

# Operating Instructions

## **EP8H001**

### **IO-Link Hub for M12 × 1**



EN



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# 1 General

## 1.1 Information Concerning these Instructions

- 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](http://www.wenglor.com) in the product's separate download area.



### INFORMATION

The operating instructions must be read carefully before using the product and must be kept on hand for later 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](http://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 General Safety Precautions

#### Specialist Personnel

Only qualified and safety-technically instructed personnel may install, commission and operate the device.

#### Target Group

This document is intended for specialists in automation technology.



#### NOTICE

Insofar as they are not described in this document, interventions in the hardware and software of the device may only be carried out by specialist personnel of wenglor sensoric GmbH.



#### NOTICE

The operating instructions must be available at all times to the operator of the machine on which the device is used.

### 2.2 Use for Intended Purpose

The product is designed and manufactured for:

- Industrial use.
- Operation within the specified ambient conditions.
- Use in the field.



#### NOTICE

When the device is used in a residential or mixed-use area, radio interference may occur.

→ Observe applicable standards for the residential or mixed-use area!

#### Foreseeable Misuse

- Do not make any structural, technical or electrical modifications to the device.
- Only use the device within the ranges described in this manual, the technical data and the operating instructions.
- Do not use the device as a safety-related device. It does not comply with the relevant standards. Safety functions of the system are not guaranteed.
- Only use the device in the appropriate IP-protected environment.
- Clean only with oil-free compressed air and a leather cloth.
- Do not use the device as a climbing aid.

## **Warranty and Liability**

Warranty and liability claims are forfeited if:

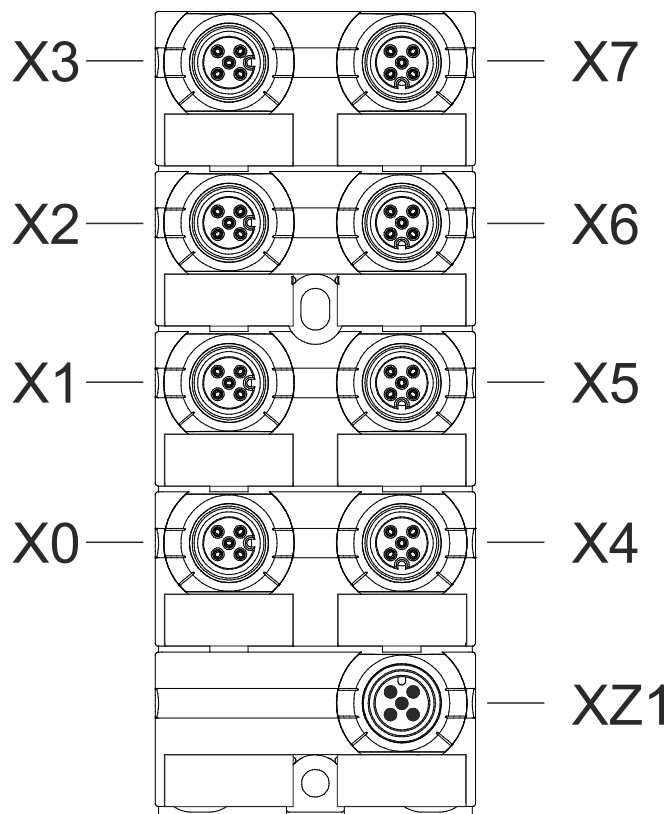
- the product is not used as intended,
- damage is due to failure to observe the operating instructions,
- the personnel was/is not competent.

# 3 Description

- IO-Link hub in 50 mm plastic housing
- 1 × M12 IO-Link Class A
- 8 × M12 I/O
- 16 configurable digital inputs/outputs



## 3.1 Device Configuration

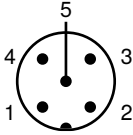
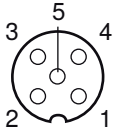


| Port designation | Explanation                    |
|------------------|--------------------------------|
| X0 ... X7        | Digital inputs and outputs US  |
| XZ1              | Device supply, IO-Link Class A |



