



PSEN oPlI protective column

PILZ
THE SPIRIT OF SAFETY

► PSEN sensor technology

This document is the original document.

All rights to this documentation are reserved by Pilz GmbH & Co. KG. Copies may be made for the user's internal purposes. Suggestions and comments for improving this documentation will be gratefully received.

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.

Pilz®, PIT®, PMI®, PNOZ®, Primo®, PSEN®, PSS®, PVIS®, SafetyBUS p®, SafetyEYE®, SafetyNET p®, the spirit of safety® are registered and protected trademarks of Pilz GmbH & Co. KG in some countries.



SD means Secure Digital

Introduction	4
Validity of documentation	4
Using the documentation	4
Definition of symbols	4
Safety	5
Intended use	5
Safety regulations	6
Use of qualified personnel	6
Warranty and liability	7
Disposal	7
Overview	7
Unit structure	7
Scope of supply	8
Adjustable base unit	8
Installation	9
Important information	9
Installation with adjustable base unit	11
Installation without adjustable base unit	13
Inspections and cleaning	15
Regular check	15
Inspection procedure	15
Cleaning	16
Dimensions	16
Technical details Order no. 632500-632502	18
Technical details Order no. 632503-632504	18
Technical details for floor anchor Order no. 632012	18
Technical details for adjustable base unit Order no. 632037	19
Order reference	19
Protective column sets	19
Protective columns	20
Accessories	20

Introduction

Validity of documentation

This documentation is valid for the product PSEN opII protective column. 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.

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.

Safety

Intended use

PSEN opII protective column can be used:

- ▶ To install a safety light curtain in the zone when there are no other options for installing,
- ▶ To protect the safety light curtain from damage.

PSEN opII protective column may only be used with the safety light curtains stated.

Refer to the operating manual of the safety light curtain used.

Protective column	Suitable safety light curtain series	Protected field heights
PSEN opII protective Column-060	PSEN opII3F-s-14-xxx	150-450
	PSEN opII3H-s-30-xxx	150-450
	PSEN opII4F-s-14-xxx	150-450
	PSEN opII4H-s-30-xxx	150-450
	PSEN opII3B-s-170-xxx	150-450
	PSEN opII3B-s-300-xxx	150-450
	PSEN opII4B-s-170-xxx	150-450
	PSEN opII4B-s-300-xxx	150-450
PSEN opII protective Column-090	PSEN opII3F-s-14-xxx	150-750
	PSEN opII3H-s-30-xxx	150-750
	PSEN opII4F-s-14-xxx	150-750
	PSEN opII4H-s-30-xxx	150-750
	PSEN opII3B-s-170-xxx	150-750
	PSEN opII3B-s-300-xxx	150-750
	PSEN opII4B-s-170-xxx	150-750
	PSEN opII4B-s-300-xxx	150-750

Protective column	Suitable safety light curtain series	Protected field heights
PSEN opII protective Column-120	PSEN opII3F-s-14-xxx	150-1200
	PSEN opII3H-s-30-xxx	150-1200
	PSEN opII4F-s-14-xxx	150-1200
	PSEN opII4H-s-30-xxx	150-1200
	PSEN opII3B-s-170-xxx	150-1200
	PSEN opII3B-s-300-xxx	150-1200
	PSEN opII4B-s-170-xxx	150-1200
	PSEN opII4B-s-300-xxx	150-1200
PSEN opII protective Column-165	PSEN opII3F-s-14-xxx	150-1650
	PSEN opII3H-s-30-xxx	150-1650
	PSEN opII4F-s-14-xxx	150-1650
	PSEN opII4H-s-30-xxx	150-1650
	PSEN opII3B-s-170-xxx	150-1650
	PSEN opII3B-s-300-xxx	150-1650
	PSEN opII4B-s-170-xxx	150-1650
	PSEN opII4B-s-300-xxx	150-1650
PSEN opII protective Column-195	PSEN opII3F-s-14-xxx	150-1800
	PSEN opII3H-s-30-xxx	150-1800
	PSEN opII4F-s-14-xxx	150-1800
	PSEN opII4H-s-30-xxx	150-1800

The following is deemed improper use in particular:

- ▶ Any component, technical or electrical modification to the product
- ▶ Use of the product outside the areas described in this manual
- ▶ Use of the product outside the technical details (see chapter entitled "[Technical details \[📖 18\]](#)").

Safety regulations

Use of qualified personnel

The products may only be assembled, installed, programmed, commissioned, operated, maintained and decommissioned by competent persons.

A competent person is a qualified and knowledgeable person who, because of their training, experience and current professional activity, has the specialist knowledge required. To be able to inspect, assess and operate devices, systems and machines, the person has to be informed of the state of the art and the applicable national, European and international laws, directives and standards.

It is the company's responsibility only to employ personnel who

- ▶ Are familiar with the basic regulations concerning health and safety / accident prevention,

- ▶ Have read and understood the information provided in the section entitled Safety
- ▶ Have a good knowledge of the generic and specialist standards applicable to the specific application.

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.).

