

OPT154x

Sensors for Roller Conveyor Systems



Operating Instructions

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Table of Contents

- 1. General.....4**
 - 1.1 Information Concerning these Instructions 4
 - 1.2 Explanations of Symbols 4
 - 1.3 Limitation of Liability..... 5
 - 1.4 Copyrights..... 5
- 2. For Your Safety.....6**
 - 2.1 Use for Intended Purpose 6
 - 2.2 Use for Other than the Intended Purpose 6
 - 2.3 Personnel Qualifications 6
 - 2.4 Modification of Products 7
 - 2.5 General Safety Precautions 7
 - 2.6 Laser/LED Warnings 7
 - 2.7 Approvals and protection class 7
- 3. Technical Data.....8**
 - 3.1 Dimensional Drawings 9
 - 3.2 Pin assignment Connection Diagrams 10
 - 3.3 Complementary Products (see catalog)..... 10
 - 3.4 Layout..... 11
 - 3.5 Control Panel..... 11
 - 3.6 Scope of Delivery 11
- 4. Transport and Storage.....12**
 - 4.1 Transport 12
 - 4.2 Storage..... 12
- 5. Installation and Electrical Connection.....13**
 - 5.1 Installation 13
 - 5.1.1 Installation with the ZPTX001/3 Quick Mounting System..... 14
 - 5.1.2 Installation with ZPTX002 Mounting Bracket 15
 - 5.1.3 Permissible Object Dimensions 16
 - 5.2 Electrical Connection 16
 - 5.3 Diagnostics..... 17

| | |
|--|-----------|
| 6. Functions..... | 19 |
| 6.1 Default Settings | 19 |
| 6.2 Function definition..... | 19 |
| 6.2.1 Basic Function | 19 |
| 6.2.2 Operating Modes..... | 20 |
| 6.2.3 Functions | 22 |
| 7. Settings | 25 |
| 7.1 Adjusting Switching Distance | 25 |
| 7.2 Setting Inputs and Outputs | 25 |
| 7.2.1 Input..... | 25 |
| 7.2.2 Output..... | 26 |
| 8. NFC interface | 27 |
| 9. Software | 27 |
| 9.1 General | 27 |
| 9.2 User Interface | 28 |
| 10. Maintenance Instructions..... | 29 |
| 11. Proper Disposal | 29 |
| 12. Appendix | 29 |
| 12.1 List of Abbreviations..... | 29 |
| 12.2 Change Index, Operating Instructions..... | 29 |
| 12.3 EU Declaration of Conformity | 29 |

1. General

1.1 Information Concerning these Instructions

- These instructions apply to the products listed in the technical data.
- They 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.



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 attention-getting 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:



ATTENTION-GETTING WORD

Type and Source of Danger!

Possible consequences in the event that the hazard is disregarded.

- Measures for averting the hazard.
-



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 and 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 replacement parts
 - Unapproved modification of products
- These operating instructions do not imply any guarantee 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

These sensors are used to detect objects on conveyors and for controlling material flow.

Sensors for Roller Conveyor Systems

These sensors have been specially designed for use in accumulation roller conveyors. Their compact design allows for installation between rollers below the transport level. High-precision background suppression makes it possible to reliably detect even black objects at up to 900 mm. Thanks to the innovative fast-clip mounting system and quick wiring, the sensors are installed and ready for use in no time flat.

This product can be used in the following industry sectors:

- Conveyor technology
- Logistics
- Automotive industry
- Food industry
- Packaging industry
- Pharmaceuticals industry
- Woodworking industry

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 only be used with accessories supplied or approved by wenglor, or combined with approved products. A list of approved accessories and combination products can be accessed 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.

- Observe instructions regarding use for intended purpose.
-

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. Non-observance may result in loss of the CE marking and the guarantee may be rendered null and void.

- 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.
- Protect the sensor against contamination and mechanical influences.

2.6 Laser/LED Warnings

**NOTE!**

- IR radiation from this product
- Risk group 1 per EN 62471

2.7 Approvals and protection class



Environmental Type 1



RoHS

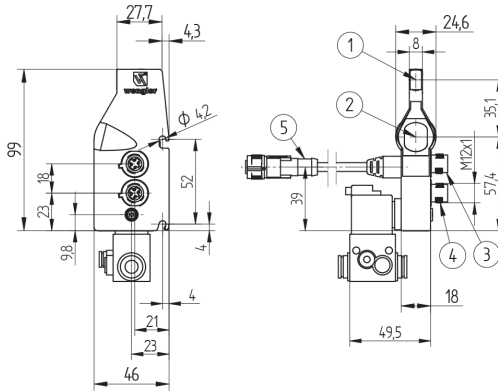


3. Technical Data

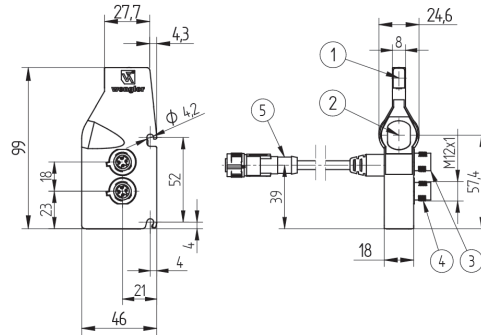
| Technical Data | Order No. | OPT1540-1542 | OPT1543-1545 | OPT1546 |
|---|---|---|---------------|---------------------------------|
| | Optical Data | | | |
| Detection Range | 900 mm | | | Depends on the connected sensor |
| Switching Hysteresis | < 5 % | | | |
| Light Source art | Infrarot | | | |
| Wavelength | 860 nm | | | |
| Opening Angle | 3° | | | |
| Risk Group (EN 62471) | 1 | | | |
| max. Ambient Light | 90.000 Lux | | | |
| Service Life (Tu = +25°C) | 100.000 h | | | |
| Electrical Data | | | | |
| Supply power | 20,6 V–30,0 V | 12,0 V–30,0 V | 20,6 V–30,0 V | |
| Current consumption (Ub = 24 V) | < 16 mA | | | |
| EcoMode | yes | | | |
| Switching frequency | 100 Hz | | | |
| Response time | 5 ms | | | |
| Temperature drif | < 5 % | | | |
| Temperature range | –40...60 ° C | | | |
| Switching Output Voltage Drop | < 0,9 V | | | |
| PNP Switching Output/Switching Current | 200 mA | | | |
| Short-circuit proof, reversed polarity and overload proof | yes | | | |
| Interface | NFC | | | |
| Protection class | III | | | |
| Logic | yes | | | |
| Pneumatic Solenoid Valve Unit | K04 | – | K04 | |
| Mechanical Data | | | | |
| Setting method | NFC | | | |
| Housing | Plastic ABS | | | |
| Lens material | PMMA | | | |
| Degree of Protection | IP65 | IP67 | IP65 | |
| Connection | M12 x 1; 4-pin | | | |
| Cable Length | OPT1540: 1m OPT1541: 1,5m OPT1542: 2m | OPT1543: 1m OPT1544: 1,5m OPT1545: 2m | 1m | |