## 3.2 Pin Assignments

### 3.2.1 IO-Link Class A

| IO-Link                                                                           | XZ1 (M12 plug)          |                |
|-----------------------------------------------------------------------------------|-------------------------|----------------|
|  | Pin 1                   | 24 V = US (L+) |
|                                                                                   | Pin 2                   | n. c.          |
|                                                                                   | Pin 3                   | 0 V US (L-)    |
|                                                                                   | Pin 4                   | C/Q IO-Link    |
|                                                                                   | Pin 5                   | n. c.          |
| DIO                                                                               | X0 ... X7 (M12 sockets) |                |
|  | Pin 1                   | 24 V = US      |
|                                                                                   | Pin 2                   | DIO US         |
|                                                                                   | Pin 3                   | 0 V US         |
|                                                                                   | Pin 4                   | DIO US         |
|                                                                                   | Pin 5                   | FE             |

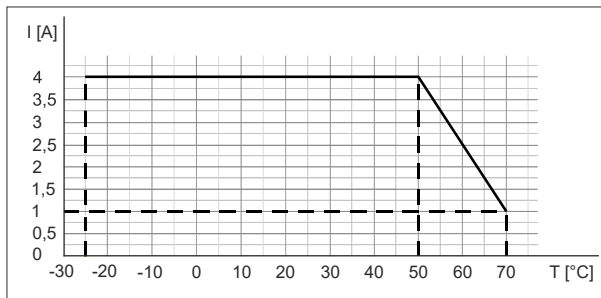
## 4 Technical Data

### Electrical Data

#### Device Power Supply

|                            |                                                  |                     |
|----------------------------|--------------------------------------------------|---------------------|
| Operating voltage US       |                                                  | 24 V $\approx$      |
| Operating voltage range US |                                                  | 18...30 V $\approx$ |
| Total current US           | $\leq 50\text{ }^{\circ}\text{C}$ (see derating) | $\leq 4\text{ A}$   |
| Idle current consumption   |                                                  | $\leq 40\text{ mA}$ |
| Electrical isolation       |                                                  | No                  |

#### Total Current US



#### IO-Link

|                     |  |                                                |
|---------------------|--|------------------------------------------------|
| Communication speed |  | COM3                                           |
| Transmission speed  |  | 230,400 bit/s                                  |
| Bus protocol        |  | IO-Link V1.1.2, compatible with IO-Link V1.1.3 |
| IO-Link cycle time  |  | $\geq 1\text{ ms}$                             |
| VendorID            |  | 0x0057                                         |
| DeviceID            |  | 0x0C0009                                       |
| Process data        |  | 2 bytes (inputs),<br>2-byte (outputs)          |

#### Sensor Power Supply

|                   |          |                     |
|-------------------|----------|---------------------|
| Plug/socket       |          | M12                 |
| Operating voltage |          | 24 V $\approx$      |
| Power Supply      | Pro Port | $\leq 0,5\text{ A}$ |

#### Input (DI)

|                       |            |                         |
|-----------------------|------------|-------------------------|
| Plug/socket           |            | M12                     |
| Cable cross section   |            | $\leq 0.75\text{ mm}^2$ |
| Cable length          |            | $\leq 30\text{ m}$      |
| Input characteristics | EN 61131-2 | Type 1 + Type 3         |
| Input filter          |            | 1 ms                    |

#### Output (DO)

|                     |                |                         |
|---------------------|----------------|-------------------------|
| Plug/socket         |                | M12                     |
| Cable cross section |                | $\leq 0.75\text{ mm}^2$ |
| Cable length        |                | $\leq 30\text{ m}$      |
| Output current      | Per pin        | $\leq 0.5\text{ A}$     |
| Switching frequency | Resistive load | $\leq 25\text{ Hz}$     |

## Ambient Conditions

### Climatic Conditions

|                       |                     |                 |
|-----------------------|---------------------|-----------------|
| Operating temperature |                     | –25 °C...+70 °C |
| Storage temperature   |                     | –40 °C...+85 °C |
| Installation altitude | Above normal height | ≤ 3,000 m       |
| Relative humidity     |                     | ≤ 95%           |

### Mechanical Characteristics

|                   |                    |                                                         |
|-------------------|--------------------|---------------------------------------------------------|
| Vibration testing | EN 60068 Part 2-6  | 5...500 Hz; const. Amplitude 1 mm;<br>Acceleration 15 g |
| Shock test        | EN 60068 Part 2-27 | 50 g @ 11 ms                                            |

