

PEBLx01

Light Curtains Pick-to-Light



Operating Instructions

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1. General

1.1 Information Concerning these Instructions

- These instructions apply to products PEBL101, PEBL201 and PEBL301.
- These instructions make it possible to use the product safely and efficiently.
- These instructions are an integral part of the product and must be kept on hand for the entire duration of its service life.
- Local accident prevention regulations and national work safety regulations must be complied with as well.
- The product is subject to further technical development, and thus the information contained in these operating instructions may also be subject to change. The current version can be found at www.wenglor.com in the product's separate download area.



NOTE!

The operating instructions must be read carefully before using the product and must be kept on hand for later reference.

1.2 Explanations of Symbols

- Safety precautions and warnings are emphasized by means of symbols and signal words.
- Safe use of the product is only possible if these safety precautions and warnings are adhered to.

The safety precautions and warnings are laid out in accordance with the following principle:



SIGNAL WORD!

Type and source of danger!

Possible consequences in the event that the hazard is disregarded.

- Measures for averting the hazard.

The meanings of the signal words, as well as the scope of the associated hazards, are listed below:



DANGER!

This signal word indicates a hazard with a high degree of risk which, if not avoided, results in death or severe injury.



WARNING!

This signal word indicates a hazard with a medium degree of risk which, if not avoided, may result in death or severe injury.



CAUTION!

This signal word indicates a hazard with a low degree of risk which, if not avoided, may result in minor or moderate injury.



ATTENTION!

This signal word draws attention to a potentially hazardous situation which, if not avoided, may result in property damage.



NOTE!

A note draws attention to useful tips and suggestions, as well as information regarding efficient, error-free use.

1.3 Limitation of Liability

- The product has been developed in consideration of the current state-of-the-art technology, as well as applicable standards and guidelines. Subject to change without notice.
- A valid declaration of conformity can be accessed at www.wenglor.com in the product's separate download area.
- wenglor sensoric elektronische Geräte GmbH (hereinafter referred to as "wenglor") excludes all liability in the event of:
 - Non-compliance with the instructions,
 - Use of the product for purposes other than those intended,
 - Use by untrained personnel,
 - Use of unapproved spare parts,
 - Unapproved modification of products.
- These operating instructions do not include any guarantees from wenglor with regard to the described procedures or specific product characteristics.
- wenglor assumes no liability for printing errors or other inaccuracies contained in these operating instructions unless wenglor was verifiably aware of such errors at the point in time at which the operating instructions were prepared.

1.4 Copyrights

- The contents of these instructions are protected by copyright law.
- All rights are reserved by wenglor.
- Commercial reproduction or any other commercial use of the provided content and information, in particular graphics and images, is not permitted without previous written consent from wenglor.

2. For Your Safety

2.1 Use for Intended Purpose

This wenglor product is intended for use in accordance with the following functional principle:

Light Curtains Pick-to-Light

Pick-to-light light curtains operate according to the retro-reflex principle. The required reflector is mounted on the back of the housing and serves as a reflective surface for the adjacent light curtain. Visible red light facilitates alignment and initial start-up. Light curtain pick-to-light help to prevent errors during part removal from racks and storage spaces. An arrow-shaped job indicator that lights up green or red identifies the corresponding removal tray and indicates that the part has been removed correctly or incorrectly: The green job indication is activated via the input and signals that a part can be removed from the tray behind the light curtain. If this tray is accessed, the correct removal is confirmed via the job indication. If, on the other hand, a tray is accessed for which there is no signal on the input, the job indication lights up red.