3.1 Dimensional Drawings

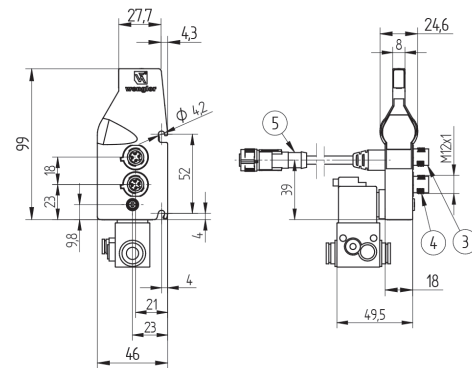
OPT1540-1542



OPT1543-1545



OPT1546



① = Transmitter Diode

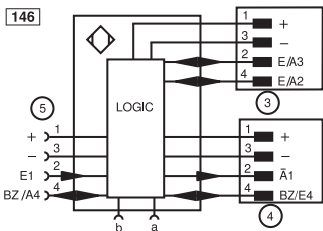
② = Receiver Diode

③/④/⑤ = Plug (see section "3.2 Pin assignment Connection Diagrams", page 10)

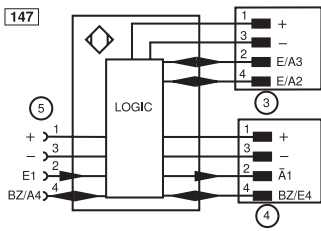
Screw M4 = 0,5 Nm

3.2 Pin assignment Connection Diagrams

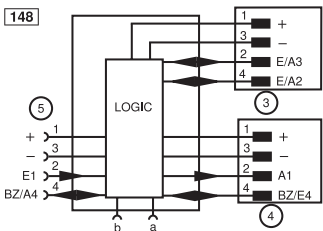
OPT1540-1542



OPT1543-1545



OPT1546



③/④/⑤ = Plug

Legend

| | |
|---------|--|
| + | Supply Voltage + |
| - | Supply Voltage 0 V |
| ~ | Supply Voltage (AC Voltage) |
| A | Switching Output (NO) |
| Ā | Switching Output (NC) |
| V | Contamination/Error Output (NO) |
| Ṽ | Contamination/Error Output (NC) |
| E | Input (analog or digital) |
| T | Teach Input |
| Z | Time Delay (activation) |
| S | Shielding |
| RxD | Interface Receive Path |
| TxD | Interface Send Path |
| RDY | Ready |
| GND | Ground |
| CL | Clock |
| E/A | Output/Input programmable |
| | IO-Link |
| PoE | Power over Ethernet |
| IN | Safety Input |
| QSSD | Safety Output |
| Signal | Signal Output |
| BL_D+/- | Ethernet Gigabit bidirect. data line (A-D) |
| ENr542 | Encoder 0-pulse 0-0̄ (TTL) |

| | |
|-------|--------------------------------|
| PT | Platinum measuring resistor |
| nc | not connected |
| U | Test Input |
| Ū | Test Input inverted |
| W | Trigger Input |
| W- | Ground for the Trigger Input |
| O | Analog Output |
| O- | Ground for the Analog Output |
| BZ | Block Discharge |
| AWV | Valve Output |
| a | Valve Control Output + |
| b | Valve Control Output 0 V |
| SY | Synchronization |
| SY- | Ground for the Synchronization |
| E+ | Receiver-Line |
| S+ | Emitter-Line |
| ≡ | Grounding |
| SnR | Switching Distance Reduction |
| Rx+/- | Ethernet Receive Path |
| Tx+/- | Ethernet Send Path |
| Bu5 | Interfaces-Bus A(+)/B(-) |
| La | Emitted Light disengageable |
| Mag | Magnet activation |
| RES | Input confirmation |
| EDM | Contactur Monitoring |

| | |
|------------------------------------|---------------------|
| ENr542 | Encoder A/Ā (TTL) |
| ENr543 | Encoder B/B̄ (TTL) |
| ENa | Encoder A |
| ENb | Encoder B |
| AMIN | Digital output MIN |
| AMAX | Digital output MAX |
| AOK | Digital output OK |
| SY in | Synchronization In |
| SY OUT | Synchronization OUT |
| OLT | Brightness output |
| M | Maintenance |
| rsv | reserved |
| Wire Colors according to IEC 60757 | |
| BK | Black |
| BN | Brown |
| RD | Red |
| OG | Orange |
| YE | Yellow |
| GN | Green |
| BU | Blue |
| VT | Violet |
| GY | Grey |
| WH | White |
| PK | Pink |
| GNYE | Green/Yellow |

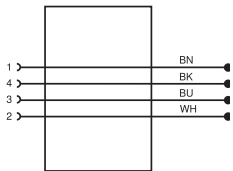
3.3 Complementary Products (see catalog)

wenglor offers Connection Technology for field wiring.

| | |
|----------------------------------|-----|
| Suitable Mounting Technology No. | 421 |
|----------------------------------|-----|