### Electric Safety

|                      |                                                  |       |
|----------------------|--------------------------------------------------|-------|
| Degree of protection | The IP rating is not included in the UL approval | IP 68 |
| Protection class     |                                                  | III   |
| Pollution degree     |                                                  | 2     |

### EMC Interference Emission

|                                   |                       |                                                                              |
|-----------------------------------|-----------------------|------------------------------------------------------------------------------|
| Radio interference field strength | EN 61000-6-4 Emission | QP: 40 dB $\mu$ V/m<br>@ 30...230 MHzQP: 47 dB $\mu$ V/m<br>@ 230...1000 MHz |
|-----------------------------------|-----------------------|------------------------------------------------------------------------------|

### EMC Interference Immunity

|                                                                  |                          |                                                           |
|------------------------------------------------------------------|--------------------------|-----------------------------------------------------------|
| Discharge of static electricity (housing)                        | EN 61000-4-2             | ± 4 kV @ contact<br>± 8 kV @ air                          |
| High-frequency electromagnetic fields (housing)                  | EN 61000-4-3 RF field    | 10 V/m                                                    |
| Fast transient electrical disturbances (burst) DC inputs/outputs | EN 61000-4-4             | ± 2 kV I/O supply<br>± 1 kV data line/<br>± 1 kV I/O line |
| Magnetic field                                                   | EN 61000-4-8             | 30 A/m @ 50 Hz                                            |
| Conducted disturbances, high frequency fields                    | EN 61000-4-6, asymmetric | 10 V                                                      |

## Protection

### Equipment Protection

|                                           |                                          |                  |
|-------------------------------------------|------------------------------------------|------------------|
| Overvoltage protection                    |                                          | Yes              |
| Overload protection device supply         | To be ensured by load circuit monitoring | Yes              |
| Reverse polarity protection device supply |                                          | Yes              |
| Short-circuit protection sensor supply    |                                          | Electronic       |
| Short-circuit protection output (DO)      |                                          | Electronic       |
| Protective circuit input                  | Internal                                 | Suppressor diode |

## Mechanical Data

### Mounting Data

|            |           |                    |
|------------|-----------|--------------------|
| Weight     | Net       | 200 g              |
| Dimensions | L x W x H | 126 x 50 x 34.5 mm |

## Product Reliability

### Product Reliability

|      |                                    |          |
|------|------------------------------------|----------|
| MTTF | SN 29500 (at 40 °C and rated data) | 57 years |
|------|------------------------------------|----------|

## Conformity, Approvals

Conformity, approvals

|                  |                                                     |                 |
|------------------|-----------------------------------------------------|-----------------|
| Product standard | EN 61131-2<br>Programmable logic controllers part 2 | Compliant       |
| CE               | 2014/30/EU<br>2011/65/EU                            | Compliant       |
| UKCA             |                                                     | Compliant       |
| EMC              | 2014/30/EU                                          | Compliant       |
| REACH            | No. 1907/2006                                       | SVHC List       |
| WEEE             | 2012/19/EU                                          | Compliant       |
| ULus             |                                                     | E201820         |
| RoHS             | 2011/65/EU & 2015/863                               | Exception 6c&7a |
| China RoHS       | SJ/T 11364-2014                                     | 25 EPUP         |

## 5 Installation

### 5.1 Prerequisites

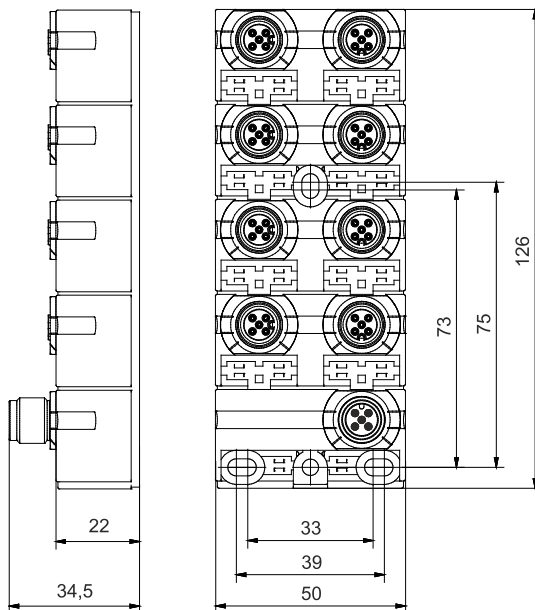
Prerequisites for installation:

- Flat mounting surface for mechanically stress-free mounting.
- Provide suitable grounding.
- Suitable installation location with regard to vibration and shock load, temperature and humidity (see section 4 "Technical Data").
- Protected to prevent the connection cables from being torn off by personnel or equipment.