This product can be used for object detection or distance measurement in the following industries:

- Special-purpose mechanical engineering
- Heavy mechanical engineering
- Logistics
- Automotive industry
- Food industry
- Packaging industry
- Pharmaceuticals industry
- Plastics industry
- Woodworking industry
- Consumer goods industry
- Paper industry
- Electronics industry
- Glass industry
- Steel industry
- Aviation industry
- Printing industry
- Aviation industry
- Construction industry
- Chemicals industry
- Agriculture industry
- Alternative energies
- Raw materials extraction

2.2 Use for Other than the Intended Purpose

- Not a safety component in accordance with 2006/42/EC (Machinery Directive).
- The product is not suitable for use in potentially explosive atmospheres.
- The product may be used only with accessories supplied or approved by wenglor, or in combination with approved products. A list of approved accessories and combination products can be found at www.wenglor.com on the product detail page.



DANGER!
Risk of personal injury or property damage in case of use for other than the intended purpose!

- Use for other than the intended purpose may lead to hazardous situations.
- Instructions regarding use for intended purpose must be observed.

2.3 Personnel Qualifications

- Suitable technical training is a prerequisite.
- In-house electronics training is required.
- Trained personnel who use the product must have (uninterrupted) access to the operating instructions.



DANGER!

Risk of personal injury or property damage in case of incorrect initial start-up and maintenance!

Personal injury and damage to equipment may occur.

- Adequate training and qualification of personnel.
-

2.4 Modification of Products



DANGER!

Risk of personal injury or property damage if the product is modified!

Personal injury and damage to equipment may occur. Noncompliance may result in loss of the CE mark and voiding of the warranty.

- Modification of the product is impermissible.
-

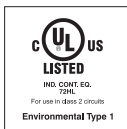
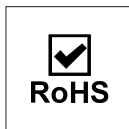
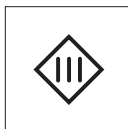
2.5 General Safety Precautions



NOTE!

- These instructions are an integral part of the product and must be kept on hand for the entire duration of its service life.
- In the event of possible changes, the respectively current version of the operating instructions can be accessed at www.wenglor.com in the product's separate download area.
- Read the operating instructions carefully before using the product.
- The sensor must be protected against contamination and mechanical influences.