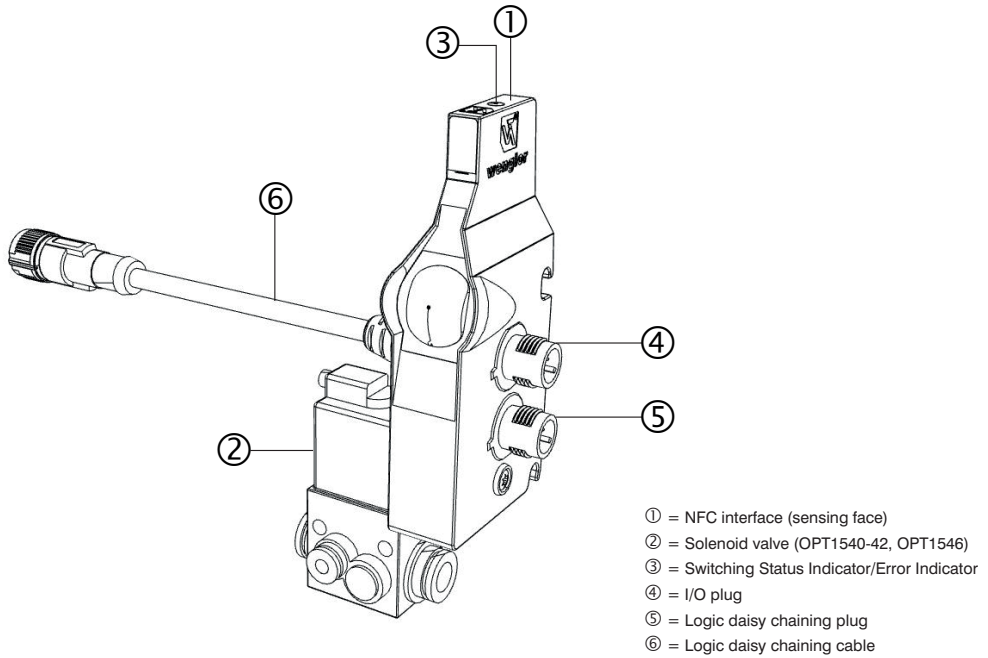
| | | |
|------------------------------------|---|----|
| Suitable Connection Technology No. | 2 | 2s |
|------------------------------------|---|----|

[S02]



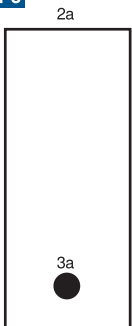
| |
|------------------------------|
| ZNNG021 NFC adapter |
| Quick mount ZPTX001, ZPTX003 |

3.4 Layout



3.5 Control Panel

OP3



2a = NFC interface
 3a = Switching Status Indicator/Error Warning

3.6 Scope of Delivery

- OPT154x
- Quickstart instruction

4. Transport and Storage

4.1 Transport

Upon receipt of shipment, inspect the goods 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 condition 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.

- Comply with storage instructions.
-

5. Installation and Electrical Connection

5.1 Installation

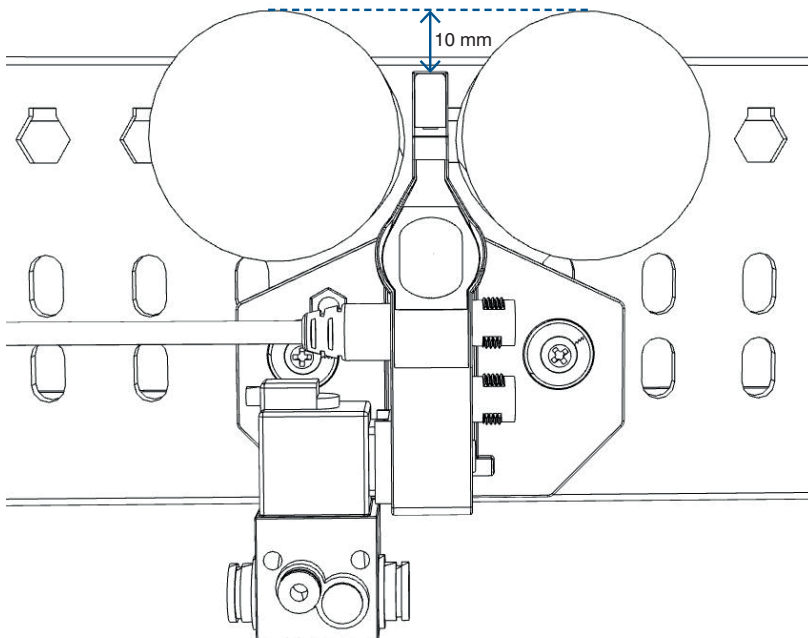
- Protect the product from contamination during installation.
- Observe all applicable electrical and mechanical regulations, standards, and safety rules.
- Protect the product against mechanical influences.
- Make sure that the sensor is mounted in a mechanically secure fashion.
- Specified torque values must be complied with (see section “3.1 Dimensional Drawings”, page 9).

The sensors must be mounted between the rollers (Minimum clearance at the side: 2 mm) roughly 10 mm below the height of the conveyed goods. Adjustment of the sensors is not absolutely necessary. Permissible object dimensions must be complied with (see section “5.1.3 Permissible Object Dimensions”, page 16). Mounting is possible with wenglor’s ZPTX001 or ZPTX003 quick mounting system or the ZPTX002 mounting bracket (not included in scope of delivery). The sensors can also be attached to any retaining system via the mounting holes with M4 screws.

NOTE!

