wenglor
the innovative family

EP0L001

IO-Link-Master Multiprotocol

PROFI NET®

EtherNet/IP™

Operating Instructions

Table of Contents

1. General

1.1 Information Concerning these Instructions

- These instructions apply to the product with the designation EP0L001 IO-Link Master Multiprotocol.
- 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.
- The product is subject to further technical development, and thus the information contained in these operating instructions may also be subject to change. The current version can be found at www.wenglor.com in the product's separate download area.

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

1.2 Explanations of Symbols

- Safety precautions and warnings are emphasized by means of symbols and 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.

The meanings of the attention-getting words, as well as the scope of the associated hazards, are listed below.

	DANGER! This word indicates a hazard with a high degree of risk which, if not avoided, results in death or severe injury.
	WARNING! This word indicates a hazard with a medium degree of risk which, if not avoided, may result in death or severe injury.
	CAUTION! This word indicates a hazard with a low degree of risk which, if not avoided, may result in minor or moderate injury.
	ATTENTION! This word draws attention to a potentially hazardous situation which, if not avoided, may result in property damage.
	NOTE! A note draws attention to useful tips and suggestions, as well as information regarding efficient, error-free use.

1.3 Limitation of Liability

• The product has been developed in consideration of the current state-of-the-art 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 include any guarantees from wenglor with regard to the described procedures or specific product characteristics.
• wenglor assumes no liability for printing errors or other inaccuracies contained in these operating instructions, unless wenglor was verifiably aware of such errors at the point in time at which the operating instructions were prepared.

1.4 Copyrights

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

2. For Your Safety

2.1 Use for Intended Purpose

This IO-Link master permits simple connection of IO-Link compatible products, as well as standard sensors and actuators, to PROFINET und EtherNet/IPTM. With degrees of protection up to IP69k* and a die-cast zinc housing, the IO-Link master is well equipped for tough industrial use. In addition to other factors, industrial environments are distinguished by the fact that the power consumer is not connected to the public low-voltage mains. The IO-Link master serves as a central network participant which connects decentralized sensors and actuators at the field level to the control level. The IO-Link master can be used in ring as well as line topologies, which reduces required cabling effort. Expansion of the network to include additional components is possible at any time by means of internal switch functionality.

*Please observe connection and installation requirements in the technical data and under port assignments

This product can be used in the following industry sectors:

• Special machinery manufacturing
• Heavy machinery manufacturing
• Logistics
• Automotive industry
• Food industry
• Packaging industry
• Pharmaceuticals industry
• Clothing industry
• Plastics industry
• Woodworking industry
• Consumer goods industry
• Paper industry
• Electronics industry
• Glass industry
• Steel industry
• Printing industry
• Aviation industry
• Construction industry
• Chemicals industry
• Agriculture industry
• Alternative energy
• Raw materials extraction

2.2 Product Features

- Rugged design: The IO-Link master's M12 ports are widely used for the connection of distributed products at the field level. D-coded ports for PROFINET and EtherNet/IP^{TM} make it possible to connect the product within the Industrial Ethernet network. Color-coding of the terminals prevents any mixing up of the ports.
- The IO-Link master supports IO-Link products in accordance with IO-Link versions 1.0 and 1.1.
- The integrated parameter server function displays the parameters of the IO-Link devices and saves them to the master. This function permits easy replacement of the devices or the master with automatic transfer of previously configured parameters. In order to be able to take advantage of these benefits, the connected terminal device must also make this functionality available.
- **Data transmission:** With a transmission speed of up to 100 Mbit/s, the IO-Link master can quickly process I/O data and large volumes of data within the network.
- **Integrated switch:** The integrated Ethernet switch is equipped with two D-coded M12 ports. Both line and ring topologies are thus supported. With PROFINET the media redundancy protocol (MRP) is supported and with EtherNet/IP^{TM} the device level ring (DLR) function is supported, in order to support a highly available, redundant network.
- **Integrated web server:** The IO-Link master is equipped with an integrated web server. Network parameters such as IP address, subnet mask and standard gateway can be configured with the help of the rotary encoding switch (last octet of the IP address) or via the website.

2.2.1 PROFINET Product Features

- **PROFINET specification V2.3.2:** Conformance class C is supported – 1 ms update cycle
- **Quick device start**: The product has a very fast start-up time within the network of typically 1600 ms.
- **Shared device:** Two controllers can access the device in equal measure with this function, in order to permit simpler system configuration.
- DCP, LLDP and SNMO:
  - **DCP (dynamic configuration protocol):** Addresses and names are assigned automatically in the PROFINET network.
  - **LLDP (link layer discovery protocol):** Neighborhood detection amongst network users
  - SNMP (simple network management protocol): Central monitoring and control of components
- **Alarm and diagnostics messages:** Extended PROFINET alarm and diagnostics messages are supported.
- **I&M function (identification and maintenance data):** Identification and maintenance data are saved to the module. The identification data provide information regarding the manufacturer's specifications and can only be read out. The maintenance data involve system-specific details which are generated during configuration. The modules can be unequivocally identified online via the I&M data.
  Module-specific I&M functions 0 to 4 for the network interface (slot 0) and IO-Link master-specific I&M functions 0 and 99 (IO-Link master directory) for the IO-Link ports (slot 1) are supported.
- GSDML-based configuration and parametrization of the I/O ports