Disposal

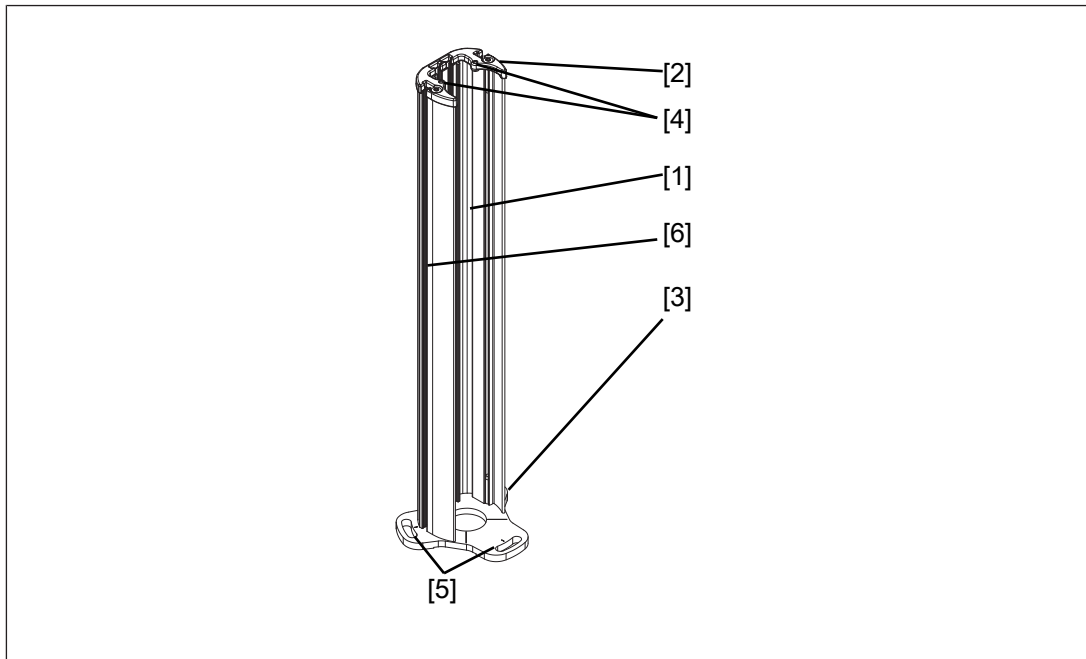
- ▶ When decommissioning, please comply with local regulations regarding the disposal of electronic devices (e.g. Electrical and Electronic Equipment Act).

Overview

Unit structure

PSEN opII protective column consists of an aluminium profile with grooves for holding the safety light curtain. To guarantee stability, the PSEN opII protective column must be connected to the floor via the flange plate or adjustable base unit, using heavy duty dowels.

- ▶ On the top, PSEN opII protective column has a cover with a groove for fixing a muting lamp.
- ▶ PSEN opII protective column can be pivoted by max. 20 % using the slot holes in the base plate
- ▶ PSEN opII protective column has grooves on the outside for fixing other accessories



Legend

- [1] Protective column
- [2] Cover of the protective column
- [3] Base plate for fixing to the floor (installed on the protective column)
- [4] Groove for Muting lamp
- [5] Slot holes for attaching the base plate to the floor anchors
- [6] Grooves for fixing other accessories

Scope of supply

Protective column

- ▶ 1 protective column PSEN opII protective column
- ▶ Installation materials for fixing the safety light curtain in the protective column (slot nuts, screws and washers)

Protective column set

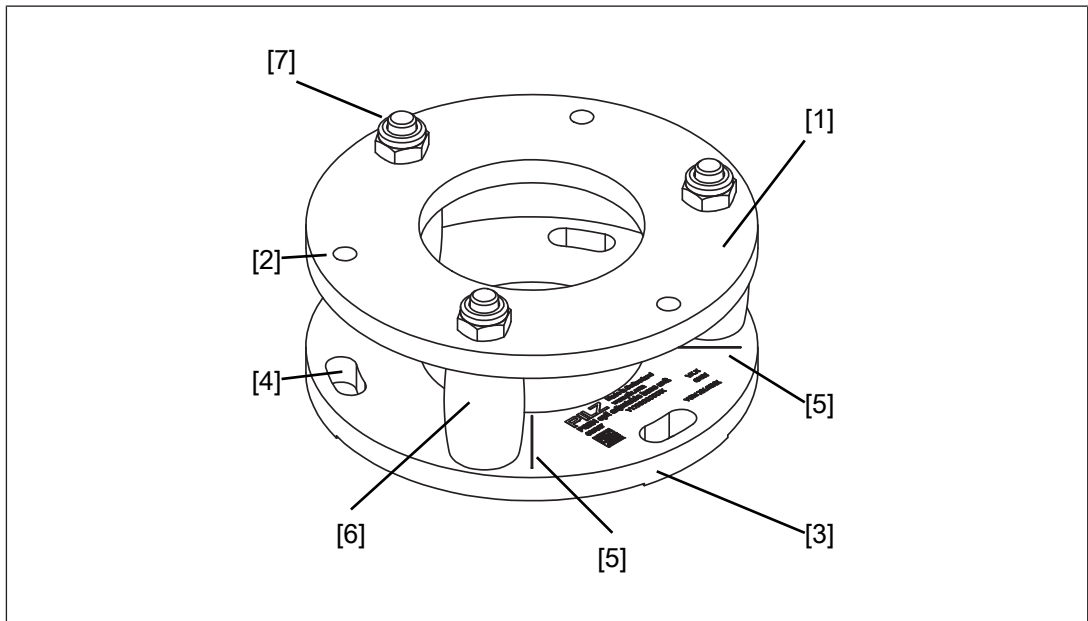
- ▶ 1 protective column PSEN opII protective column
- ▶ Installation materials for fixing the safety light curtain in the protective column (slot nuts and screws)
- ▶ 1 adjustable base unit PSEN opII adjustable base unit
- ▶ Floor anchor PSEN screw set mirror column

Adjustable base unit

Pilz recommends that you use the adjustable base unit, available as an accessory (PSEN opII adjustable base unit, see [Order reference \[📖 20\]](#)).

