

Operating Instructions

P4HJ301-005-050

Fork Sensor



EN



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1 General

1.1 Information Concerning these Instructions

- These instructions ensure the safe and efficient use of the product.
- These instructions are part of the product and must be retained for its entire service life.
- In addition, local accident prevention regulations and national occupational safety regulations must be observed.
- The product is subject to technical improvements, so the instructions and information in these operating instructions may also be subject to change. You can find the current version at www.wenglor.com in the product's download section.



INFORMATION

The operating instructions must be read carefully before use and kept for future reference.

1.2 Explanation 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.



NOTICE

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



INFORMATION

Information draws attention to useful tips and suggestions, as well as information on 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

Fork Sensor

The emitter and receiver are arranged opposite each other in a housing to form a barrier. As soon as the light beam is interrupted, the output of the fork sensor switches.

A fork sensor can be used to detect small holes, grooves, and notches, as well as to detect small parts.

This Product Can Be Used in the Following Industry Sectors:

- 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
- Chemicals 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.

→ 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 (permanent) 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 and/or UKCA mark and voiding of the warranty.

→ Modification of the product is not permitted

2.5 General Safety Precautions



INFORMATION

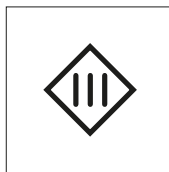
These instructions are an integral part of the product and must be kept on hand for the entire duration of its service life.

In the event of possible changes, the current version of the operating instructions can be found 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 Approvals and protection classes

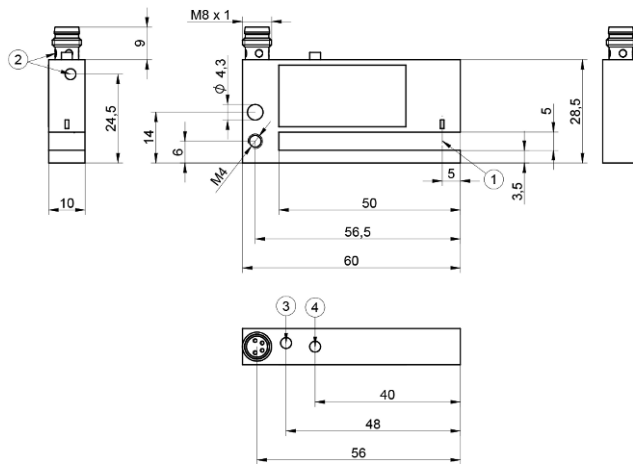


3 Technical Data

3.1 General Information

Optical Data	
Fork Width	5 mm
Switching Hysteresis	0.15 mm
Light Source	Infrared Light
Max. Ambient Light	40000 Lux
Repeat Accuracy	0.05 mm
Reproducibility	0.05 mm
Electrical Data	
Supply Voltage	10...30 V DC
Current Consumption (U _b = 24 V)	< 25 mA
Switching Frequency	3000 Hz
Response Time	0.16 ms
Temperature Range	-10...60 °C
Number of Switching Outputs	1
Switching Output Voltage Drop	< 2 V
Switching Output/Switching Current	100 mA
Protection Class	III
Belt speed	500 m/min
Mechanical Data	
Setting Method	Teach-In
Housing Material	Zinc diecasting
Optic Cover	Plastic, PA
Degree of Protection	IP67
Connection	M8 × 1; 4-pin
General Data	
Scope of delivery	1 × initial start-up instructions 1 × sensor
Packaging unit	1 Piece
BMECat data	
eCl@ss 5.1.4	27-27-09-09 Fork sensor
eCl@ss 6.x	27-27-09-09 Fork sensor
eCl@ss 7.0	27-27-09-09 Fork sensor
eCl@ss 7.1	27-27-09-09 Fork sensor
eCl@ss 8.x	27-27-09-09 Fork sensor
eCl@ss 10.0.1	27-27-09-09 Fork sensor

3.2 Housing Dimensions



Symbol	Legend
1	Active surface (emitter and receiver facing each other)
2	Status LED
3	Power LED
4	Teach-in button

3.3 Complementary Products

wenglor offers you the right connection and mounting technology as well as other accessories for your product. You can find this at www.wenglor.com on the product details page at the bottom.

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.



NOTICE

Risk of property damage in case of improper storage!

The product may be damaged.

→ Storage instructions must be complied with.

5 Installation and Electrical Connection

5.1 Installation

- Protect the product from contamination during installation.
- Observe the applicable electrical and mechanical regulations, standards, and safety rules.
- Protect the product from mechanical impact.
- Ensure that the sensor is mechanically secure during installation.
- Torque specifications must be observed (see the section “ Housing Dimensions ”).



NOTICE

Risk of property damage in case of improper installation!

The product may be damaged!

→ Comply with installation instructions.



CAUTION

Risk of personal injury or property damage during installation!

Personal injury and damage to the product may occur.

→ Ensure a safe installation environment.

5.2 Electrical Connection

- Wire the sensor according to the connection diagram.
- Switch on the supply voltage (see section Technical Data [► 7]).

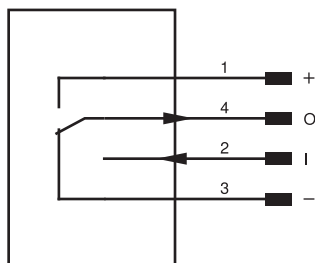


DANGER

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

Live parts may cause damage to persons and equipment.

→ The electrical device may only be connected by qualified personnel.



Pin	Pin Function	Polarity	Circuit
1	Supply Voltage +		
2	Input	High-active	
3	Supply voltage 0 V		
4	Switching output	Push-pull	NO

6 Settings

The sensor can be adjusted using the control element. The setting options are described below.

6.1 Setup via Teach-In Key

- Insert the label.
- Press the teach-in key for 2 seconds until the status LED remains lit.
- The object-dependent teach window (2–8 seconds) opens and is indicated by the status LED flashing rapidly.
- Now pass as many objects as possible—but at least two—through the active light beam.
- After a successful teach-in, the status LED flashes twice.



INFORMATION

If the status LED flashes 4 times after a teach-in process, the object was not detected optimally and the best possible switching point was set.

6.1.1 Output Functions

Use the teach-in key to switch to the desired switching function.

1. Hold down the teach-in key for > 6 seconds until the status LED flashes twice.
2. The NO/NC switching function has been successfully changed.

6.2 External Teach-In

External Teach-in Input

Teach the O1 output via the teach-in input.

1. Apply 10–30 V to pin 2.
2. As soon as the voltage at the input drops, O1 is programmed.

Lock

If the teach-in input is permanently activated, the button is locked and protected against unintentional adjustment.

1. Set pin 2 permanently to 0 V DC.
2. The sensor is protected against adjustment via the teach-in key.

7 Maintenance Instructions



NOTICE

This wenglor product is maintenance-free.

Cleaning and inspection of the plug connections at regular intervals are advisable.

Do not clean the product with solvents or cleaning agents that could damage the product.

The product must be protected against contamination during initial start-up.

8 **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.

9 **Declarations of Conformity**

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