2.2.2 EtherNet/IP^{TM} Product Features

- Supports the EtherNet/IP^{TM} protocol: Time-critical process data can be transmitted amongst network users via EtherNet/IP^{TM}.
- Diagnostics data: The IO-Link master supports extended diagnostics data which can be added to the I/O data.
- EDS-based configuration and parametrization of the I/O ports

2.3 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.

2.4 Personnel Qualifications

- Suitable technical training is a prerequisite.
- In-house electronics training is required.
- Trained personnel 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.

2.5 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.

2.6 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 download area.
- Read the operating instructions carefully before using the product.
- The IO-Link master must be protected against contamination and mechanical influences.
- Only devices which fulfil the requirements stipulated in EN 61558-2-4 and EN 6155-2-6 may be connected to the IO-Link master.

2.7 Approvals and protection class

CE **RoHS** ◇III◇

3. Technical Data

Electrical Data	
Supply Voltage	18...30 V DC
Power consumption of device max.	0,18 A
Max. Switching Current Switching Outputs	0,5 A
Max. Switching Current Switching Outputs IO-Link	0,5 A
Max. total current of the digital I/O ports	14 A
Sensor Supply Voltage (Pin 1)	500 mA
Spannungsabfall Schaltausgang	< 2,5 V
Temperature range	−20...70 °C
Atmospheric humidity	98 % RF
Digital I/O ports short circuit protected	yes
Digital I/O ports overload protected	yes
Verpolungssichere Digital I/O-Ports	yes
Standard I/O-Pins	12
Number of IO-Link ports	8
Inputs according to DIN EN 61131-2:2003	Type 1
Interface	Ethernet
Communications mode IO-Link	SIO, COM1, COM2, COM3
IO-Link Version	1.1
Baud Rate	100 Mbit/s
Transmission Mode	Full duplex
Switch Mode	Store & Forward
VLAN Prioritization	yes
Auto-Crossover	yes
Auto-Negotiating	yes
Auto-Polarity	yes
Protection Class	III
Shock resitance per DIN IEC 68-2-27	50 g / 11 ms
Vibration resistance per DIN IEC 60068-2-6	15 g (5...500 Hz)
Mechanical Data	
Material	Zinc diecasting
Weight	500 g
Degree of Protection	IP65/IP67/IP69K
Type of connection digital I/O ports	M12 × 1; 4-pin
Type of connection Power	2× M12; 5-pin, L-cod.
Type of connection Industrial EtherNet Ports	2× M12; 4-pin, D-cod.
Web server	yes
IO-Link	●
PROFINET	●
EtherNet/IP™	●

The following table specifies plug tightening torques and mounting options in order to assure compliant, error-free operation:

Connection	Tightening Torque (Nm)
M4 mounting screws	1
M4 grounding	1
M12 plug	0,5

3.1 Layout
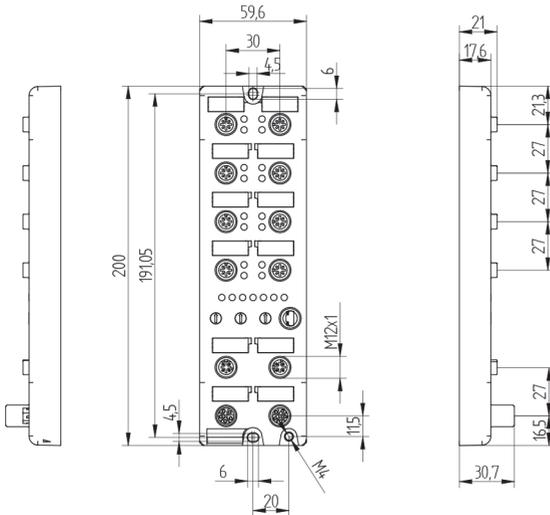
3.2 Wiring Diagram and Port Assignments

Socket 1 Ports X1–X4	Suitable Plug: 2	
Pin	**Function**	
1	L+ IO-Link sensor power supply +24 V	
2	IN-x Ch. B: Digital input (type 1)	
3	L- IO-Link sensor supply GND_US	
4	C/Q Ch. A: IO-Link data communication	
5	nc	

Socket 2 Ports X01, X02	Suitable Plug: 51	In/Out
Pin	**Function**	
1	TxD (+)	Out
2	RxD (+)	In
3	TxD (-)	Out
4	RxD (-)	In