The PSEN opII adjustable base unit is required for correct assembly under the following conditions:

- ▶ When used over long distances
- ▶ When used on uneven floors



Legend

- [1] Cover plate
- [2] Groove for PSEN opII protective column
- [3] Base plate for attachment to floor
- [4] Slot hole for attaching the adjustable base unit to the floor
- [5] Marking for aligning a mirror column in the protected field
- [6] Spring element
- [7] Adjusting nut

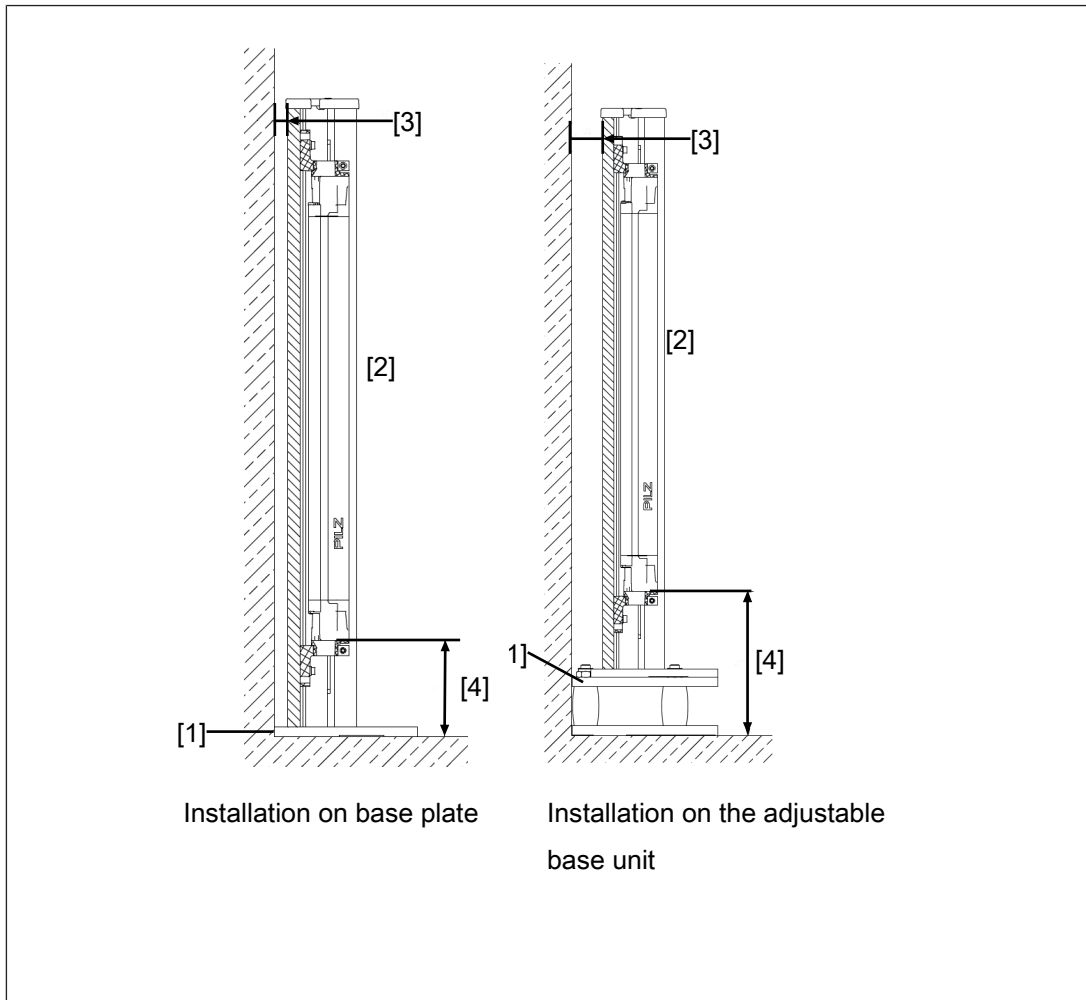
Scope of supply of adjustable base unit

- ▶ 1 adjustable base unit
- ▶ 3 set screws for fixing the mirror column/protective column to the adjustable base unit

Installation

Important information

- ▶ The area behind the PSEN opII protective column is not part of the protected field (see graphic).
Make sure that the protected field cannot be circumvented through this area.
- ▶ PSEN opII protective column has a dead zone on the side of the base unit (see graphic).
Calculating the dead zone:
Distance from the safety light curtain to the floor - (protected field height of safety light curtain - effective protected field height of safety light curtain)/2
Make sure that the safety light curtain covers the protected field completely.




