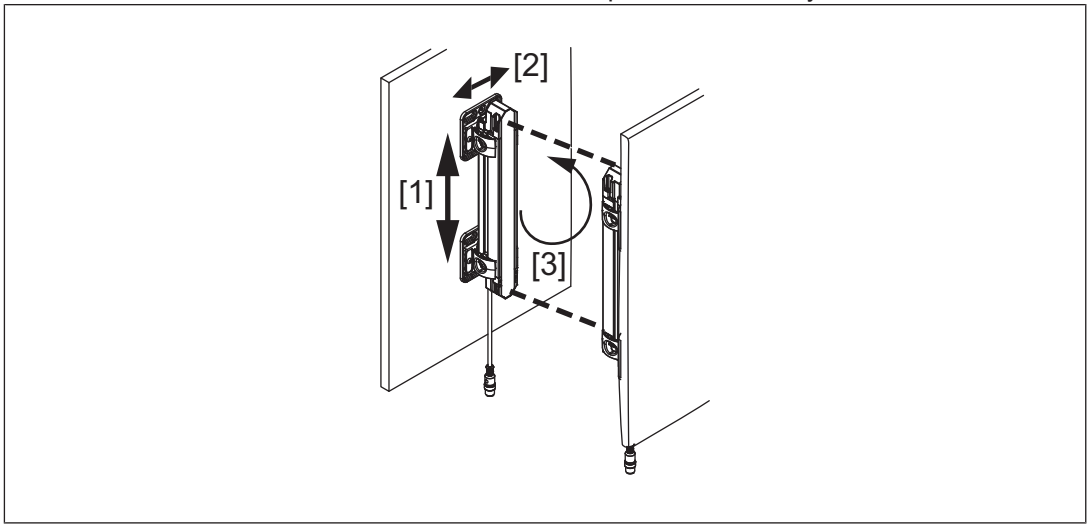



Fig.: Changes of direction of the transmitter/receiver during alignment

**Legende**

[1] Vertical: by moving the slot nuts in the upper and lower guide bushing on the clamping units

[2] Horizontal: by moving up and down in the slots in a horizontal direction

[3] Change the axis alignment by twisting the clamping units of the PSEN opII Adv Bracket Kit to the left or right

Pilz recommends that modifications to the orientation of the transmitter/receiver be made in the following sequence:

1. Vertical modification
2. Horizontal modification
3. Axis orientation modification

The transmitter and receiver on the safety light grid can be aligned with our without the help of a laser alignment aid.

- Alignment with laser alignment aid: the safety light grid does not need to be switched on
- Alignment without laser alignment aid: the safety light grid must already be wired (see chapter entitled "Wiring" in the safety grid's operating manual) and must be switched on

For alignment Pilz recommends the PSEN opII Laserpointer (see Order references for accessories [📖 18]) or another laser alignment aid.

For the safety light grid to function properly, the transmitter and receiver must be correctly aligned.

**Optimum alignment using a laser alignment aid**

Optimum alignment with a laser alignment aid is achieved when the following conditions apply:

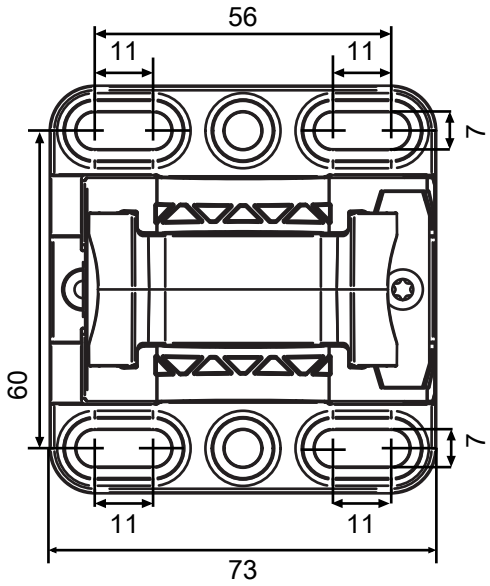
- Beam from the laser alignment aid on the transmitter strikes the receiver **and**
- Beam from the laser alignment aid on the receiver strikes the transmitter

Perform the orientation as described in the laser orientation aid's operating manual.

**Optimal orientation without a laser orientation aid**

1. Determine the maximum rotation range in when the protected field LED (OSSD status) illuminates green.
   Rotate the transmitter and receiver until the protected field LED (OSSD status) changes from red to green.
2. Rotate the transmitter to the centre of the rotation range in which the protected field LED illuminates green.
3. Rotate the receiver to the centre of the rotation range in which the protected field LED illuminates green.

# 4 Dimensions



# 5 Technical details

| General | 632016 | 632017 |
|---|---|---|
| Approvals | - | - |
| **Mechanical data** | **632016** | **632017** |
| Material | 1.4310, Zn | 1.4310, Zn |
| Max. torque setting | | |
| Clamping screw | 1,5 Nm | 1,5 Nm |
| Installation screw | 1,5 Nm | 1,5 Nm |
| Fixing screw | 2,4 Nm | 2,4 Nm |
| Weight | 1.300 g | 1.950 g |

# 6 Order reference

| Product type | Features | Order No. |
|---|---|---|
| PSEN opII Adv Bracket Kit-2 | Four-piece expanded mounting kit with three degrees of freedom for dead-zone-free conditions for protected field heights between 150 mm and 600 mm (inclusive) | 632 016 |
| PSEN opII Adv Bracket Kit-3 | Six-piece expanded mounting kit with three degrees of freedom for dead-zone-free conditions for protected field heights between 750 mm and 1200 mm (inclusive) | 632 017 |

## 6.1 Accessories

| Product type | Features | Order no. |
|---|---|---|
| PSEN opII Laser-pointer | Laser alignment aid for the safety light grid series PSEN opII | 632 014 |

# Support

Technical support is available from Pilz round the clock.

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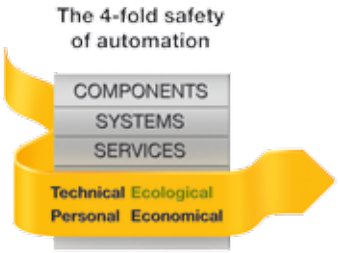


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