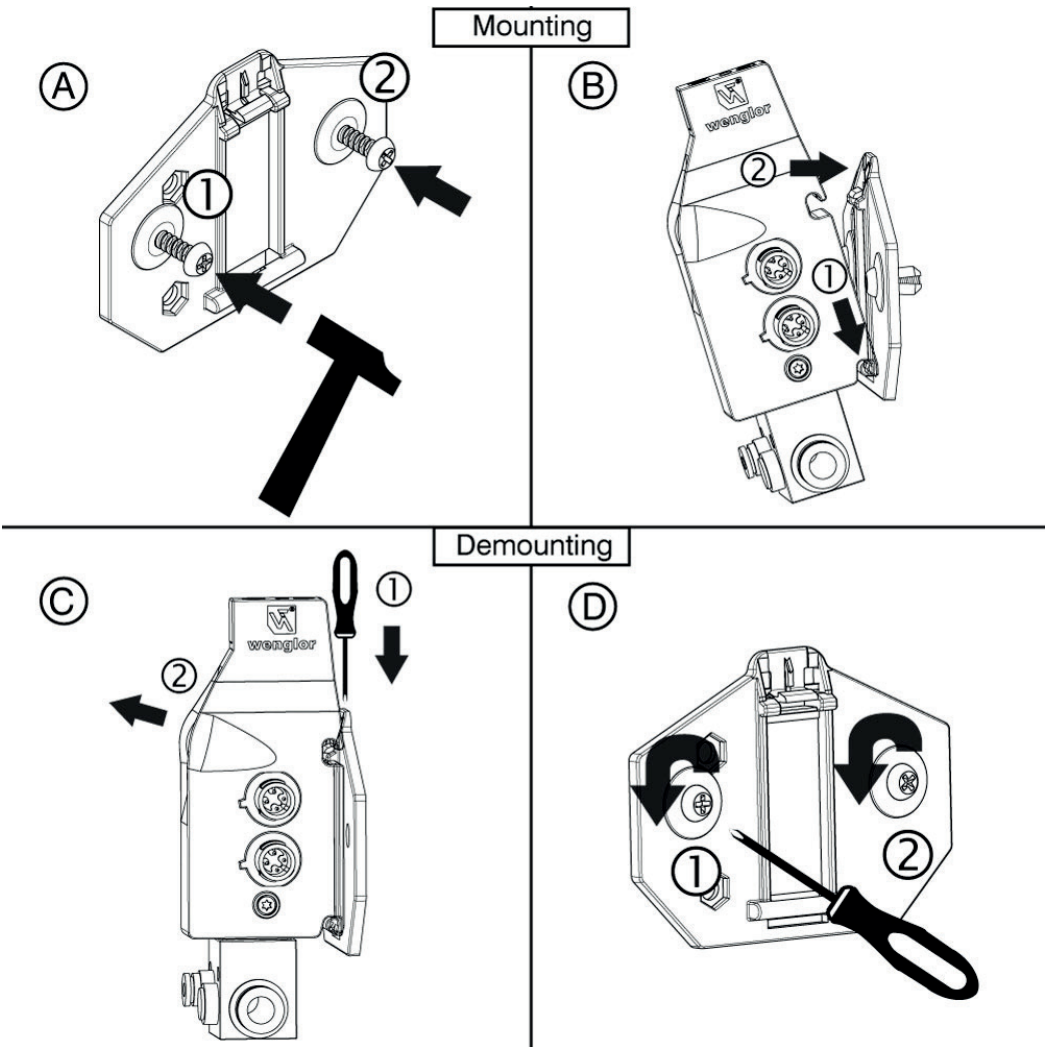


- It’s advisable to mount the sensor in an upwardly inclined position for the detection of high-gloss, black plastic containers on narrow conveyor systems (lane width < 500 mm).



5.1.1 Installation with the ZPTX001/3 Quick Mounting System

First of all, the retaining plate is clipped to the conveyor with the help of the percussion rivets included with the ZPTX001 (A). A 7 mm diameter hole is required to this end. The sensor is then inserted into the bottom guide and snapped into the retaining plate by pushing it to the back (B).



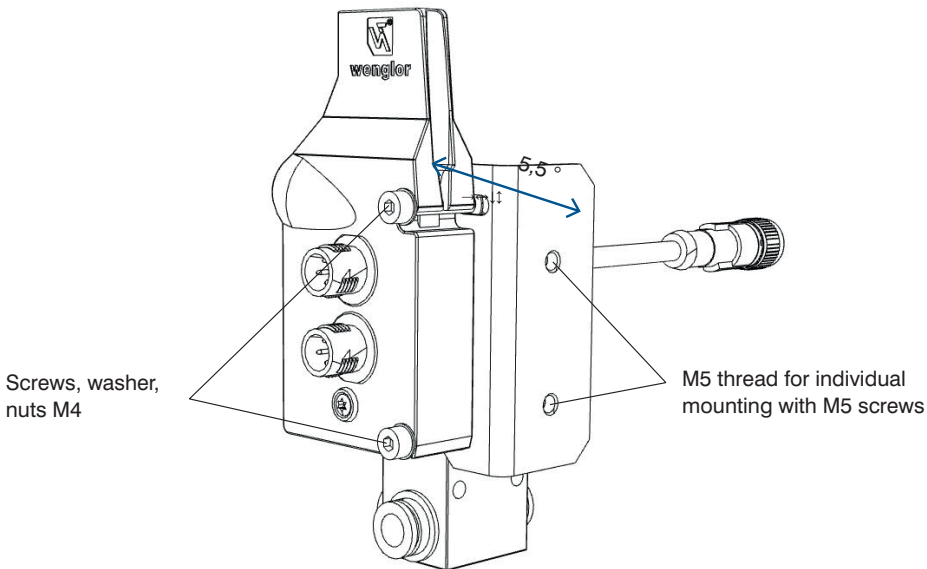
The sensor can be removed by pressing gently with a screwdriver at the top in order to release the mechanism and then pulling the sensor out to the front (C). The retaining plate can be removed by unscrewing the percussion rivets with a screwdriver (D).

Optionally, the retaining plate can be attached to the conveyor using M5 screws. The drill-hole pattern corresponds to the ZPTX002. The screws are not included in the scope of delivery.

If the ZPTX003 quick mounting system is used, no mounting holes are provided in the retaining plate. These must be individually positioned in accordance with the installation situation. A suitable drill or stamping tool must be used to this end. The method used to mount the retaining plate to the conveyor must be selected individually as well. The percussion rivets included with the ZPTX001 quick mounting system can be ordered separately under order number ZPTE001 if required.

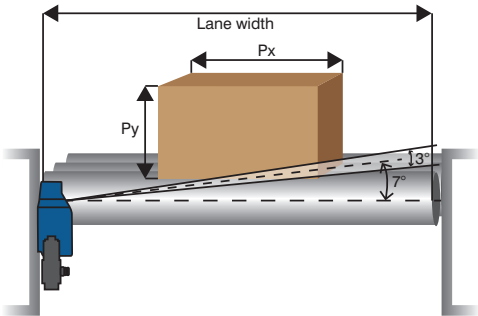
5.1.2 Installation with ZPTX002 Mounting Bracket

The sensor is attached to the bracket with two M4 screws. The screws, washers and nuts are included with the ZPTX002. The sensor can be adjusted (tilted back by up to 5.5°) until the screws are tightened. The bracket is mounted to the conveyor with two M5 screws. The mounting holes in the bracket are pre-threaded. The M5 screws are not included in the scope of delivery and must be selected in accordance with the installation situation.