Legend

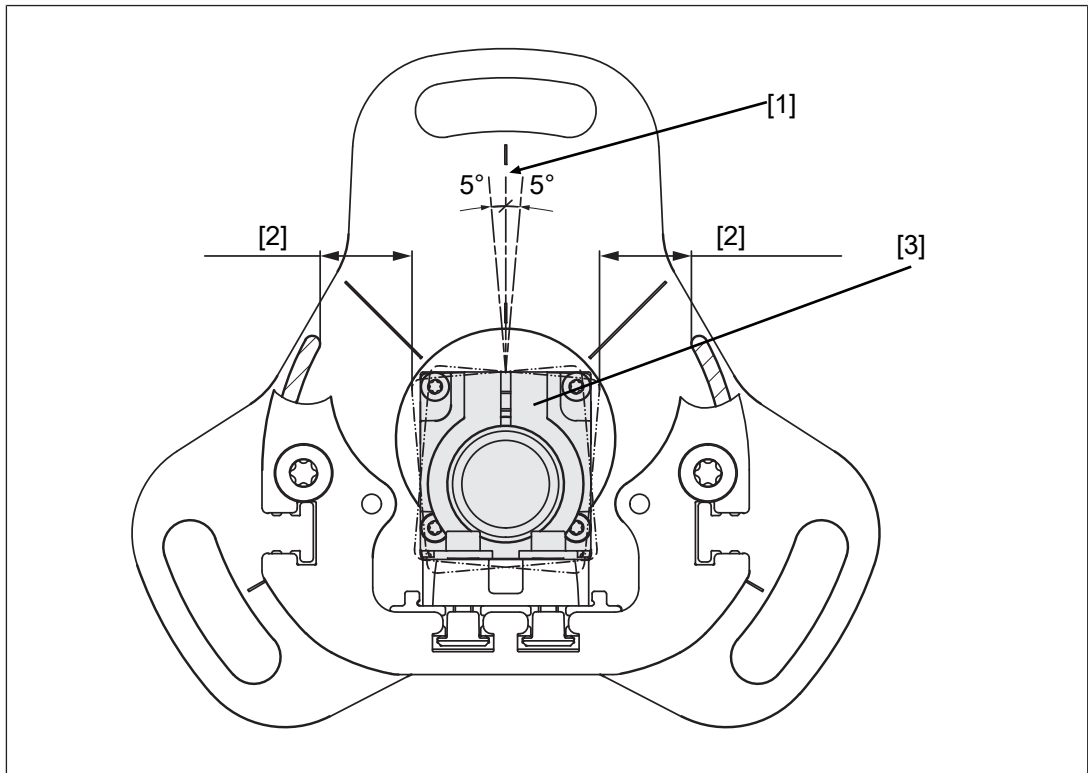
- [1] Base plate/adjustable base unit
- [2] Safety light curtain
- [3] Dead zone of the PSEN opII protective column behind the safety light curtain
- [4] Dead zone of the PSEN opII protective column under the safety light curtain

- ▶ Make sure that the floor anchor that you are using is suitable and has been approved for the floor properties and environmental conditions.

Refer to the manufacturer's specifications regarding the use of the floor anchor.

The floor anchor supplied as an accessory (see [Order references accessories](#)  20]) is manufactured by Hilti AG, manufacturer's designation: Stud anchor HST3 M10x100 40/20 BW.

- ▶ For use in areas where floor conveyors are also used
 - Make sure that the PSEN opII protective column is protected from collisions.
- ▶ Make sure that there is no leverage affecting the PSEN opII protective column (e.g. due to a person or object leaning against the PSEN opII protective column).
- ▶ The safety light curtain can be rotated max. $\pm 5^\circ$ from the center position.
 - Larger rotations must be implemented with a rotation of the entire protective column using the slot holes in the base unit.



Legend

- [1] Max. angle of rotation of the safety light curtain in the protective column
- [2] Minimum distance safety light curtain to the inside of the protective column profile
- [3] Installed safety light curtain

Pilz recommends that you use the adjustable base unit, available as an accessory (PSEN opII adjustable base unit, see [Order reference \[20\]](#)).

The PSEN opII adjustable base unit is required for correct assembly under the following conditions:

- ▶ When used over long distances
- ▶ When used on uneven floors

Installation with adjustable base unit

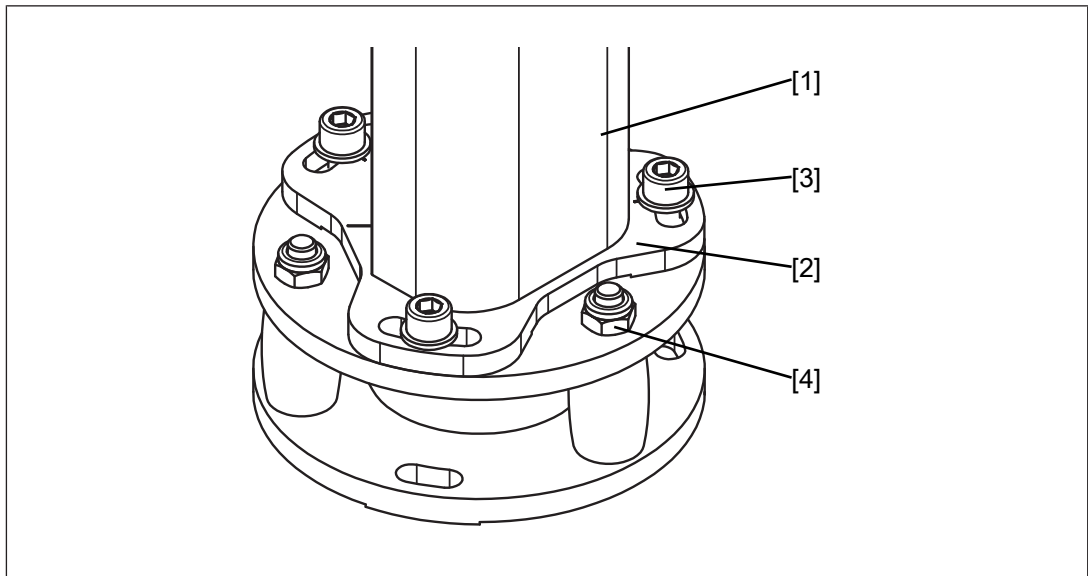
- ▶ Required tool:
 - Allen key 8 mm
 - Hexagonal wrench SW 17 mm
 - Spirit level
 - Floor anchor \varnothing 10 mm (PSEN screw set mirror column, see [Order reference for accessories \[20\]](#) or other floor anchor)
 - Tool for fixing/loosening the floor anchor

Procedure:

1. Determine the position of the protected fields and the safety light curtain's transmitter and receiver.
2. Drill holes in the floor for the floor anchors and insert the floor anchors.
3. Place the adjustable base unit on the floor anchors and tighten the nuts evenly.
4. Install transmitter and receiver into the protective column using an assembly kit.