Establish the following prerequisites for mounting the device:

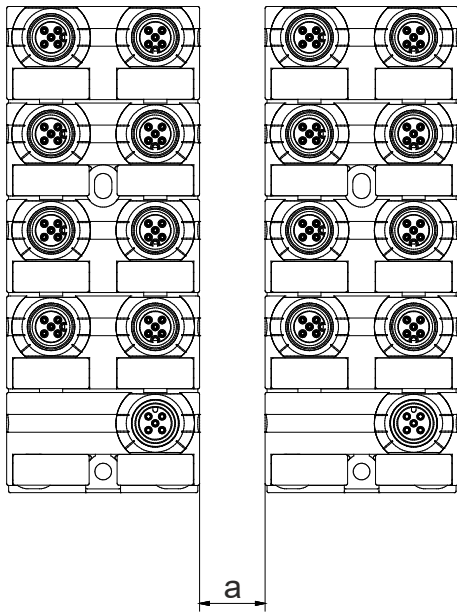
- Installation location in the immediate vicinity of the sensor/actuator
- Flat mounting surface for mechanically stress-free mounting
- Grounded mounting surface for grounding the ring cable lug
- Short cable paths to all components
- Sufficient space for easy device replacement and for connecting the plug connections
- Suitable installation location with regard to vibration and shock load, temperature and humidity (see section Technical Data)
- Protected to prevent tearing of the connection lines by personnel or equipment
- Diagnostic LEDs of the device visible during operation

### 5.2 Dimensions



Dimensions specified in mm (1 mm = 0.03937")

## 5.3 Mounting Clearance



a = straight plug: 5 mm

Angled plug: 50 mm



### NOTICE

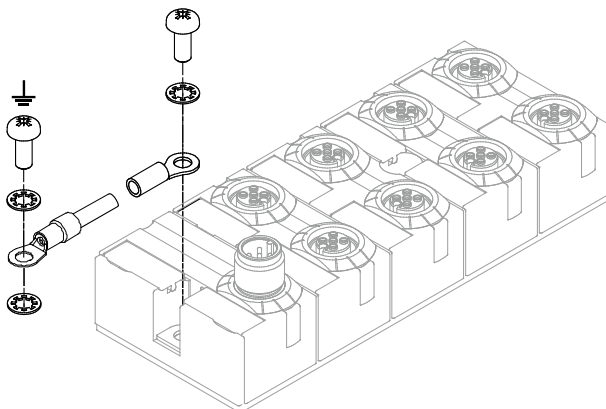
A minimum distance of 50 mm must be maintained when using angled plugs.

## 5.4 Functional Earth

The use of the ring cable lug is necessary for EMC compliance.

The screen connection of the input and output sockets takes place via the ring cable lug.

### FE Connection



M4 tightening torque 2 Nm

## 5.5 Mounting the Unit



### NOTICE

#### Material damage due to incorrect installation.

The mounting screws and tightening torques depend on the subsurface of the installation site.

1. Use mounting screws according to the condition of the mounting surface.
2. Tighten the screws carefully. The specified tightening torques must be observed.