5.1.3 Permissible Object Dimensions

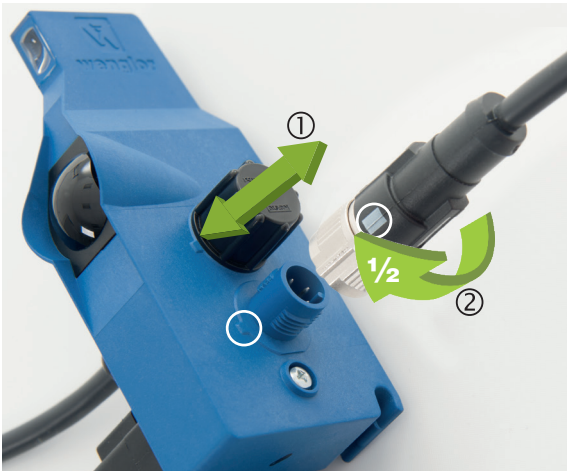
Permissible object dimensions depend on conveyor system's lane width and the utilized mounting system. The sensor's inclination angle is not changed when mounted with the ZPTX001 or ZPTX003 quick mounting system. When mounted with the ZPTX002 mounting bracket, the sensor can be tilted up by as much as 5.5°. This makes it possible to detect narrower packages, but the minimum package height is also increased as a result.



| Lane Width | | ≤ 600 mm | | ≤ 900 mm | |
|--------------|----------|-----------|---------|-----------|---------|
| Package Size | Mounting | ZPTX001/3 | ZPTX002 | ZPTX001/3 | ZPTX002 |
| Px min. | | 150 mm | 100 mm | 150 mm | 100 mm |
| Py min. | | 50 mm | 120 mm | 100 mm | 220 mm |

5.2 Electrical Connection

The sensors are equipped with a quick wiring system. This reduces the effort required for completing electrical connections. It must be assured that the socket with the white marking and the plug on the OPT with the corresponding marking are aligned to each other. The connection is locked into place by turning the sleeve 180° after the connector socket has been fully pushed onto the plug.



The sensors are connected to each other in series using the M12 cables (see figure 1). The maximum number of sensors which can be operated in a single chain depends on the utilized power supply. The direction of conveyance must be taken into consideration in this respect.

Supply power can be fed to plug ④ (pins 1 and 3) at any point within the chain. Alternatively, supply power can be fed via plug ③ (pins 1 and 3). However, supply power is normally connected at the end of the chain. single discharge (pin 2) or block discharge (pin 4) can be activated at the end of the chain via plug ⑤.

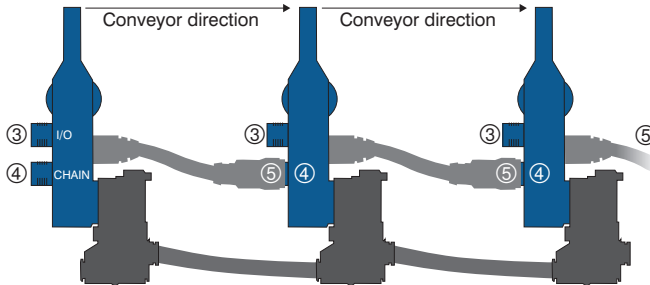


Image 1

It's also possible to freely assign various functions to pins I/O1 und I/O2 via plug ③.

See section "7.2 Setting Inputs and Outputs", page 25 with regard to configuring the pins.

5.3 Diagnostics

The following diagnosis functions are detected:

| Indicator LED | Diagnosis/Cause | Elimination |
|-------------------------------------|--|---|
| Device malfunctions | | |
| Continuous blinking at approx. 8 Hz | Contamination | Carefully clean the emitter and the receiver with a cloth. |
| | Aged emitter diode | Replace the device. |
| | Short Circuit | Check electrical wiring and eliminate the short-circuit. |
| | <ul style="list-style-type: none"> • Solenoid valve connected incorrectly • Solenoid valve defective | <ul style="list-style-type: none"> • Check electrical connection of the solenoid valve to the sensor. • Replace the solenoid valve. |
| | Unreliable working range | <ul style="list-style-type: none"> • Increase sensing distance. • Reduce distance between the sensor and the object. |
| Process error | | |
| | Material jam detected | Clear material jam so that accumulation logic continues: <ul style="list-style-type: none"> • Clear by means of block discharge • Clear by means of manual removal of the jam |

| Indicator LED | Diagnosis/Cause | Elimination |
|--|--|-----------------------------------|
| NFC Kommunikation | | |
| The LED indicator only functions when the sensor is connected to supply power. | | |
| 4 rapid, consecutive blinks | Successful receipt of data via NFC | |
| LED off | Data transmission via NFC not successful | Transmit data to the sensor again |

Device malfunctions can be additionally detected via the error output. One of the freely programmable I/Os is specified as an error output to this end. This output is switched as soon as one of the device malfunctions is detected.

The process error can also be configured to an output, so that it switches as soon as a material jam is detected.

Conduct in case of fault:



NOTE!

- Analyze and eliminate the cause of error on the basis of the diagnostics information.
- If the error cannot be eliminated, please contact wenglor's support department.

6. Functions

6.1 Default Settings

| Deactivated | OPT1540-1542 | OPT1543-1545 | OPT1546 |
|-----------------------|--|----------------------------------|-----------------------|
| Pin function, I/O3 | Output, object detected | nc | External sensor input |
| Pin function, I/O2 | Single discharge input | Solenoid valve / motor output | nc |
| Switching distance | ~ 63 % (corresponds to approx. 550 mm) | | |
| Single Discharge | Fixed zones | | |
| Block discharge | Standard | | |
| Automatic roll cutoff | Deactivated | | |
| Jam monitoring | Deactivated | | |
| Loading delay | Deactivated | | |
| Unloading Delay | Deactivated | | |
| Accumulation delay | Deactivated | | |
| Braking delay | Deactivated | | |

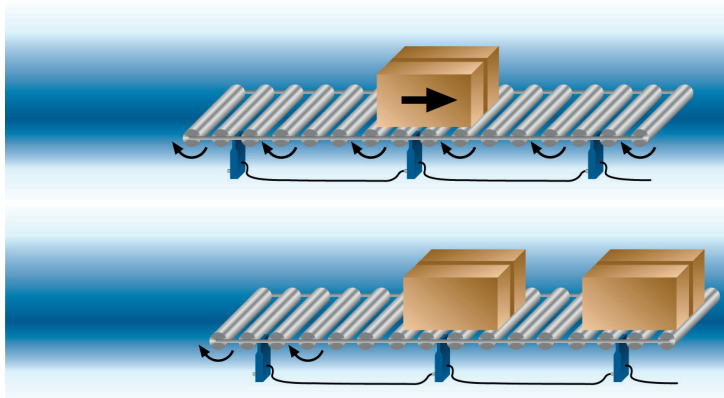
6.2 Function definition

6.2.1 Basic Function

Material Inlet and Material Accumulation

An object on the conveyor system is advanced to the foremost position. If it's detected at this position by the sensor, the rollers at the first accumulation position are deactivated and the object comes to a standstill. Information indicating that the accumulation position is occupied is forwarded to the next sensor within the chain, so that any subsequent object is advanced to the next unoccupied location. This procedure is repeated until the conveyor path is full and all accumulation positions are occupied.