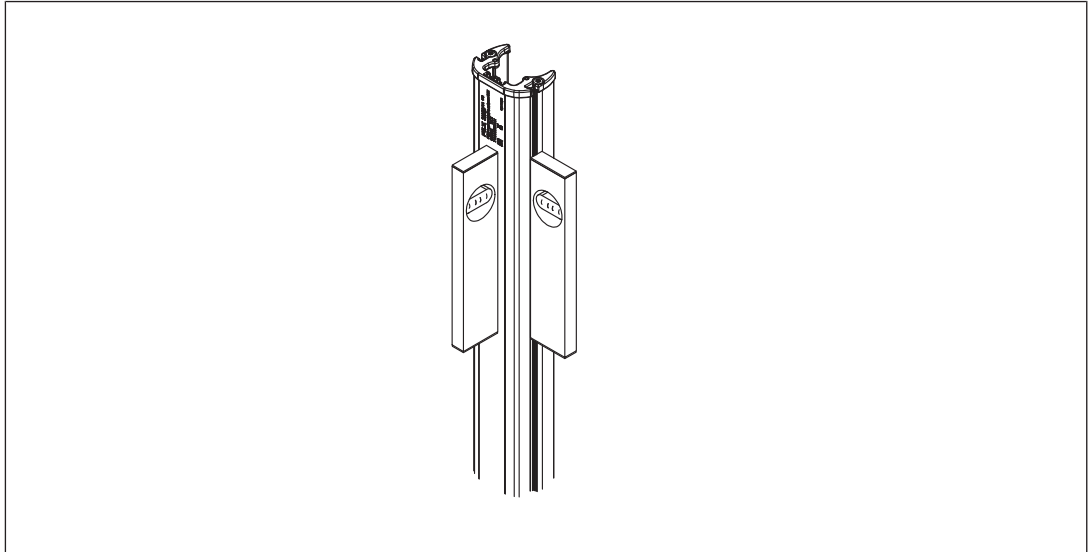
When defining the installation position, note the dead zone from the floor to the lowest light beam of the safety light curtain.

5. Place the protective columns on the adjustable base units and fix the columns using the set screws (see graphic).



Legend

- [1] Protective column
 - [2] Base plate of the protective column
 - [3] Set screws for fixing the protective column to the adjustable base unit and for the rotary alignment
 - [4] Adjusting nuts for vertical alignment of the protective column
6. Use the spirit level for vertical alignment of the PSEN opII protective column. You can use the adjusting nuts to correct the gradient.
PSEN opII protective column Tilt in one direction = tighten the adjusting nut on the side towards which it is to be tilted.



7. Align the protective columns of the safety light curtain further, as described in the safety light curtains' operating manual.
8. When the alignment of transmitter and receiver of the safety light curtain is complete, tighten the camp terminals, nuts and the installation screws with their final torque as described in the safety light curtain's operating manual.
9. If necessary, install accessories to one of the protective columns.

Muting lamp: Fix the muting lamp with a torque setting of 1.4 Nm in the groove in the protective column cover. Refer to the operating manual of the muting lamp.

Other accessories: Fasten the accessories in the grooves of the protective column as described in the accessory operating manual.

⇒ Make sure that the cabling of the accessory does not create a tripping hazard and that cables do not encroach into the protected field.

Installation without adjustable base unit

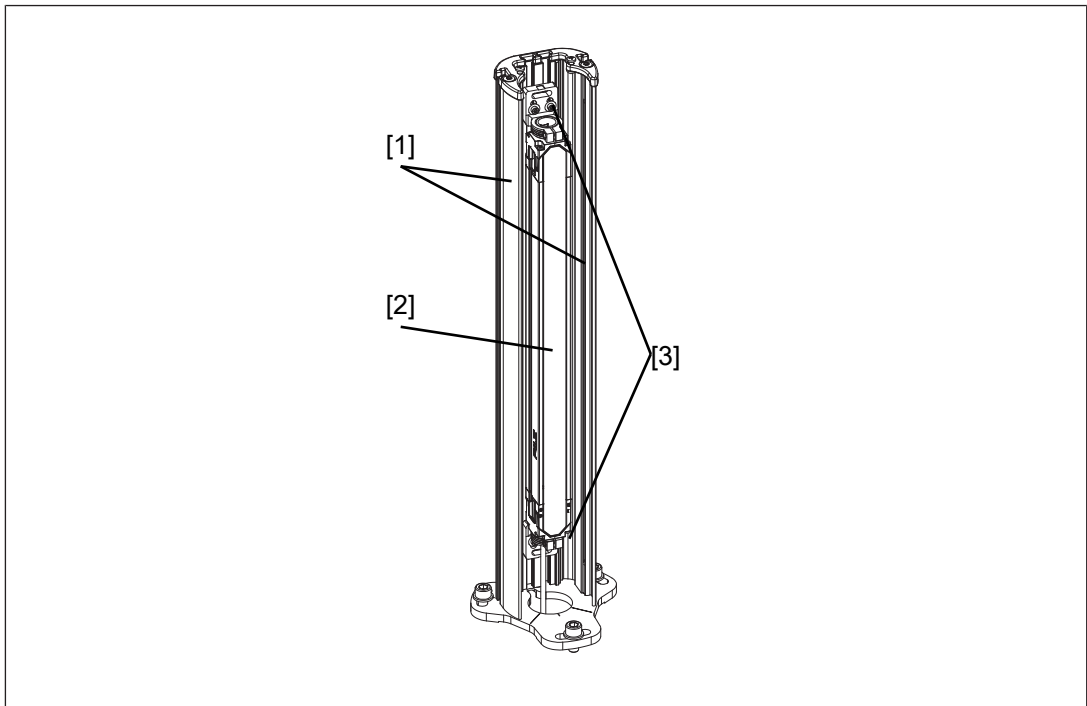
► Required tool:

- Spirit level
- Floor anchor Ø 10 mm (PSEN screw set mirror column, see [Order reference for accessories](#) [📖 20] or other floor anchor)
- Tool for fixing/loosening the floor anchor

Procedure:

1. Determine the position of the protected fields and the safety light curtain's transmitter and receiver.
2. Mark the position of the floor anchors for fixing the base plate in the floor.
3. Drill holes in the floor for the floor anchors and insert the floor anchors.
4. Install transmitter and receiver into the protective column using an assembly kit.

When defining the installation position, note the dead zone from the floor to the lowest light beam of the safety light curtain.



Legend

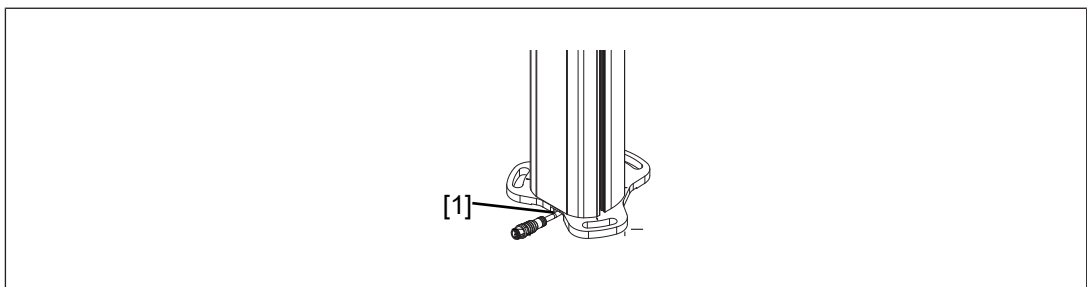
- [1] Protective column
- [2] Safety light curtain installed in protective column
- [3] Standard installation kit

5. Align the transmitter and the receiver each in parallel with the back panel of the protective column. Transmitter and receiver can be rotated max. $\pm 5^\circ$.

Tighten the fixing screws of the safety light curtain's installation kit as stated in the safety light curtain's operating manual.

6. Guide the connection cables through the cutouts on the base plates. Make sure not damage the connection cables in doing so.

Make sure that the cabling of the safety light curtain does not create a tripping hazard and that cables do not encroach into the protected field.



Legend

- [1] Cable feed on the base plate

7. Place both protective columns on the floor anchors and fix the protective columns. Use the small washers supplied with PSEN screw set mirror column.

8. Align the protective columns of the safety light curtain further, as described in the safety light curtains' operating manual.
 9. When the alignment of transmitter and receiver of the safety light curtain is complete, tighten the clamp terminals, nuts and the installation screws with their final torque as described in the safety light curtain's operating manual.
 10. If necessary, install accessories to one of the protective columns.
 - Muting lamp: Fix the muting lamp with a torque setting of 1.4 Nm in the groove in the protective column cover. Refer to the operating manual of the muting lamp.
 - Other accessories: Fasten the accessories in the grooves of the protective column as described in the accessory operating manual.
- ⇒ Make sure that the cabling of the accessory does not create a tripping hazard and that cables do not encroach into the protected field.

Inspections and cleaning

Regular check

Regular checks can bring to light changes to the plant/machine, safeguards and ambient conditions.


Pilz recommends a six monthly inspection.

Inspections should also be carried out:

- ▶ When commissioning the plant
- ▶ Any time the plant is modified
- ▶ If there is any suspicion that the PSEN opII protective column is damaged (e.g. in a collision)
- ▶ After each collision for a possible change in alignment

Inspection procedure

- ▶ Check the alignment of transmitter and receiver of the safety light curtain.
 - The full light beam from the safety light curtain's transmitter must strike the safety light curtain's receiver.
- ▶ Check the fixing of the protective columns.

All screws must be tightened to the torque specified in the [Technical details](#)  18].
- ▶ Check the safety function of the safety light curtains, as described in the safety light curtain's operating manual.

Cleaning



WARNING!

Loss of the safety function due to the use of improper cleaning agents

Improper cleaning agents can damage the front screen and lead to malfunctions.