Socket 3 Ports X03, X04	Suitable Plug: 3/3s
Pin	**Function**
1	US (+24 V) Sensor/system power supply
2	GND_U_{AUX} Ground/reference potential U_{AUX}
3	GND_US Ground/reference potential US
4	U_{AUX} (+24 V) Auxiliary supply (electrical isolated)
5	FE (PE) Functional ground

Socket 4 Port X5–X8	Suitable Plug: 2
Pin	**Function**
1	L+ IO-Link sensor power supply +24 V
2	U_{AUX} (+24 V) Ch. B: Auxiliary power supply (electrically isolated with respect to the sensor/system power supply)
3	L- IO-Link sensor supply GND_US
4	C/Q Ch. A: IO-Link data communication
5	GND_U_{AUX} Ground/reference potential U_{AUX}
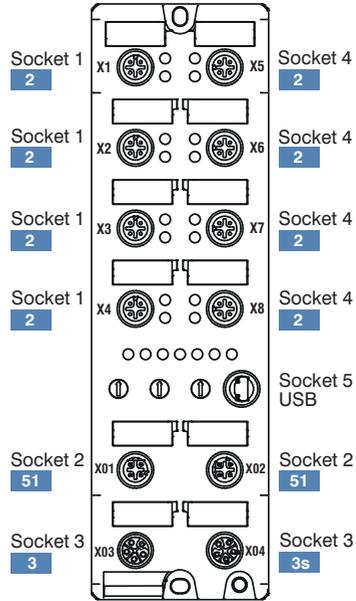
3.3 Complementary Products

wenglor offers Connection Technology for field wiring.

Sensor/actuator cable, A-coded Plug 2

2
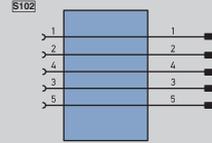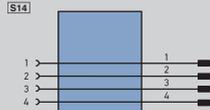
**Power supply, L-coded Plug 3 / 3s**

3
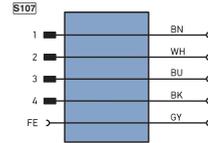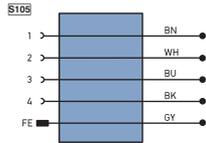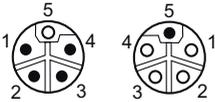
Industrial Ethernet cable, D-coded Plug 51

51
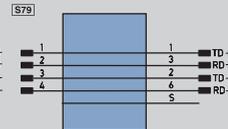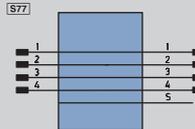
Legend

|		
+	Supply Voltage +	
−	Supply Voltage 0 V	
~	Supply Voltage (AC Voltage)	
A	Switching Output	(NO)
Ā	Switching Output	(NC)
V	Contamination/Error Output	(NO)
V̄	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	
OSSD	Safety Output	
Signal	Signal Output	
BI_D+/−	Ethernet Gigabit bidirect. data line (A-D)	
EN0RS422	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	
AMW	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	
Bus	Interfaces-Bus A(+)/B(−)	
La	Emitted Light disengageable	
Mag	Magnet activation	
RES	Input confirmation	
EDM	Contactor Monitoring	

ENARS422	Encoder A/Ā (TTL)	
ENBRS422	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	
0LT	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

3.4 LEDs

Designation	Status	Function
U_{AUX}	Green	Sensor/actuator voltage > 18.6 V – < 30 V
	Red*	Sensor/actuator voltage < 18.6 V – > 30 V * Is displayed when "supply voltage error" is activated.
	Off	None of the above mentioned statuses
U_S	Green	System/sensor voltage > 18.6 V – < 30 V
	Off	System/sensor voltage < 18.6 V – > 30 V
X1 … X8 A	Green	IO-Link COM mode: IO-Link communication
	Green blinking	IO-Link COM mode: No IO-Link communication
	Yellow	Standard IO mode: Status of the digital inputs or outputs at C/Q (pin 4) set to high
	Off	None of the above mentioned statuses
X1 … X8 B	White	Status of the digital input set to high
	Red	• IO-Link COM mode: IO-Link communication error or overload/short-circuit at C/Q (pin 4) • All modes: Overload or short-circuit at L+ (pin 1) • SIO mode: Overload or short-circuit at C/Q (pin 4)
	Off	None of the above mentioned statuses
PROFINET P1 Lnk/Act P2 Lnk/Act	Green	Ethernet connection to next network user established. Link detected.
	Blinking yellow	Data exchange with another network user
	Off	No connection to another network user No link, no data exchange
PROFINET BF	Red	Bus fault. No configuration or slow physical connection
	Red blinking at 2 Hz	Link exists but no communication to the controller
	Off	Controller has active connection to the device
PROFINET DIA	Red	Diagnostics alarm active
	Red blinking at 1 Hz	Watchdog timeout, failsafe mode active
	Red blinking at 2 Hz, 3 sec.	DCP signal service is active within the bus (addresses and names are distributed to the individual Ethernet users)
	Double red blinking	Firmware update
	Off	None of the above mentioned statuses
EtherNet/IP™ X01 Lnk / Act X02 Lnk / Act	Green	Ethernet connection to next network user established. Link detected.
	Blinking yellow	Data exchange with another network user
	Off	No connection to another network user No link, no data exchange

