

AXL E ETH DI16 M12 6P

**Axioline E Ethernet device,
plastic housing, 16 inputs, 24 V DC,
M12 fast connection technology**



Data sheet
8551_en_03

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1 Description

The Axioline E device is designed for use within an Ethernet network (Modbus/TCP).

It is used to acquire digital signals.

Ethernet features

- 2 Ethernet ports (with integrated switch)
- Supported protocols:
SNMP v1, HTTP, TFTP, FTP, BootP, DHCP
- Specification: Modbus application protocol V1.1b
- Firmware can be updated
- Integrated web server for web-based management

Axioline E features

- Connection to Ethernet network (Modbus/TCP) using M12 connectors (D-coded)
- Transmission speed of 10 Mbps and 100 Mbps
- Connection of digital sensors using M12 connectors (A-coded)
- Diagnostic and status indicators
- Short-circuit and overload protection of the sensor supply
- IP65/67 degree of protection



This data sheet is only valid in association with the associated user manual.



Make sure you always use the latest documentation.
It can be downloaded from the product at phoenixcontact.net/products.

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3 Ordering data

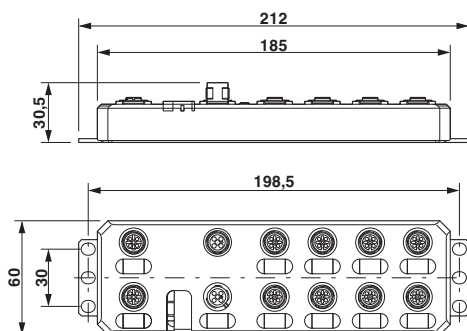
| Description | Type | Order No. | Pcs./Pkt. |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-----------|-------------|
| Axioline E-Ethernet device in a plastic housing with 16 digital inputs, 24 V DC, M12 fast connection technology | AXL E ETH DI16 M12 6P | 2701533 | 1 |
| Accessories | Type | Order No. | Pcs./Pkt. |
| An M12 screw plug for the unoccupied M12 sockets of the sensor/actuator cable, boxes and flush-type connectors (Protection and sealing elements) | PROT-M12 | 1680539 | 5 |
| Snap-in markers, Sheet, white, unlabeled, can be labeled with: THERMOMARK CARD, BLUEMARK CLED, BLUEMARK LED, TOPMARK LASER, Mounting type: snapped into marker carrier, Lettering field: 7 x 10 mm (Marking) | UCT-EM (7X10) | 0830765 | 10 |
| Documentation | Type | Order No. | Pcs. / Pkt. |
| User manual, English, Axioline E: system and installation | UM EN AXL E SYS INST | - | - |
| Application note, English: Updating the firmware of AXL E devices using the Windows Explorer | AH EN FIRMWARE UPDATE AXL E | - | - |
| Application note, English: Startup of Axioline E Ethernet devices (Modbus/TCP) using the ModScan32 Modbus master tool | AH EN AXL E ETH MODSCAN32 | - | - |

Additional ordering data

For additional accessories, visit phoenixcontact.net/products.

4 Technical data

Dimensions (nominal sizes in mm)



| | |
|--------------------|----------------------------------------------|
| Width | 60 mm |
| Height | 185 mm |
| Depth | 30.5 mm |
| Note on dimensions | The height is 212 mm including fixing clips. |

General data

| | |
|---------------------------------|------------------|
| Housing material | Pocan® |
| Color | anthracite |
| Weight | 480 g |
| Ambient temperature (operation) | -25 °C ... 60 °C |



CAUTION: Risk of burns

If the device is used at an ambient temperature above 50°C, the contact temperature of metal surfaces may exceed 70°C.

| | |
|------------------------------------------|---------------------------------------------------|
| Ambient temperature (storage/transport) | -25 °C ... 85 °C |
| Permissible humidity (operation) | 5 % ... 95 % |
| Permissible humidity (storage/transport) | 5 % ... 95 % |
| Air pressure (operation) | 70 kPa ... 106 kPa (up to 3000 m above sea level) |
| Air pressure (storage/transport) | 70 kPa ... 106 kPa (up to 3000 m above sea level) |
| Degree of protection | IP65/IP67 |
| Protection class | III, IEC 61140, EN 61140, VDE 0140-1 |

Connection data

| | |
|-------------------|---------------|
| Connection method | M12 connector |
|-------------------|---------------|

Interface Ethernet

| | |
|------------------------------|---------------------------------------|
| Connection method | M12 connectors, D-coded |
| Designation connection point | Copper cable |
| Number of positions | 4 |
| Transmission speed | 10/100 MBit/s (with auto negotiation) |
| Cycle Time | min. 1 ms |