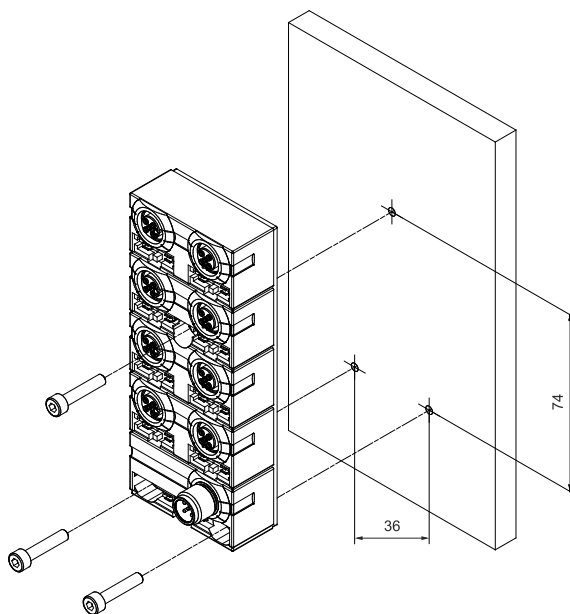
### NOTICE

#### Material damage due to misuse.

Do not use the equipment as a climbing aid. Misuse may cause the devices to tear off or otherwise be damaged.

→ Mount the devices in such a way that they cannot be used as climbing aids.

### Mounting



Dimensions in mm

M4 tightening torque 2 Nm

### Mounting

Mount the device in the specified order:

1. Align the housing.
2. Slightly tighten one M4 screw.
3. Slightly tighten the second M4 screw.
4. Slightly tighten the third M4 screw.
5. Carefully tighten all three M4 screws.
6. Ground the device:

Fasten the ring cable lug (see Fig. in section Functional Earth [► 14]).

## 6 Installation



### **WARNING**

#### **High electrical voltages**

Danger to life due to electric shock.

1. Only qualified personnel are allowed to connect the device.
2. Observe the five safety rules for electrical engineering.

#### **Protective Measures During Connection**

→ According to IEC 60364 – Protection against electric shock.



### **CAUTION**

#### **Hot interface**

Burns and cable damage when touching the devices.

1. Wear heat-resistant gloves.
2. Only use lines with a temperature resistance of at least 80 °C.

## 6.1 Connection Lines



### **WARNING**

#### **Risk of fire due to short circuit!**

Supply lines and/or devices damaged by a short circuit can overheat and cause fires!

→ Provide intelligent current monitoring or fuse.



### **NOTICE**

The cable length of the sensor and actuator cables is limited to 30 m.

## 6.2 Ensure Tightness



### **NOTICE**

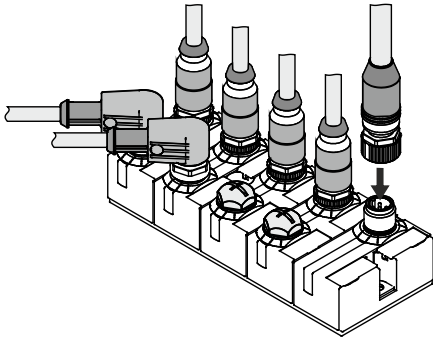
#### **Damage to the device and device failure due to ingress of liquids.**

The degree of protection is only guaranteed if all connections are closed with plug connectors, locking screws or caps.

→ Seal unused plugs and sockets.



## Connection Lines



M12 connection cables tightening torque 0.6 Nm

## 7 Operation



### NOTICE

After writing an application specific tag to the IO-Link hub, the hub briefly interrupts the IO-Link connection if the text is different from the text stored in the hub.

## 7.1 LED Display

The products are equipped with the following separate LED indicators:

- LED display IO-Link and sensor supply US
- LED display for inputs/outputs

Displays include static illumination and blinking LEDs.

### 7.1.1 LED Display US and IO-Link

The device has a combined LED for the IO-Link status and the US sensor supply status. This can result in a mixture of green and red flashing codes (orange flashing code in the case of overlay).

#### Combined LED Display IO-Link and US

| LED display                                                                                  | LED status              | Description                                                                            |
|----------------------------------------------------------------------------------------------|-------------------------|----------------------------------------------------------------------------------------|
| <br>Green | Continuous light        | IO-Link not in OPERATE status, no cyclic data communication;<br>Sensor power supply OK |
| <br>Green | Flashing<br><b>1 Hz</b> | IO-Link in OPERATE status, cyclic data communication;<br>Sensor power supply OK        |
| <br>Red   | Continuous light        | Short circuit DO, temperature warning, etc.                                            |
| <br>Red   | Flashing<br><b>1 Hz</b> | IO-Link communication error                                                            |
| <br>Off   |                         | Device off, no IO-Link connection                                                      |