EtherNet/IP™ MS	Green	Device ready for operation
	Green blinking	Device ready for operation but not configured
	Red	Fatal error
	Red blinking	Minor error, for example faulty or self-contradictory configuration
	Alternate red and green blinking	Device executing self-test
	Off	The device is switched off
EtherNet/IP™ NS	Green	Connected: The device has at least one connection.
	Green blinking	No connection: The device doesn't have any connection. An IP address exists.
	Red	Duplicate IP address: The device has determined that the IP address assigned to it is already being used by another network user.
	Red blinking	Timeout or interrupted connection
	Alternate red and green blinking	Device executing self-test
	Off	The device is switched off or doesn't have an IP address.

3.5 Scope of Delivery

• EP0L001
• Safety precaution
• Port cover caps
• Port inscription labels

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 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.
• Storage instructions must be complied with.

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5. Installation and Electrical Connection

5.1 System layout

IO-Link Ports Class A

IO-Link Ports Class B

Industrial Ethernet

Power

Mounting Holes

Ground
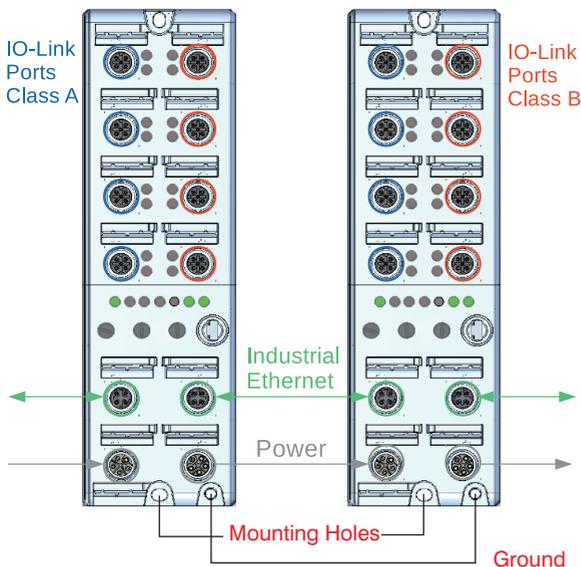
5.2 Installation

- 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 IO-link Master is mounted in a mechanically secure fashion.
- The IO-Link master must be mounted to a flat surface with two M4 × 25/30 screws.
- DIN 125 washers should always be used for mounting.
- Specified torque values must be complied with.
  (see)

⚠️ **ATTENTION!**

The modules can reach temperatures of up to 60 °C.

Please note that the IO-Link master is subject to self-heating of up to 60 °C. Adequate heat dissipation must be assured in the event of very high ambient temperatures.

⚠️ **ATTENTION!**

Risk of property damage in case of improper installation!

The product may be damaged.
- Installation instructions must be complied with.

⚠️ **CAUTION!**

Risk of personal injury or property damage during installation!

Personal injury and damage to the product may occur.
- A safe installation environment must be assured.

5.3 Electrical Connection

- The IO-Link master must be connected to 18 to 30 V DC.

⚠️ **WARNING!**
IO port sensor supply power: Power may only be supplied to the sensor via the module's specified electrical connection socket 3 (X03) ➔ US +24 V /GND_US. External power supply via I/O port X1-X8 ➔ pin1 / pin3 is not permissible and may result in destruction of the module's electronics.

⚠️ **WARNING!**
Class B IO port: Sensor supply power (port X5-X8 ➔ pin 1 / pin 3) and extended sensor supply power (port X5-X8 ➔ pin 2 / pin 5) are electrically isolated from each other. If reference potentials GND_US – pin 3 and GND_UAUX – pin 5 are connected to each other, impermissible current may flow. If this is the case, connection of sensors to ports X5-X8 ➔ pin 2 is impermissible! Electrical isolation must always be assured and implemented!

NOTE!
- The modules are equipped with a ground terminal with M4 thread for the dissipation of interference current and for EMC immunity. This terminal is identified with the ground symbol and the designation "XE".
- Connect the module to reference earth via a low-impedance connection. If the mounting surface is grounded, this connection can be established directly via the mounting screws.
- If the mounting surface is not grounded, use a ground strap or a suitable FE conductor (FE = functional earth). Using an M4 screw, connect the ground strap or the FE conductor to the grounding point and, if possible, insert a washer or toothed lock washer underneath the mounting screw. Specified torque values must be complied with. (see "3. Technical Data" on page 10)

DANGER!
Risk of personal injury or property damage due to electric current!
Voltage conducting parts may cause personal injury or damage to equipment.
- The electric device may only be connected by appropriately qualified personnel.