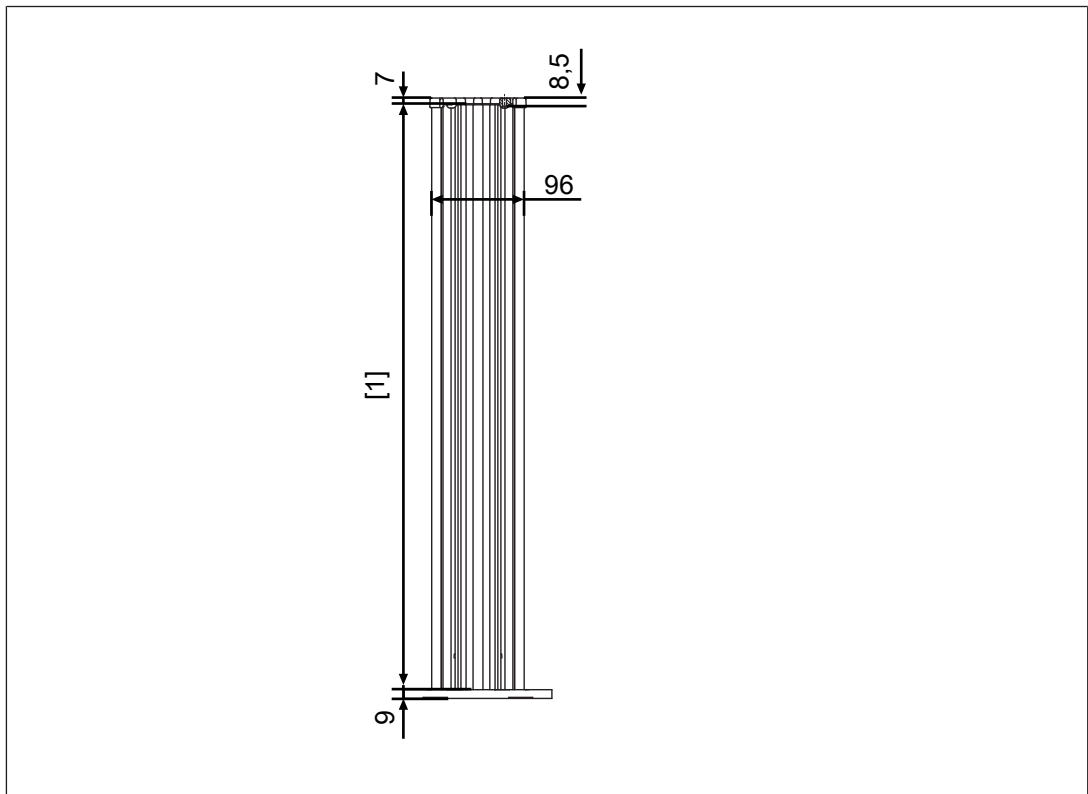
- Use only the cleaning agents specified.

Moist cotton cloths should be used for cleaning.

Avoid using

- ▶ Other alcohols,
- ▶ Solvents,
- ▶ Cloths made of wool,
- ▶ Cloths made of synthetic material.

Dimensions



Legend

- [1] Height of the protective column without base plate (see [Technical details](#) [18])