2.6 Approvals and Protection Class

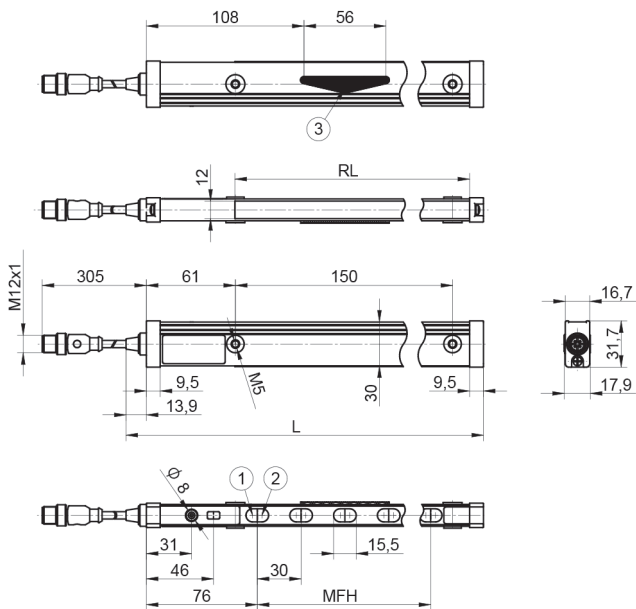


3. Technical Data

3.1 Technical Data

Order number	PEBL101		PEBL201	PEBL301
Optical Data				
Range	2,000 mm			
Minimum distance to reflector	100 mm			
Measuring field height (MFH)	120 mm	270 mm	420 mm	
Beam distance	30 mm			
Switching hysteresis	< 15%			
Light source	Red light			
Polarization Filters	Yes			
Service life (ambient temp. = +25°C)	100,000 hours			
Max. permitted Ambient light	10,000 Lux			
Aperture angle	2.5 °			
Two-lens optics	Yes			
Electrical Data				
Supply Voltage	10...30 V DC			
Current Consumption (Operating Voltage = 24 V)	< 60 mA	≤ 70 mA	< 80 mA	
Switching frequency	120 Hz	60 Hz	40 Hz	
Response Time	4 ms	8 ms	12 ms	
Temperature drift	< 10%			
Temperature Range	-25...60°C			
Switching Output Voltage Drop	< 2.5 V			
Switching current, PNP switching output	200 mA			
Switching output residual current	< 50 µA			
Short-circuit proof	Yes			
Reverse polarity protected	Yes			
Overload-proof	Yes			
Protection class	III			
Mechanical Data				
Setting Method	Teach-in			
Housing material	Aluminium			
Degree of Protection	IP65			
Connection Type	M12 x 1; 4-pin			
Cable Length	250 mm			
Housing length (L)	246 mm	396 mm	546 mm	
Reflector length (RL)	162 mm	324 mm	486 mm	

3.2 Housing Dimensions

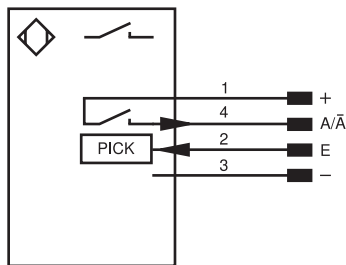


Dimensions specified in mm (1 = 0.03937 inch)

- 1 = Emitter diode
- 2 = Receiver diode
- 3 = Job indication

3.3 Connection Diagram

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Symbolerklärung

+	Versorgungsspannung +
-	Versorgungsspannung 0 V
~	Versorgungsspannung (Wechselspannung)
A	Schaltausgang Schließer (NO)
Ä	Schaltausgang Öffner (NC)
V	Verschmutzungs-/Fehlerausgang (NO)
∇	Verschmutzungs-/Fehlerausgang (NC)
E	Eingang analog oder digital
T	Teach-in-Eingang
Z	Zeitverzögerung (Aktivierung)
S	Schirm
RxD	Schnittstelle Empfangsleitung
TxD	Schnittstelle Sendeleitung
RDY	Bereit
GND	Masse
CL	Takt
E/A	Eingang/Ausgang programmierbar
	IO-Link
PoE	Power over Ethernet
IN	Sicherheitseingang
QSSD	Sicherheitsausgang
Signal	Signalausgang
BI-D +/-	Ethernet Gigabit bidirekt. Datenleitung (A-D)
ENaRS422	Encoder 0-Impuls 0/Ö (TTL)

PT	Platin-Messwiderstand
nc	nicht angeschlossen
U	Testeingang
Ü	Testeingang invertiert
W	Triggereingang
W-	Bezugsmasse/Triggereingang
O	Analogausgang
O-	Bezugsmasse/Analogausgang
BZ	Blockabzug
AMV	Ausgang Magnetventil/Motor
a	Ausgang Ventilsteuerung +
b	Ausgang Ventilsteuerung 0 V
SY	Synchronisation
SY-	Bezugsmasse/Synchronisation
E+	Empfänger-Leitung
S+	Sende-Leitung
±	Erdung
SnR	Schaltabstandsreduzierung
Rx +/-	Ethernet Empfangsleitung
Tx +/-	Ethernet Sendeleitung
Bus	Schnittstellen-Bus A(+)/B(-)
La	Sendelicht abschaltbar
Mag	Magnetansteuerung
RES	Bestätigungseingang
EDM	Schützkontrolle

ENaRS422	Encoder A/A (TTL)
ENaRS422	Encoder B/B (TTL)
ENa	Encoder A
ENa	Encoder B
AMIN	Digitalausgang MIN
AMAX	Digitalausgang MAX
AOk	Digitalausgang OK
SY In	Synchronisation In
SY OUT	Synchronisation OUT
OLt	Lichtstärkeausgang
M	Wartung
rsv	reserviert
Adernfarben nach IEC 60757	
BK	schwarz
BN	braun
RD	rot
OG	orange
YE	gelb
GN	grün
BU	blau
VT	violett
GY	grau
WH	weiß
PK	rosa
GNYE	grüngelb

DANGER!