The single discharge and block discharge modes are available for further forwarding of accumulated objects.



6.2.2 Operating Modes

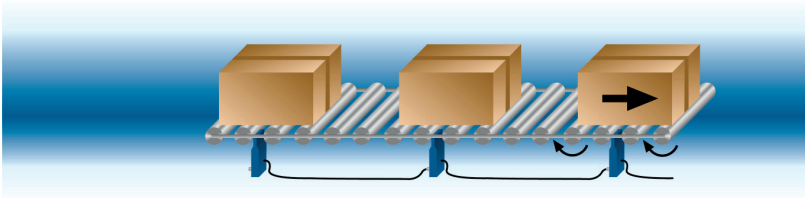
Single Discharge

Fixed Zones

An individual object is released from its accumulation position and forwarded. Subsequent objects can be moved up one by one.

The accumulation position must always be at least as large as the largest object.

Manual removal of an object activates the same function as applying a signal to the corresponding input.

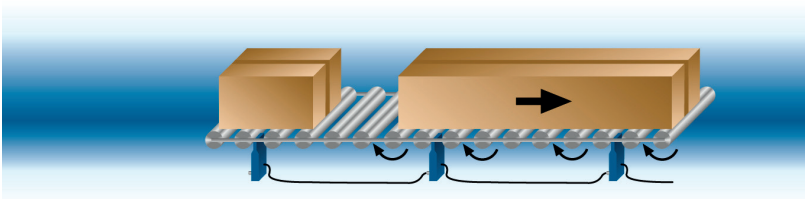


Dynamic Zones

An individual object is released from its accumulation position and forwarded. Subsequent objects can be moved up one by one.

The special feature of this type of single discharge is the fact that the objects can be larger than the accumulation positions. The system detects the object's size and automatically activates as many accumulation positions as required by the object.

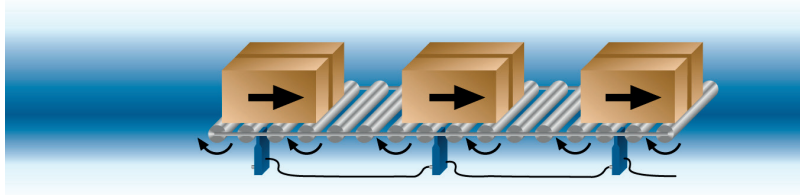
Manual removal of an object activates the same function as applying a signal to the corresponding input.



Block Discharge

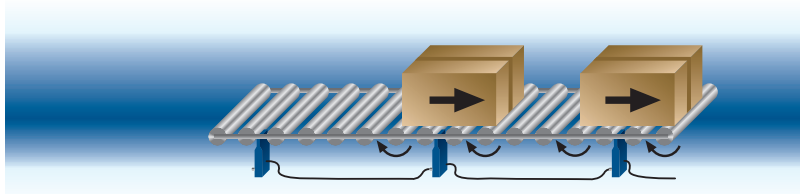
Standard Block Discharge

The entire accumulation zone is forwarded as a single block and all accumulation positions are simultaneously activated. Block discharge can be activated via the corresponding input.



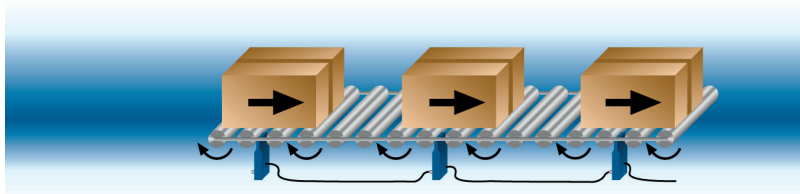
Eco Block Discharge

This operating mode is similar to block Discharge, but in this case the entire accumulation zone isn't always activated and advanced, but rather only up to the point to which packages have actually accumulated. And thus only occupied accumulation positions are activated which reduces energy consumption, decreases noise levels and results in less wear and tear.



Automatic Block Discharge

This operating mode is similar to standard block discharge, but in this case discharge is not activated by means of a signal applied to the input, but rather also by manually removing an object. Individual discharge is thus automatically converted to block discharge. This is an alternative to individual discharge which results in time-optimized follow-up discharge.



6.2.3 Functions

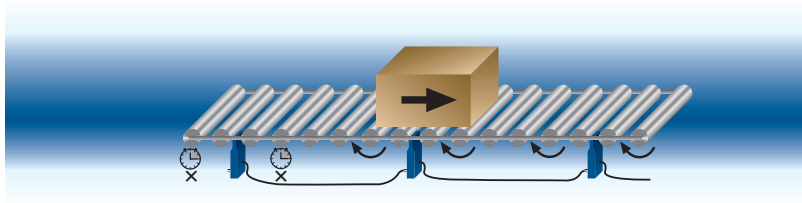
Automatic roll cutoff

This function is used to deactivate accumulation positions which are not currently in use, thus reducing energy consumption, decreasing noise levels and resulting in less wear and tear.

If no object is present in front of the sensor for a specified period of time, or if there aren't any objects in the zone, the solenoid valve / motor output or the solenoid valve shuts down the zone. The connected rollers are stopped. If a +24 V DC signal is applied to the input or an object is placed in front of the sensor, the solenoid valve / motor output or the solenoid valve switches the zone back on again and the connected rollers convey the objects again. The zone is activated in the same way during normal accumulation of objects. Duration can be adjusted with the software.