Modbus/TCP

| | |
|----------------------|---------------------------------------|
| Equipment type | Modbus slave (server) |
| Modbus protocols | Modbus/TCP |
| Additional protocols | SNMP v1, HTTP, TFTP, FTP, BootP, DHCP |
| Specification | Modbus application protocol V1.1b |

Supply: Module electronics and sensors (U_S)

| | |
|------------------------------|--------------------------------------------------------------------|
| Connection method | M12 connector (T-coded) |
| Number of positions | 4 |
| Supply voltage | 24 V DC |
| Nominal supply voltage range | 18 V DC ... 31.2 V DC (including all tolerances, including ripple) |
| Typical current consumption | 190 mA ±15 % (at 24 V DC) |
| Current consumption | max. 12 A |

Supply: Actuators (U_A) for additional devices

| | |
|------------------------------|--------------------------------------------------------------------|
| Connection method | M12 connector (T-coded) |
| Number of positions | 4 |
| Supply voltage | 24 V DC |
| Nominal supply voltage range | 18 V DC ... 31.2 V DC (including all tolerances, including ripple) |
| Typical current consumption | 3 mA ±15 % (at 24 V DC) |
| Current consumption | max. 12 A |

Digital inputs

| | |
|----------------------------------------------------------------|-------------------------------------|
| Number of inputs | 16 (EN 61131-2 types 1 and 3) |
| Connection method | M12 connector, double occupancy |
| Connection method | 2, 3, 4-wire |
| Nominal input voltage | 24 V DC |
| Nominal input current | typ. 3 mA |
| Sensor current per channel | typ. 0.75 mA (from U _S) |
| Total sensor current | max. 1.2 A (per device) |
| Input voltage range "0" signal | -30 V DC ... 5 V DC |
| Input voltage range "1" signal | 11 V DC ... 30 V DC |
| Input filter time | < 1000 µs |
| Permissible conductor length to the sensor | 30 m |
| Overload protection, short-circuit protection of sensor supply | Yes |

Electrical isolation/isolation of the voltage areas

| Test section | Test voltage |
|--------------------------------------------------------------------------------------------------------|------------------------|
| 24 V supply (communications power and sensor supply, digital inputs)/bus connection (Ethernet 1) | 500 V AC, 50 Hz, 1 min |
| 24 V supply (communications power and sensor supply, digital inputs)/bus connection (Ethernet 2) | 500 V AC, 50 Hz, 1 min |
| 24 V supply (communications power and sensor supply, digital inputs)/FE | 500 V AC, 50 Hz, 1 min |
| Bus connection (Ethernet 1)/FE | 500 V AC, 50 Hz, 1 min |
| Bus connection (Ethernet 2)/FE | 500 V AC, 50 Hz, 1 min |
| Bus connection (Ethernet 1)/bus connection (Ethernet 2) | 500 V AC, 50 Hz, 1 min |
| 24 V supply (actuator supply)/ 24 V supply (communications power and sensor supply, digital inputs) | 500 V AC, 50 Hz, 1 min |
| 24 V supply (actuator supply)/bus connection (Ethernet 1) | 500 V AC, 50 Hz, 1 min |
| 24 V supply (actuator supply)/bus connection (Ethernet 2) | 500 V AC, 50 Hz, 1 min |
| 24 V supply (actuator supply)/FE | 500 V AC, 50 Hz, 1 min |

Mechanical tests

| | |
|--------------------------------------------------------------|------------------------------------------|
| Vibration resistance in acc. with EN 60068-2-6/IEC 60068-2-6 | 5g |
| Shock in acc. with EN 60068-2-27/IEC 60068-2-27 | 30g, 11 ms period, half-sine shock pulse |
| Continuous shock according to EN 60068-2-27/IEC 60068-2-27 | 10g |

Conformance with EMC Directive 2004/108/EC

Noise immunity test in accordance with EN 61000-6-2

| | |
|------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Electrostatic discharge (ESD) EN 61000-4-2/IEC 61000-4-2 | Criterion B; 6 kV contact discharge, 8 kV air discharge |
| Electromagnetic fields EN 61000-4-3/IEC 61000-4-3 | Criterion A; Field intensity: 10 V/m |
| Fast transients (burst) EN 61000-4-4/IEC 61000-4-4 | Criterion B, 2 kV |
| Transient surge voltage (surge) EN 61000-4-5/IEC 61000-4-5 | Criterion B; DC supply lines: ± 0.5 kV/ ± 0.5 kV (symmetrical/asymmetrical) |
| Conducted interference EN 61000-4-6/IEC 61000-4-6 | Criterion A; Test voltage 10 V |

Noise emission test as per EN 61000-6-4

| | |
|----------------------------------------|---------|
| Radio interference properties EN 55022 | Class A |
|----------------------------------------|---------|

Approvals

For the latest approvals, please visit phoenixcontact.net/products.