Risk of personal injury or property damage due to electric current.

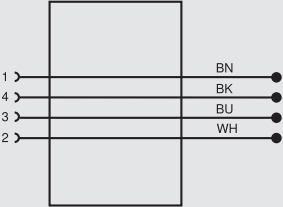
Voltage-conducting parts may cause personal injury or damage to equipment.

- The electric device may be connected by appropriately qualified personnel only.

3.4 Complementary Products

wenglor can provide you with suitable connection equipment for your product.

Suitable connection equipment no. S02



Reflector foil ZRDF10K01

Reflector ZRDE12B01 (PEBL101)

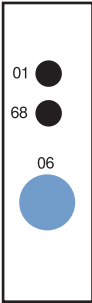
Reflector ZRDE12B02 (PEBL201)

Reflector ZRDE12B03 (PEBL301)

PNP-NPN converter BG2V1P-N-2M

3.5 Control Panel

EB1



01 = switching status indicator
06 = teach-in key
68 = supply voltage indicator

3.6 Scope of Delivery

- Sensor PEBLx01
- Initial start-up instructions

4. Transport and Storage

4.1 Transport

Upon receipt of shipment, the goods must be inspected for damage in transit. In the case of damage, conditionally accept the package and notify the manufacturer of the damage. Then return the device, making reference to damage in transit.

4.2 Storage

The following points must be taken into consideration with regard to storage:

- Do not store the product outdoors.
- Store the product in a dry, dust-free place.
- Protect the product against mechanical impacts.
- Protect the product against exposure to direct sunlight.



ATTENTION!

Risk of property damage in case of improper storage!

The product may be damaged.

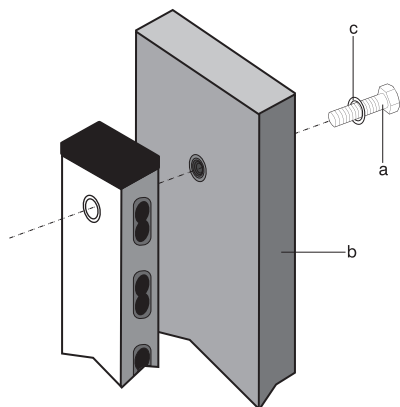
- Storage instructions must be complied with.
-

5. Installation

The light barrier is mounted with the help of the through-holes. The hole spacings can be found in the drawings below. Install the sensor(s) in a row and align them with the reflector on the back of the following sensor. Install a suitable reflector (see supplementary products) at the end of the row and align the last Sensor to it. Connect the sensor(s) electrically according to the connection diagram.

Mounting on Flat Surfaces

M5 screws must be used for mounting on flat surfaces. The screws are fed through the mounting surface and tightened into the threaded through-holes in the light curtain.



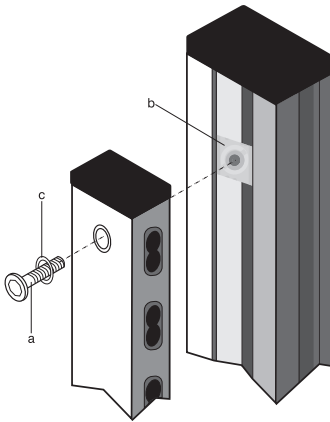
a = screw M5

b = mounting surface

c = washer

Mounting on Profiles

M4 screws must be used for mounting on profiles. The screws are fed through the holes in the Light Curtain and tightened into corresponding M4 slot nuts in the profile.



a = screw M4

b = slot nut

c = washer

- Protect the product from contamination during installation.
- Observe all applicable electrical and mechanical regulations, standards, and safety rules.
- Protect the product against mechanical influences.
- Make sure that the sensor is mounted in a mechanically secure fashion.
- The active surface of the sensor may not contact any other machine parts.