5.4 Network and Module Settings

There are three rotary encoding switches on the IO-Link master which are marked x100, x10 and x1. The module can retrieve different network configurations with the help of these rotary encoding switches, or it can be reset to its default settings.

After supply power has been connected to the IO-Link master, the switch settings are read out and previous settings are overwritten. New settings are thus first activated after the module has been restarted and supply power has been briefly interrupted:

x100   x10   x1
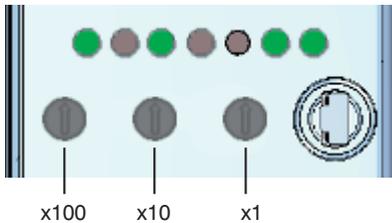
Rotary Encoding Switch Setting (from left) x100 = first place x10 = second place x1 = third place	Function
000 (default setting)	DHCP and BOOTP functions are activated. The net-work parameters are initially queried via DHCP. If this is not successful, an attempt is made to retrieve the parameters via BOOTP.
000 (network parameters saved)	The last saved network parameters are used (IP ad-dress, subnet mask, standard gateway, DHCP on/off, BOOTP on/off.
001 … 254	The last three places of the preset or last saved IP address are overwritten by the setting at the rotary encoder switch.
255 … 298	The network parameters are queried via DCHP or BOOTP, but they're not saved.
299	The preset static IP address is used.
979	Reset to default settings. The network settings are also reset. Communication is not possible in this mode.

5.5 Operation at a Controller

If you want to place the device into service at a controller, please complete the following steps:

- Connect the IO-Link master to supply power and then to the controller via one of the Ethernet ports. Suit-able connector technology can be found on wenglor's website.
- Install the respective device-specific electronic description file (for PROFINET the GSDML file and for Eth-erNet/IP^{TM} the EDS file) to the controller's hardware manager. The required file can be downloaded from: **www.wenglor.com → Product World → Product search (enter the product number) → Download → Device Description File**.
- Startup instructions for configuring and setting up the device at a PROFINET or EtherNet/IP^{TM} controller can be accessed via the following path.

NOTE!
www.wenglor.com → Product World → Product search (enter the product number) → Download → General Instructions → Startup PROFINET IO-Link Master / Startup EtherNet/IP^{TM} IO-Link Master

NOTE!
Before initial start-up, set the protocol used by the controller at the left-hand rotary selector switch (×100):

Rotary selector switch setting:
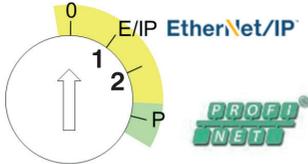
- E/IP = EtherNet/IP^{TM}

- If ×100, ×10 and ×1 are all set to 0, the IO-Link master is in the BOOTP or DHCP mode. For Ethernet/IP or for direct access to the web server, the rotary coding switches x100, x10 and x1 can be used to set the last octet of the IP address (for example: 192.168.100.xxx).
- P = PROFINET (IP address: 0.0.0.0, other switch settings have no effect)

In order to activate changes to the protocol settings, power supply to the IO-Link master must be briefly disconnected, and then reconnected. The reset function in the website can be used alternatively to this end.

5.6 Port Assignments

5.6.1 Industrial Ethernet Cable

wenglor offers a range of preassembled Industrial Ethernet cables.
In order to assure simple and reliable wiring, we recommend using our preassembled Industrial Ethernet cables.

For PROFINET: It's advisable to use cables certified in accordance with the PROFINET standard without exception, in order to assure reliable and compliant operation (see also PROFINET Cabling and Interconnection Technology – Guideline for PROFINET in this regard).

Pin assignments for Industrial Ethernet connection (D coded):
see "3.3 Complementary Products" on page 13

> **NOTE!**
> **Electrically isolated Ethernet ports → FE 2000 V DC**

5.6.2 Connecting Digital Sensors and Actuators

Schematic wiring diagram for IO-Link sensors and actuators:

Pin Assignments, Class A Port
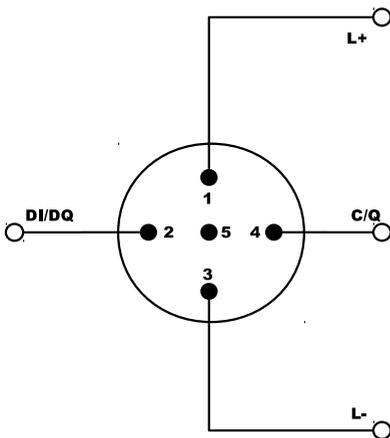
> **NOTE!**
> • Maximum current available for sensor supply power between pin 1 and pin 3 amounts to 500 mA.