#### Firmware Update

| LED display                                                                                      | LED status              | Description                                                               |
|--------------------------------------------------------------------------------------------------|-------------------------|---------------------------------------------------------------------------|
| <br>Green     | Continuous light        | IO-Link in IDLE status,<br>Firmware update successfully completed         |
| <br>Green     | Flashing<br><b>1 Hz</b> | IO-Link in PREOPERATE/OPERATE status,<br>Update not yet being carried out |
| <br>Red       | Continuous light        | Update not successful                                                     |
| <br>Green/Red | Flashing<br><b>2 Hz</b> | IO-Link in PREOPERATE/OPERATE status,<br>Update is carried out            |

|                                                                                          |  |                                   |
|------------------------------------------------------------------------------------------|--|-----------------------------------|
| <br>Off |  | Device off, no IO-Link connection |
|------------------------------------------------------------------------------------------|--|-----------------------------------|



## NOTICE

At US <18 V, fault-free operation is no longer guaranteed.

## 7.1.2 LED Display for Inputs and Outputs

### LED Display for Digital Inputs/Outputs

| LED display                                                                                 | LED status       | Voltage at input | Description                               | Logic value |
|---------------------------------------------------------------------------------------------|------------------|------------------|-------------------------------------------|-------------|
| <br>Yellow | Continuous light | 24 V             | Channel on                                | 1           |
| <br>Red    | Continuous light | 0 V              | Short circuit or overload DO              | 0           |
| <br>Off    |                  | 0 V              | Device off or firmware update in progress | 0           |

### Input or Output Error

If an error occurs at at least one input or output, the LEDs light up red at all input and output slots.

## 7.2 IO-Link Object Directory

### 7.2.1 DPP (Direct Parameter Page)

| ISDU index            | DPP index | Object name               | Access | Length in bytes | Meaning/default value |
|-----------------------|-----------|---------------------------|--------|-----------------|-----------------------|
| <b>Identification</b> |           |                           |        |                 |                       |
| 0x0000                | 0x00      | MasterCommand             | W      | 1               |                       |
|                       | 0x01      | MasterCycleTime           | R/W    | 1               |                       |
|                       | 0x02      | MinCycleTime              | R      | 1               |                       |
|                       | 0x03      | M-sequenceCapability      | R      | 1               |                       |
|                       | 0x04      | RevisionID                | R/W    | 1               |                       |
|                       | 0x05      | ProcessDataIn             | R      | 1               |                       |
|                       | 0x06      | ProcessDataOut            | R      | 1               |                       |
|                       | 0x07      | VendorID 1 (MSB)          | R      | 1               | 0x0057                |
|                       | 0x08      | VendorID 2 (MSB)          | R      | 1               |                       |
|                       | 0x09      | DeviceID 1 (Octet 2, MSB) | R/W    | 1               | 0x00                  |
|                       | 0x0A      | DeviceID 1 (Octet 1, MSB) |        | 1               | 0x00                  |
|                       | 0x0B      | DeviceID 1 (Octet 0, LSB) |        | 1               | 0x33                  |
|                       | 0x0C      | FunctionID 1 (MSB)        | R      | 1               |                       |
|                       | 0x0D      | FunctionID 2 (LSB)        |        | 1               |                       |