ATTENTION!



Risk of property damage in case of improper installation!

The product may be damaged.

- Installation instructions must be complied with.

CAUTION!



Risk of personal injury or property damage during installation!

Personal injury and damage to the product may occur.

- A safe installation environment must be assured.
-

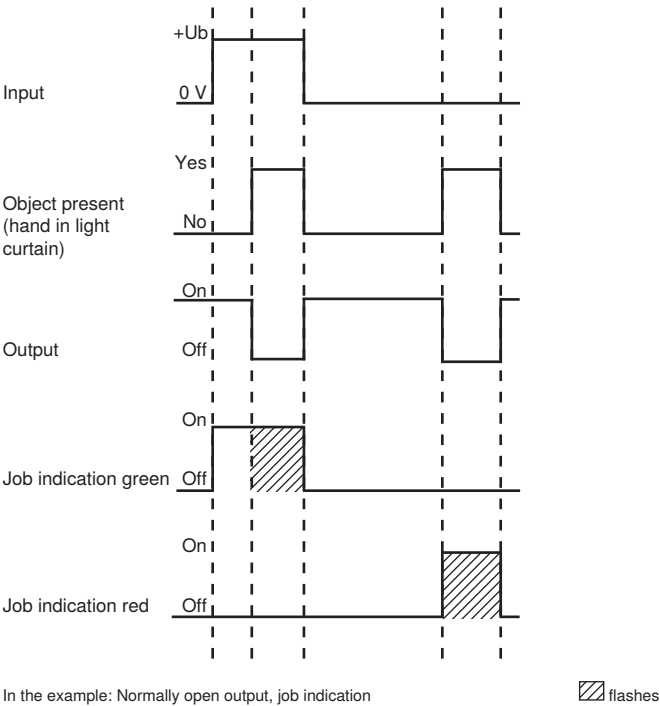
6. Functions Overview

6.1 Default Settings

Technical Data	Order number
Switching output	Normally Open (NO)
Job indication	Blinks

6.2 Function Definitions

If supply power is applied to the input, the green job indication is activated. The output is switched as soon as an object (e.g. hand) is located between the sensor and the reflector. The red job indication is activated if an object is located between the sensor and the reflector, and the input is not connected to supply power.



7. Settings

7.1 Set the working range

- Align sensor to reflector.
- Press the teach-in key for 1 second until the switching status indicator begins to flash at a high frequency.
- Release the key. The sensor has automatically adjusted to the working range and confirms this with a green, quick-flashing job indication.

7.2 Setting the operating mode

- Press and hold the teach-in key for 10 seconds until the switching status indicator changes from a fast to a slow flashing frequency.
- The number of flashes indicates the current mode of operation.
- The following options are available for the mode of operation:

Number of flashes	Switching output	Job indication
1x	Normally Open (NO)	Blinks
2x		Lights up
3x	Normally Closed (NC)	Blinks
4x		Lights up

- A short press of the button switches to another mode.
- If the teach-in key is not pressed for 15 seconds, the sensor exits the setting mode automatically.

8. Maintenance Instructions

NOTE!



- This wenglor sensor is maintenance-free.
- Cleaning and inspection of the plug connections at regular intervals are advisable.
- Do not clean the sensor with solvents or cleaning agents that could damage the product.
- The product must be protected against contamination during initial start-up.

9. Proper Disposal

wenglor sensoric GmbH does not accept the return of unusable or irreparable products. Respectively valid national waste disposal regulations apply to product disposal.

10. Appendix

10.1 List of Abbreviations

Abbreviation	Meaning
MFH	Measuring field height
L	Housing length
RL	Reflector length

10.2 Change Index for Operating Instructions

Version	Date	Description/Changes
1.0.0	08/14/2023	Initial version of the operating instructions

10.3 Declarations of Conformity

Declarations of conformity can be found on our website at www.wenglor.com in the product's separate download area.