Pin Assignments, Class B Port
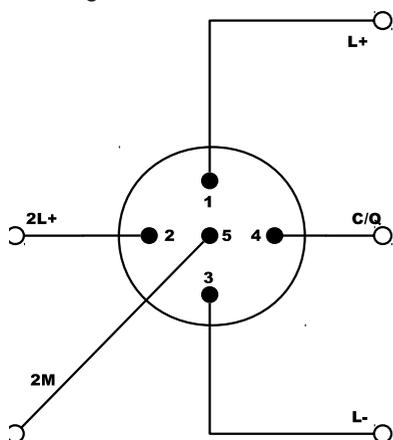
NOTE!
Maximum current available for device supply power between pin 2 and pin 5 amounts to 2 A. Total current for all class B ports may not exceed 8 A. Output 2 can also be used as a digital output if desired.

For correct connection, please observe exact port and pin assignments for the master in section „3.2 Wiring Diagram and Port Assignments" auf Seite 12.

NOTE!
Unshielded 3 to 5 conductor standard cables with a maximum length of 20 meters can be used up to the sensor.

ATTENTION!
Unused sockets must be closed with blanking caps (included in the scope of delivery and available as a supplementary product under wenglor order number Z0027).
• Otherwise, high level protection of up to IP69k cannot be assured and the product will be damaged.

ATTENTION!
If 5-pin sensors are used, it's advisable to shut down pin 5 of the IO-Link class B ports at the terminal device or to use a 4-conductor cable.
• Please also ensure that there is no short-circuiting at pin 2.

5.7 Diagnostics

Required action in case of fault:

> **NOTE!**
> - Shut down the machine.
> - Analyze and eliminate the cause of error with the help of the diagnostics information.
> - If the error cannot be eliminated, please contact wenglor's support department.
> - Do not operate in case of indeterminate malfunctioning.
> - The machine must be shut down if the error cannot be unequivocally clarified or reliably eliminated.

> **DANGER!**
> **Risk of personal injury or property damage in case of non-compliance!**
> The system's safety function is disabled. Personal injury and damage to equipment.
> - Required action as specified in case of fault.

6. PROFINET and EtherNet/IP™ Interface Protocols

The respective interface protocol can be found at www.wenglor.com in the product's separate download area.

> **NOTE!**
> www.wenglor.com ➔ Product World ➔ Product search ➔ Download ➔ General Instructions ➔ Startup PROFINET IO-Link Master / Startup EtherNet/IP™ IO-Link Master

7. Web-Based Configuration

The IO-Link master is equipped with a web-based configuration interface which functions independently of the operating system and the device. The parameters of the IO-Link master can be conveniently configured and test mode operation can be simulated via a standard web browser. The module can be restarted or reset via the website. Firmware updates can also be installed via the web interface. The network settings are statically preset to IP address 192.168.100.1, subnet mask 255.255.255.0 and standard gateway 0.0.0.0. The operating instructions always assume that these default values are used.

> **NOTE!**
> In order to select the static IP address, the rotary encoder switch must be set to 2|9|9 (see section "5.4 Network and Module Settings" on page 18).

> **ATTENTION!**
> When operated with a controller, settings which have been changed via the website are overwritten by the controller.

7.1 Accessing the Administration Interface

Start the web browser. Enter the IP address of the IO-Link master to the address line in your browser and press the enter key. The IP address is preset to 192.168.100.1.

Example: http://192.168.100.1/

wenglor
the innovative family

IO-Link Master Multiprotocol EP0L001

Status	Ports	System	User	Contact

Status

Device Overview
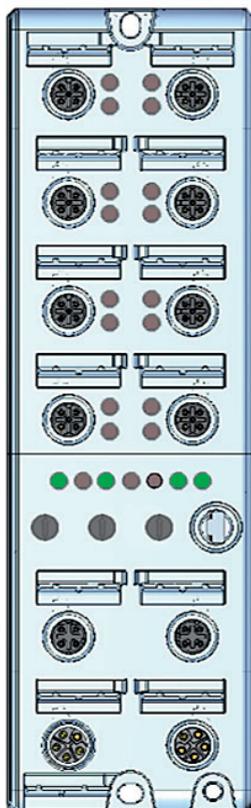
Device Information

Name	EP0L001
Bus	OFF
Device Diagnosis	
IO-Link Master Diagnosis	
Forcemode	Forcemode off · Switch on

Port Information

Port	Type	Pin / Channel	Function	State	Dia	Details
X1	IO-Link Class A + DI	4 / A	Inactive			ⓘ
		2 / B	Inactive			
X2	IO-Link Class A + DI	4 / A	Inactive			ⓘ
		2 / B	Inactive			
X3	IO-Link Class A + DI	4 / A	Inactive			ⓘ
		2 / B	Inactive			
X4	IO-Link Class A + DI	4 / A	Inactive			ⓘ
		2 / B	Inactive			
X5	IO-Link Class B + DO	4 / A	Inactive			ⓘ
		2 / B	Inactive			
X6	IO-Link Class B + DO	4 / A	Inactive			ⓘ
		2 / B	Inactive			
X7	IO-Link Class B + DO	4 / A	Inactive			ⓘ
		2 / B	Inactive			
X8	IO-Link Class B + DO	4 / A	Inactive			ⓘ
		2 / B	Inactive			

7.2 Password Protection

The "Status" overview page is not password protected. A password prompt appears when other pages such as "System" are accessed. The following user data are preset upon shipment from the factory.