Setting range: 0 to 25 seconds

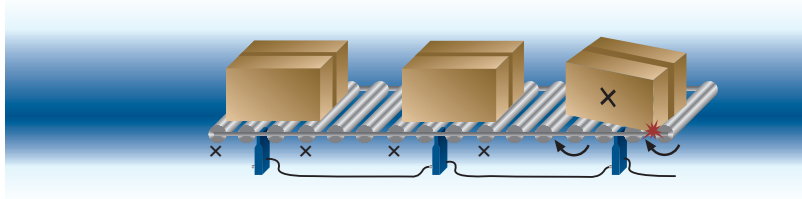
Default setting: function deactivated



Jam Monitoring

This function detects material jams in the conveyor system as early as possible and prevents the forwarding of further objects into the jam.

If an object is continuously detected by the sensor for a specified period of time although the rollers are activated, this is detected as a material jam. The rollers of the respective accumulation position, as well as all upstream accumulation positions, are stopped. In this case, the status LED indicates an error by means of rapid blinking. If an output has been set up as a jam monitoring, it's activated as well.



The jam can be cleared by means of one of the following methods:

1. Block discharge: If block discharge is activated, all accumulation positions up to the jam are activated. Downstream accumulation positions remain deactivated until the jam has been cleared. After the jam has been cleared, the selected accumulation logic continues after deactivation of block discharge.
2. Manual clearing: The jam has to be cleared manually by an operator. The zone must be fully cleared in order to reactivate accumulation logic.

Setting range: 0 to 25 seconds

Default setting: function deactivated

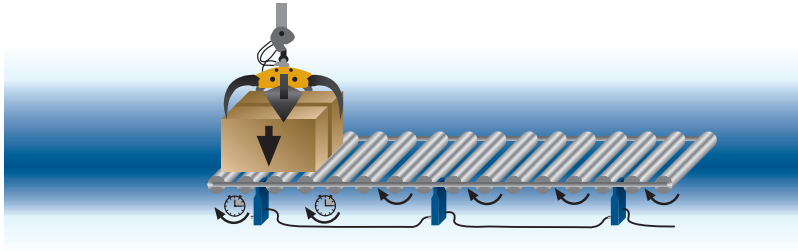


NOTE!

The function cannot be used when the “Automatic Block Discharge” or “Eco Block Discharge” mode is activated.

Loading Delay

This function is used to load the conveyor system with material by means of a hoist. Conveyance of the object is activated in a delayed fashion in this case, for example in order to be able to remove the forks of a forklift before activation.



Activation of accumulation logic is delayed for a specified period of time.

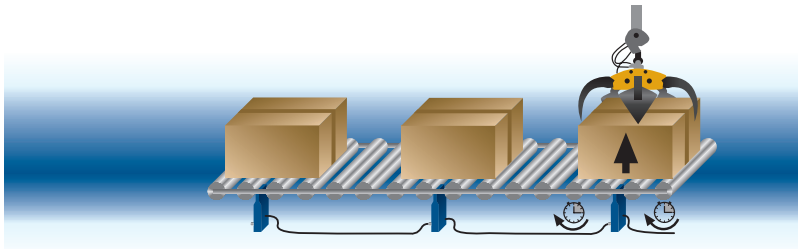
Duration can be adjusted with the software.

Setting range: 0 to 25 seconds

Default setting: function deactivated

Unloading Delay

This function is used to unload the conveyor system with material by means of a hoist. Follow-up forwarding of upstream accumulation locations is activated in a delayed manner, for example in order to be able to fully unload the object before following objects are conveyed.



Activation of accumulation logic is delayed for a specified period of time.

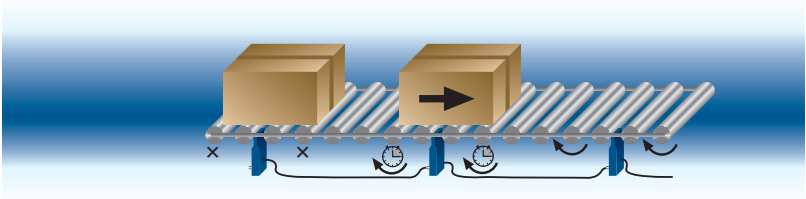
Duration can be adjusted with the software.

Setting range: 0 to 25 seconds

Default setting: function deactivated

Accumulation Delay

This function is used to delay accumulation logic so that gaps can be created between objects on the conveyor, or enlarged.



The signal for follow-up forwarding of an object is transmitted with a specified amount of delay. Duration can be adjusted with the software.

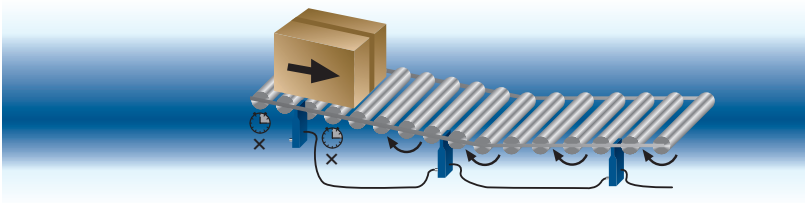
Setting range: 0 to 25 seconds

Default setting: function deactivated

Braking Delay

This function is used to reduce the slip speed of objects on inclined conveyor sections.

When material is being conveyed, the object is stopped at each accumulation position and delayed for a specified period of time before it's forwarded. The function can be used either in combination with only single discharge or block discharge, or with single discharge and block discharge.



In the case of single discharge each individual object is stopped and delayed, and in the case of block discharge the entire block is stopped and delayed during conveyance. Delay duration can be adjusted with the software.

Setting range: 0 to 25 seconds

Default setting: function deactivated

7. Settings

7.1 Adjusting Switching Distance

The sensor's switching distance can be set precisely. The setting is entered by means of a virtual potentiometer with the software. 0% corresponds to turning the potentiometer counterclockwise as far as it will go (minimum switching distance), and 100% corresponds to turning the potentiometer clockwise as far as it will go (maximum switching distance).

Object Detection Directly in Front of a Background (e.g. side panel, mounting rail)

- Adjust and securely mount the sensor such that the spot strikes the object to be scanned.
- Remove the object and reduce the switching distance until the sensor is deactivated. The background is suppressed as a result.
- Put the object back onto the conveyor and check to determine whether or not the sensor is activated again.

Detection of Objects Without Interfering Background

- Adjust and securely mount the sensor such that the spot strikes the object to be scanned.
- Reduce switching distance until the sensor is deactivated and then increase it until the sensor is once again activated – if necessary increase it a bit more in order to enhance switching reliability.