| ISDU index       | DPP index | Object name             | Access | Length in bytes | Meaning/default value                                                                                                                             |
|------------------|-----------|-------------------------|--------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
|                  | 0x0E      | Reserved                | R      | 1               |                                                                                                                                                   |
|                  | 0x0F      | SystemCommand           | W      | 1               |                                                                                                                                                   |
| 0x0002           |           | SystemCommand           | R      | 1               |                                                                                                                                                   |
| 0x0003           |           | DataStorageIndex        | R      | variable        |                                                                                                                                                   |
| 0x000D           |           | ProfileCharacteristic   | R      | variable        |                                                                                                                                                   |
| 0x000E           |           | PDInputDescriptor       | R      | variable        |                                                                                                                                                   |
| 0x000F           |           | PDOOutputDescriptor     | R      | variable        |                                                                                                                                                   |
| 0x0010           |           | VendorName              | R      | 64              | wenglor                                                                                                                                           |
| 0x0011           |           | VendorText              | R      | 64              | the innovative family                                                                                                                             |
| 0x0012           |           | ProductName             | R      | 64              | EP8H001                                                                                                                                           |
| 0x0013           |           | ProductID               | R      | 64              | EP8H001                                                                                                                                           |
| 0x0014           |           | ProductText             | R      | 64              | IO-Link Hub M12<br>Basic Firmware Edition: 2 Byte IN / 2 Byte Out                                                                                 |
| 0x0015           |           | SerialNumber            | R      | 16              | Consecutive serial number set in production                                                                                                       |
| 0x0016           |           | HardwareRevision        | R      | 64              | e.g. "01.00"                                                                                                                                      |
| 0x0017           |           | FirmwareRevision        | R      | 64              | e.g. "V.1.00.00"                                                                                                                                  |
| 0x0018           |           | ApplicationSpecific-Tag | R      | 16...32         | User-specific designation<br>e.g. "System 3 / Port 4"                                                                                             |
| 0x0019           |           | FunctionTag             | R      | 32              |                                                                                                                                                   |
| 0x001A           |           | LocationTag             | R      | 32              |                                                                                                                                                   |
| <b>Diagnosis</b> |           |                         |        |                 |                                                                                                                                                   |
| 0x0020           |           | Error Count             | R      | 2               |                                                                                                                                                   |
| 0x0024           |           | DeviceStatus            | R      | 1               | 0: Device is operating properly<br>1: Maintenance Required<br>2: Out of Specification<br>3: Functional Check<br>4: Failure<br>5 ... 255: Reserved |
| 0x0025           |           | DetailedDeviceStatus    | R      | variable        | 6 x (Octet 1: EventQualifier, Octet 2, 3: EventCode)                                                                                              |
| 0x0028           |           | ProcessDataInput        | R      | PD length       |                                                                                                                                                   |
| 0x0029           |           | ProcessDataOutput       | R      | PD length       |                                                                                                                                                   |
| 0x0031           |           | Reserved for profiles   | R      |                 |                                                                                                                                                   |
| ...              |           |                         |        |                 |                                                                                                                                                   |
| 0x003F           |           |                         |        |                 |                                                                                                                                                   |

## 7.3 Diagnosis

### 7.3.1 Vendor-Specific IO-Link Events



#### NOTICE

In addition to the vendor-specific IO-Link events listed here, the standard events of the IO-Link specification also apply.

| Event code | Type         | Description                                          | Corrective measure                               |
|------------|--------------|------------------------------------------------------|--------------------------------------------------|
| 0x4000     | Error        | Temperature error                                    | Overload                                         |
| 0x4210     | Warning      | Permissible device temperature exceeded              | Localize heat source                             |
| 0x4220     | Warning      | Permissible device temperature not reached           | Device insulation                                |
| 0xFF91     | Notification | Data storage (DS) upload from master required        | Perform DS upload                                |
| 0x5100     | Error        | General supply voltage fault (UL1)                   | Check availability                               |
| 0x5110     | Warning      | Overvoltage in main supply (UL1)                     | Check permissible voltage range                  |
| 0x5111     | Warning      | Undervoltage in the main supply (UL1)                | Check permissible voltage range                  |
| 0x1830     | Warning      | Overvoltage in the secondary supply (UL2)            | Check permissible voltage range                  |
| 0x1831     | Warning      | Undervoltage in the secondary supply (UL2)           | Check current consumption of connected consumers |
| 0x1832     | Error        | Fault in secondary voltage (UL2)                     | Check current consumption of connected consumers |
| 0x7710     | Error        | Short circuit                                        | Check installation                               |
| 0x8CA0     | Error        | Overload/short circuit of the DIO pin – Port 0 Pin 4 | Check installation                               |
| 0x8CA1     | Error        | Überlast/Kurzschluss des DIO-Pins - Port 0 Pin 2     | Installation prüfen                              |
| 0x8CA2     | Error        | Overload/short circuit of the DIO pin – Port 1 Pin 4 | Check installation                               |
| 0x8CA3     | Error        | Überlast/Kurzschluss des DIO-Pins - Port 1 Pin 2     | Installation prüfen                              |
| 0x8CA4     | Error        | Overload/short circuit of the DIO pin – Port 2 Pin 4 | Check installation                               |
| 0x8CA5     | Error        | Überlast/Kurzschluss des DIO-Pins - Port 2 Pin 2     | Installation prüfen                              |
| 0x8CA6     | Error        | Overload/short circuit of the DIO pin – Port 3 Pin 4 | Check installation                               |
| 0x8CA7     | Error        | Überlast/Kurzschluss des DIO-Pins - Port 3 Pin 2     | Installation prüfen                              |
| 0x8CA8     | Error        | Overload/short circuit of the DIO pin – Port 4 Pin 4 | Check installation                               |
| 0x8CA9     | Error        | Überlast/Kurzschluss des DIO-Pins - Port 4 Pin 2     | Installation prüfen                              |
| 0x8CAA     | Error        | Overload/short circuit of the DIO pin – Port 5 Pin 4 | Check installation                               |
| 0x8CAB     | Error        | Überlast/Kurzschluss des DIO-Pins - Port 5 Pin 2     | Installation prüfen                              |
| 0x8CAC     | Error        | Overload/short circuit of the DIO pin – Port 6 Pin 4 | Check installation                               |
| 0x8CAD     | Error        | Überlast/Kurzschluss des DIO-Pins - Port 6 Pin 2     | Installation prüfen                              |
| 0x8CAE     | Error        | Overload/short circuit of the DIO pin – Port 7 Pin 4 | Check installation                               |
| 0x8CAF     | Error        | Überlast/Kurzschluss des DIO-Pins - Port 7 Pin 2     | Installation prüfen                              |