User name: **admin**
Password: **admin**

The password and the user name can be changed in the "Users" page.

7.3 Page Layout

The website is subdivided into the following two areas:

1. Category Selection

The web-based settings are subdivided into 5 categories.
• Status
• Ports
• System
• User
• Contact

2. Page Content

Depending on which category is selected, the corresponding page content is displayed.
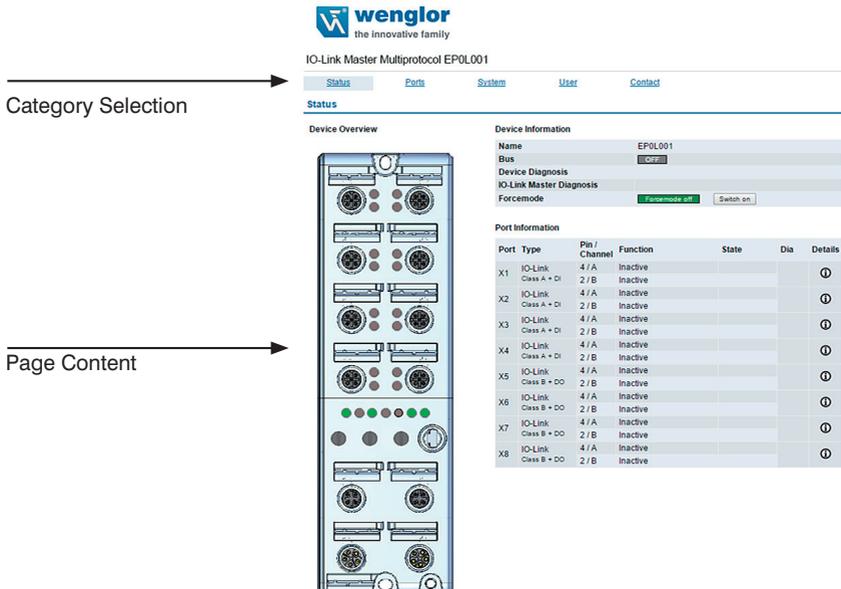
Category Selection

Page Content

7.3.1 Status

The status page provides a quick overview of the module's current status.

The left-hand page shows a graphic representation of the module with all LEDs and the positions of the rotary encoder switch.

The "Device Information" table in the right-hand page shows various basic data regarding the module, for example the variant, the cyclical communication status and a diagnostics indicator. This indicator signifies whether or not a diagnosis is available in the module.

The "Port Information" table shows the configurations and statuses of all of the module's I/O ports.

Force mode:
The force mode is a test option for the system technician. Input and output data can be set via this website. The data for the physical input and the controller's logical output can be overridden in this mode. For safety reasons, this mode can be deactivated via parameters configuration.

| Column	Information
Port	Name of the port
Type	Type of port. Depending on the variant, this can be either DIO, IO-L A or IO-L B. The suffix + DO indicates that an additional 2 A output is available.
Pin	Corresponding pin at the M8/M12 slot
Function	Function configured via the controller
State	Current status. ON of OFF is displayed for digital inputs or outputs. The COM status is displayed for IO-Link connections.
DIA	The diagnostics indicator shows whether or not a diagnosis is available for the respective channel.
Details	The display can be switched directly to the corresponding detail view for the respective port via this link. Further information is available there.

⚠️ **ATTENTION!**
Use of the force mode results in the risk of severe personal injury and damage to equipment. Great care must be taken when using the force mode.

IO-Link Master Multiprotocol EP0L001

Status   Ports   System   User   Contact

Status

Device Overview
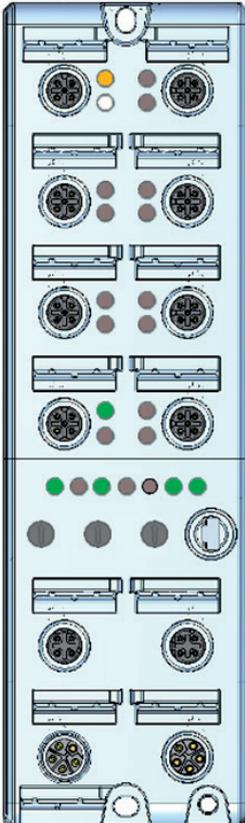
Device Information

Name	EP0L001
Bus	OFF
Device Diagnosis	• Forcemode active
IO-Link Master Diagnosis	
Forcemode	Forcemode on Switch off