7.2 Setting Inputs and Outputs

Freely programmable pins I/O2 and I/O3 of the additional I/O plug can each be used as an input or an output. Possible functions include:

7.2.1 Input

Function

[Single Discharge](#)

Single discharge is triggered when activated.

[Block Discharge](#)

Block discharge is triggered when activated.

[Wake up from Automatic roll cutoff](#)

Rollers which have been shut down by this function are reactivated and the selected accumulation logic is continued.

[Sensor](#)

An external sensor can be connected as an auxiliary sensor. This function can be used to extend the sensing range. This makes it possible to monitor a location on an extremely wide lane with several sensors. Auxiliary sensors can be connected to the main sensor via either an OR logic operation or an AND logic operation.

The switching status LED then indicates the selected combination of switching statuses of the main and auxiliary sensors, and no longer indicates the switching status of the main sensor only.

- OR:** An object is deemed present as soon as one of the sensors is switched.
- AND:** An object is deemed present when all sensors are switched.

A total of two sensors can be connected via the two freely programmable pins.



NOTE!

wenglor sensor types OPT1506 and OPT1507, for example, are suitable for use as auxiliary sensors. However, any other sensors can be used as well.

In the case of the OPT1546, an externally connected sensor does not serve as an auxiliary sensor, but rather as the main sensor because the device itself has no sensor function. It provides the logic and all of the functions, and it can use any connected sensor for object detection.

As a result, switching distance cannot be adjusted with the software for this product.

Mode

High Active

During normal operation, the output is open or connected to 0V. The input function is activated as soon as supply power (U_b) is applied to the input.

Low Active

During normal operation, the output is connected to supply power (U_b). The input function is activated as soon as 0V is applied to the input.

7.2.2 Output

Function

Object Detected

The output is activated as soon as an object is detected by the sensor.

Output, solenoid valve / motor (AMV)

The output is activated as soon as an object is stopped. This means that an external solenoid valve or a connected motor stops the rollers of the corresponding zone.

Jam monitoring

The output is activated as soon as jam monitoring detects a jam.

Error

The output is activated as soon as one of the device malfunctions is detected. A description of possible malfunctions is included in the section on diagnosis functions.

Modus

Normally Open (NO)

The output is set to low (0 V) and is changed to high (U_b) as soon as the situation is detected in accordance with the function.

Normally Closed (NC)

The output is set to high (U_b) and is changed to low (0 V DC) as soon as the situation is detected in accordance with the function.

8. NFC interface

The devices can be set up and their parameters can be configured via the NFC interface with the help of the ZNNG021 setup tool using wTeach software.

Connect the NFC adapter to a USB port at your PC with the USB cable (included in scope of delivery) to this end. The settings are selected via the software (see section “9. Software”, page 27) and are then transmitted to the sensor.

With the “Read” or “Write” mode activated, hold the USB adapter up to the sensor’s NFC sensing face.

The sensor doesn’t necessarily have to be connected to supply power for data transmission, i.e. transmission is also possible in the de-energized state. However, in this case no diagnostics information is provided by means of the indicator LED.



If a connection isn’t established immediately, move the adapter across the sensing face until connection is successful.

As soon as the data have been correctly transmitted via NFC (read/write), the indicator LED blinks quickly four times for signalling.

9. Software

9.1 General

The devices can be set up and configured with the help of wTeach software. The software is available from the download area of our website at www.wenglor.com free of charge.

A version of higher than 2.2.0 must be used.

Follow the instructions included in the installation file in order to install the software.

After successful installation, complete operating instructions for the software are available from the help menu. They explain how to use the software and how to establish connections to the devices.

9.2 User Interface

The arrangement of the user interface depicted here shows the default settings for wTeach software.

Device manager

Read/write mode selection

NFC signal strength

| Eigenschaft | Wert |
|------------------------------------|-------------|
| Sensor settings | |
| Schaltabstand einstellen (%) | 61 |
| Einstellungen Förderstrecke | |
| Automatische Rollenabschaltung (s) | 10 |
| Staubbereichung (s) | 0 |
| Einschleifverzögerung (s) | 0 |
| Bremsverzögerung (s) | 0 |
| Lade Verzögerung (s) | 0 |
| Entlade Verzögerung (s) | 0 |
| Betriebsmodi | |
| Blockierung | Ein-Stop |
| Blockierung | Standard |
| Bei Anschluss von Ventilen | |
| Ausgang NO/NC | NC |
| Ventilüberwachung | Aktiv |
| Einstellungen Pin 2 | |
| Funktion | Einzelabzug |
| Modus | Ub inaktiv |
| Einstellungen Pin 4 | |
| Funktion | AMV |
| Modus | Ub aktiv |

Einzelabzug
Free Zone: Einzelabzug um einen Stapelplatz fördern. Die Größe des Stapelplatzes entspricht dem größten Paket.

Dynamische Zone: Wenn Pakete größer als ein Stapelplatz sind, wird dies erkannt, und die Pakete werden gefördert.

Connected devices

Connection Diagram

Operating Modes, Functions and Settings

Information window: display of information regarding the selected operating mode, function, setting

10. Maintenance Instructions



NOTE!

- This wenglor sensor is maintenance-free.
- It's advisable to clean and to check the plug connections at regular intervals.
- Do not clean the sensor with solvents or cleansers which could damage the product.
- The product must be protected against contamination during initial start-up.

11. 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.

12. Appendix

12.1 List of Abbreviations

| Abbreviation | Meaning |
|--------------|-------------------------------|
| NFC | Near Field Communication |
| Ub | Supply Voltage |
| Tu | Ambient Temperature |
| nc | Not Connected |
| AMV | Solenoid Valve / Motor Output |

12.2 Change Index, Operating Instructions

| Version | Date | Description/Change |
|---------|----------|--|
| 1.0.0 | 25.05.16 | Initial version of the operating instructions |
| 1.0.1 | 17.08.16 | Mounting, roller clearance at the side |
| 1.0.2 | 17.10.16 | Default settings corrected |
| 2.0.0 | 31.10.16 | Minor corrections |
| 2.1.0 | 27.02.18 | Supply power (section "3. Technical Data", page 8) |
| 2.2.0 | 21.07.21 | Minor corrections |

12.3 EU Declaration of Conformity

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