| Event code | Type  | Description                                          | Corrective measure |
|------------|-------|------------------------------------------------------|--------------------|
| 0x8CD0     | Error | Overload/short circuit of sensor supply Port 0 Pin 1 | Check installation |
| 0x8CD1     | Error | Overload/short circuit of sensor supply Port 1 Pin 1 | Check installation |
| 0x8CD2     | Error | Overload/short circuit of sensor supply Port 2 Pin 1 | Check installation |
| 0x8CD3     | Error | Overload/short circuit of sensor supply Port 3 Pin 1 | Check installation |
| 0x8CD4     | Error | Overload/short circuit of sensor supply Port 4 Pin 1 | Check installation |
| 0x8CD5     | Error | Overload/short circuit of sensor supply Port 5 Pin 1 | Check installation |
| 0x8CD6     | Error | Overload/short circuit of sensor supply Port 6 Pin 1 | Check installation |
| 0x8CD7     | Error | Overload/short circuit of sensor supply Port 7 Pin 1 | Check installation |

## 7.4 Process Data

### 7.4.1 Port-Based Mapping

| Byte 0 inputs X0...X3 |         |         |         |         |         |         |         |         |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Bits                  | 7       | 6       | 5       | 4       | 3       | 2       | 1       | 0       |
| Contact               | Pin2_X3 | Pin4_X3 | Pin2_X2 | Pin4_X2 | Pin2_X1 | Pin4_X1 | Pin2_X0 | Pin4_X0 |

| Byte 1 inputs X4...X7 |         |         |         |         |         |         |         |         |
|-----------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Bits                  | 7       | 6       | 5       | 4       | 3       | 2       | 1       | 0       |
| Contact               | Pin2_X7 | Pin4_X7 | Pin2_X6 | Pin4_X6 | Pin2_X5 | Pin4_X5 | Pin2_X4 | Pin4_X4 |

#### Process Data Digital Outputs

| Byte 0 outputs X0...X3 |         |         |         |         |         |         |         |         |
|------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Bits                   | 7       | 6       | 5       | 4       | 3       | 2       | 1       | 0       |
| Contact                | Pin2_X3 | Pin4_X3 | Pin2_X2 | Pin4_X2 | Pin2_X1 | Pin4_X1 | Pin2_X0 | Pin4_X0 |

| Byte 1 outputs X4...X7 |         |         |         |         |         |         |         |         |
|------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Bits                   | 7       | 6       | 5       | 4       | 3       | 2       | 1       | 0       |
| Contact                | Pin2_X7 | Pin4_X7 | Pin2_X6 | Pin4_X6 | Pin2_X5 | Pin4_X5 | Pin2_X4 | Pin4_X4 |

## 8 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.

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## 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 **Declarations of Conformity**

Declarations of conformity can be found on our website at [www.wenglor.com](http://www.wenglor.com) in the product's separate download area.