Port Information

Port	Type	Pin / Channel	Function	State	Dia	Details
X1	IO-Link Class A + DI	4 / A	Digital Output 🔧 1 Bit Out	ON 0 1		ⓘ
		2 / B	Digital Input 1 Bit In / NO	ON 0 1		
X2	IO-Link Class A + DI	4 / A	Inactive 🔧			ⓘ
		2 / B	Inactive			
X3	IO-Link Class A + DI	4 / A	Inactive 🔧			ⓘ
		2 / B	Inactive			
X4	IO-Link Class A + DI	4 / A	IO-Link 🔧 0 Bytes In, 0 Bytes Out	Scan	DIA	ⓘ
		2 / B	Digital Input 1 Bit In / NO	OFF 0 1		
X5	IO-Link Class B + DO	4 / A	Inactive 🔧			ⓘ
		2 / B	Inactive			
X6	IO-Link Class B + DO	4 / A	Inactive 🔧			ⓘ
		2 / B	Inactive			
X7	IO-Link Class B + DO	4 / A	Inactive 🔧			ⓘ
		2 / B	Inactive			
X8	IO-Link Class B + DO	4 / A	Inactive 🔧			ⓘ
		2 / B	Inactive			

7.3.2   Ports

Extensive port information is displayed in this category. "Port Diagnostics" shows incoming and outgoing diagnostics in plain text. "Pin 2" and "Pin 4" include information concerning configuration and the status of the ports. Additional information about the connected sensor and its process data is displayed under IO-Link ports.

7.3.3 System

The system page shows basic information about the module. The current firmware, its version and the firmware date, as well as the version of the web interface, can be viewed under "Firmware".
All information concerning the module itself is listed under "Device".

This page provides you with access to the following values and parameters:

1. Restart Device: The module initializes resetting of the software.
2. Reset to Factory Settings: The module restores its default settings.
3. Firmware Update: The module initializes a firmware update.

Select the *.ZIP container for the firmware update which is available from our website or contact our support team. Follow the instructions which appear at the screen.
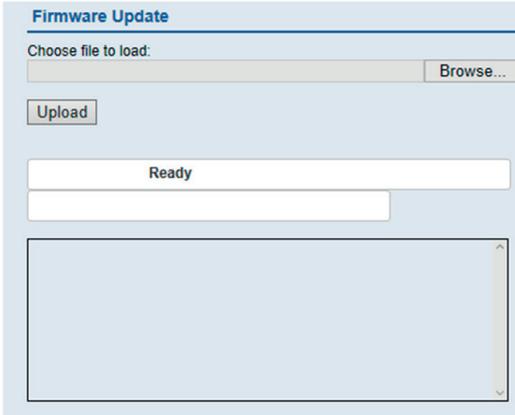
7.3.4   User

User administration for the web interface can be conducted via the user page. New users can be added with administrative or write authority via this page. After configuring the device, change the standard "admin" password for safety reasons.

7.3.5 Contact

This page provides you with contact data for wenglor sensoric GmbH in the event that you should have any questions or require further information regarding the products.

8. Maintenance Instructions

NOTE!
- This wenglor IO-Link Master is maintenance-free.
- Cleaning and inspection of the plug connections at regular intervals are advisable.
- 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.
- Unused ports must be closed with blanking caps.

9. Proper Disposal

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

10. Appendix

10.1 List of Abbreviations

Abbreviation	Meaning
Class A	Port A with digital I/O at pin 2
Class B	Port B with auxiliary power at pins 2 and 5
I/O-Port	Digital input and output ports X1 to X8
Pin 4 (C/Q)	Channel A from X1 to X8 (IO-Link pin)
Pin 2	Channel B from X1 to X8
U_{AUX}	UAuxiliary is auxiliary power for IO-Link class B ports X5 to X8 and actuator power supply at the digital 2 A outputs at ports X5 to X8.
DCP	Dynamic configuration protocol: Addresses and names are assigned automatically in the PROFINET network.
LLDP	Link layer discovery protocol: Neighborhood detection amongst network users
SNMP	Simple network management protocol: Central monitoring and control of components
DCHP	Dynamic host protocol: assignment of the network configuration by a server
BOOTP	Bootstrap protocol: assignment of the network configuration by a server via TCP/IP

10.2 Change Index, Operating Instructions

Version	Date	Description/Change
1.0.0	12.07.17	Initial version of the operating instructions
1.0.1	27.03.18	Changes in section "3.2 Wiring Diagram and Port Assignments" on page 12 and "10.3 Change Index Software (changelog)" on page 32
1.1.0	12.08.20	Extension to Communications mode IO-Link in section "3. Technical Data" on page 10

10.3 Change Index Software (changelog)

Version	Release Date	Description/Change	Compatibility
Firmware: V.1.1.0.9 (F10011) / Web: 16	22.05.17	Initial version for market launch	Hardware V.1.0
Firmware: V.2.1.1.5 (U10013)/Web:16	18.01.18	Improvement of connectivity TMG-Device Tool	Hardware V.1.0
Firmware: V.2.1.1.7 (U10015)/Web:16	12.03.18	EtherNet/IP™ certified Improvement of connectivity TMG-Device Tool	Hardware V.1.0

10.4 Declaration of Conformity

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