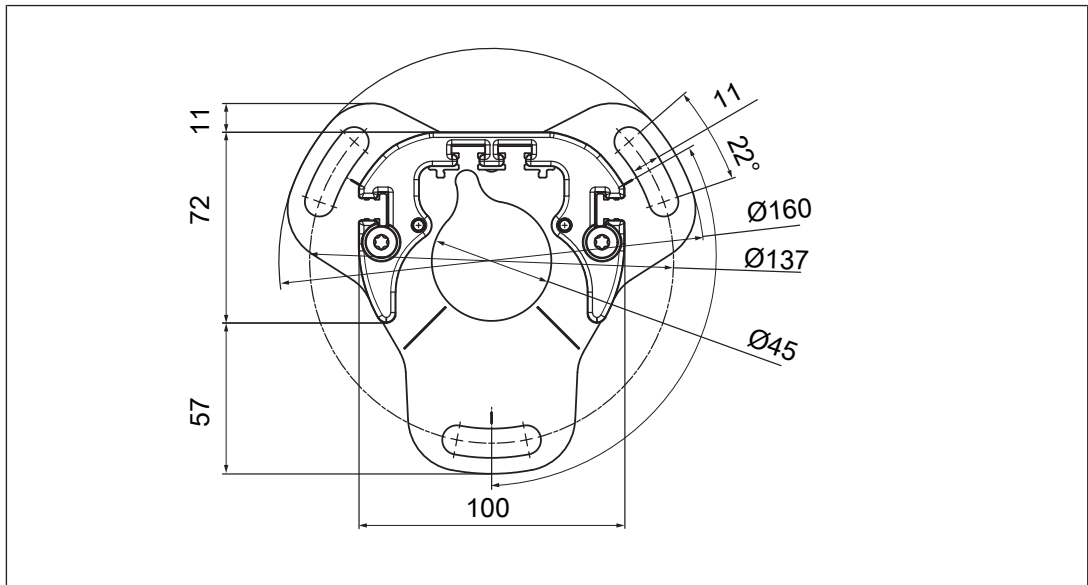


Fig.: Protective column without adjustable base unit - plan view

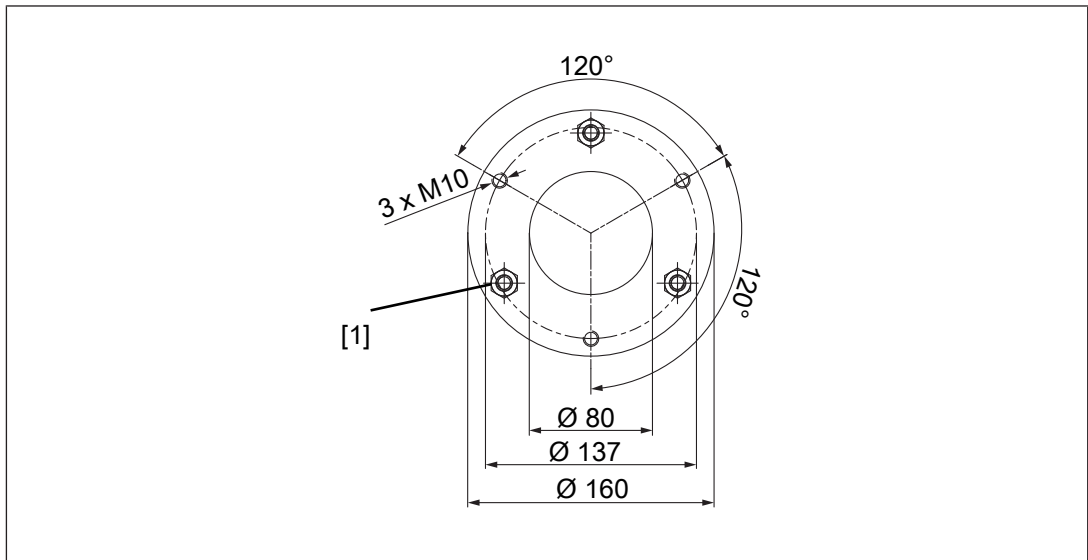


Fig.: Adjustable base unit - plan view

Legend

[1] Adjusting nuts for vertical alignment of PSEN opII protective column

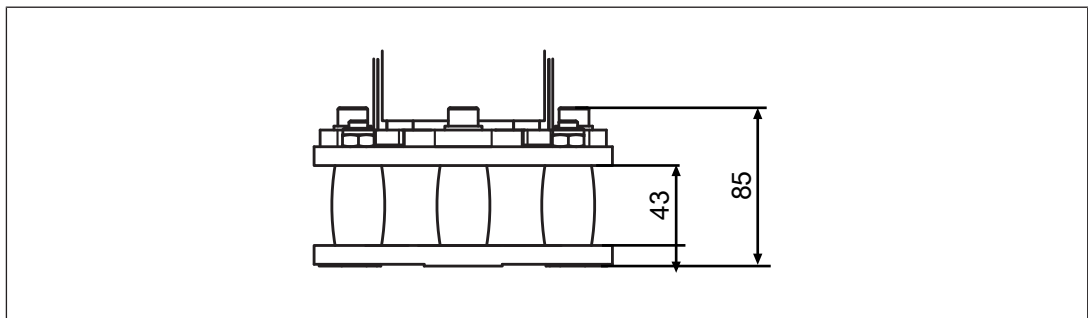


Fig.: Adjustable base unit with PSEN opII protective column installed - side view (dimensions in its delivery condition)

Technical details Order no. 632500-632502

General	632500	632501	632502
Certifications	-	-	-
Environmental data	632500	632501	632502
Ambient temperature			
Temperature range	-10 - 60 °C	-10 - 60 °C	-10 - 60 °C
Storage temperature			
Temperature range	-25 - 70 °C	-25 - 70 °C	-25 - 70 °C
Mechanical data	632500	632501	632502
Material			
Housing	Aluminium	Aluminium	Aluminium
Dimensions			
Height	624 mm	924 mm	1.224 mm
Width	96 mm	96 mm	96 mm
Depth	68 mm	68 mm	68 mm
Height of column including base plate	624 mm	924 mm	1.224 mm

Technical details Order no. 632503-632504

General	632503	632504
Certifications	-	-
Environmental data	632503	632504
Ambient temperature		
Temperature range	-10 - 60 °C	-10 - 60 °C
Storage temperature		
Temperature range	-25 - 70 °C	-25 - 70 °C
Mechanical data	632503	632504
Material		
Housing	Aluminium	Aluminium
Dimensions		
Height	1.674 mm	1.974 mm
Width	96 mm	96 mm
Depth	68 mm	68 mm
Height of column including base plate	1.674 mm	1.974 mm

Technical details for floor anchor Order no. 632012

General	
Certifications	-

Environmental data	
Ambient temperature	
Temperature range	-10 - 60 °C
Storage temperature	
Temperature range	-25 - 70 °C
Mechanical data	
Material	Galvanised steel
Weight	150 g

Technical details for adjustable base unit Order no. 632037

General	
Certifications	-
Environmental data	
Ambient temperature	
Temperature range	-10 - 60 °C
Storage temperature	
Temperature range	-25 - 70 °C
Mechanical data	
Material	
Levelling foot	Aluminium
Max. torque setting levelling foot	18 Nm
Dimensions	
Height levelling foot	78 mm
Diameter levelling foot	160 mm
Weight	1.050 g

Order reference

Protective column sets

consisting of

- ▶ PSEN opII protective column-xxx,
- ▶ PSEN opII adjustable base unit and
- ▶ Floor anchor PSEN screw set mirror column

Product type	Features	Height	Order no.
PSEN opII protective column-060 Set	With protective column PSEN opII protective column-060	60 cm	632 505
PSEN opII protective column-090 Set	With protective column PSEN opII protective column-090	90 cm	632 506
PSEN opII protective column-120 Set	With protective column PSEN opII protective column-120	120 cm	632 507
PSEN opII protective column-165 Set	With protective column PSEN opII protective column-165	165 cm	632 508

Product type	Features	Height	Order no.
PSEN opII protective column-195 Set	With protective column PSEN opII protective column-195	195 cm	632 509

Protective columns

Protective column individually (without PSEN opII adjustable base unit)

Product type	Features	Height	Order no.
PSEN opII Protective Column-060/1	Protective column for safety light curtain	600 mm	632 500
PSEN opII Protective Column-090/1	Protective column for safety light curtain	900 mm	632 501
PSEN opII Protective Column-120/1	Protective column for safety light curtain	1200 mm	632 502
PSEN opII Protective Column-165/1	Protective column for safety light curtain	1650 mm	632 503
PSEN opII Protective Column-195/1	Protective column for safety light curtain	1950 mm	632 504

Accessories

Product type	Features	Order no.
PSEN opII adjustable base unit	Adjustable base unit, matching all mirror columns/protective columns	632 037
PSEN opII Laser-pointer	Laser alignment aid for the safety light grid series PSEN opII	632 014
PSEN screw set mirror column	Screw set for attaching a PSEN opII mirror column, a PSEN opII protective column or an adjustable base unit PSEN opII to the floor 3 x M10	632 012
PIT si2.1 LED muting lamp	LED signal lamp for muting mode	620 015