5 Internal circuit diagram

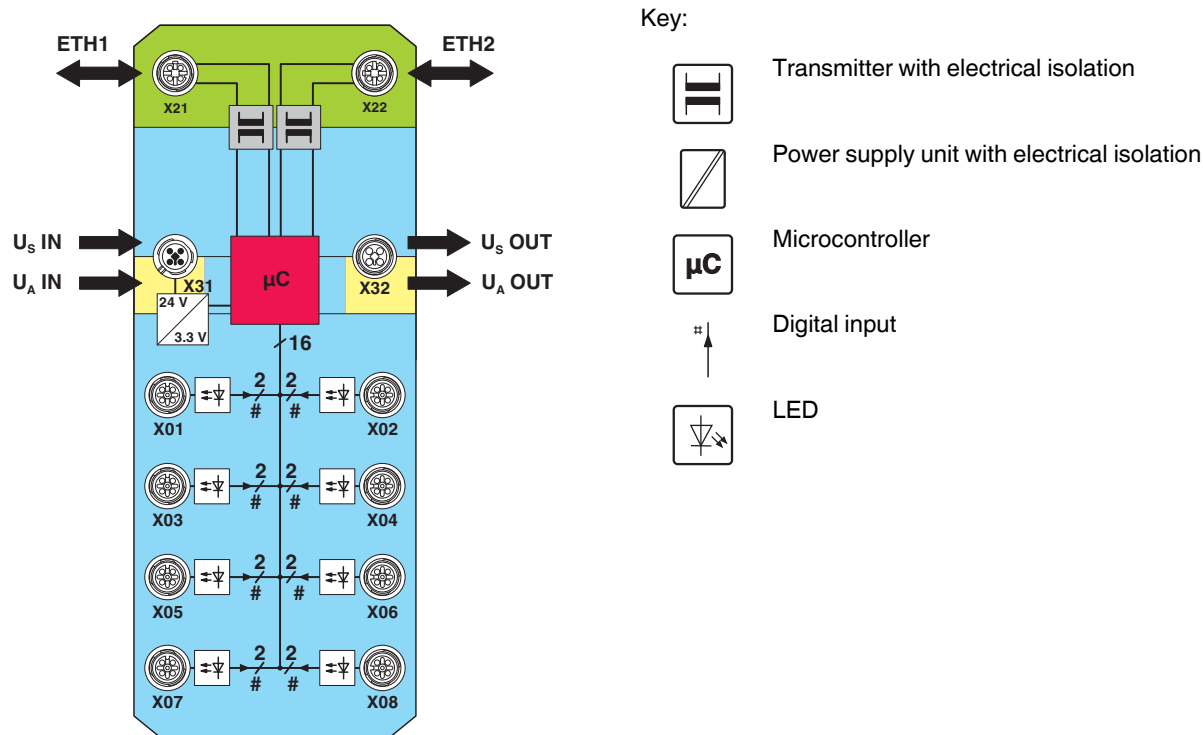


Figure 1 Internal wiring of connections

Key:

Green area: Network
Blue area: U_S
Yellow area: U_A

6 Pin assignment

6.1 Ethernet and power supply connection

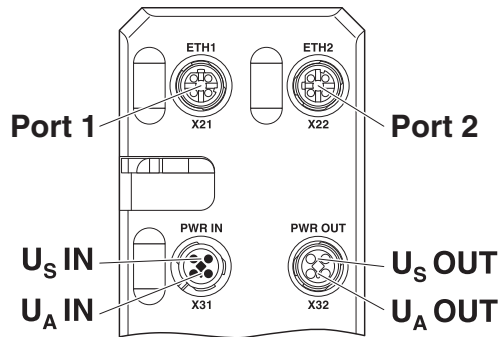


Figure 2 Connections for Ethernet and voltage supply

| Designation | Meaning |
|--------------------------|----------------------------------------------------|
| Port 1 (X21) | Ethernet port 1 |
| Port 2 (X22) | Ethernet port 2 |
| U _S IN (X31) | Power supply IN (logic and sensors) |
| U _A IN (X31) | Power Supply IN (actuators) for additional devices |
| U _S OUT (X32) | Power supply OUT for additional devices |
| U _A OUT (X32) | Power supply OUT for additional devices |



Ground the device by means of the mounting screws.

6.2 Ethernet pin assignment

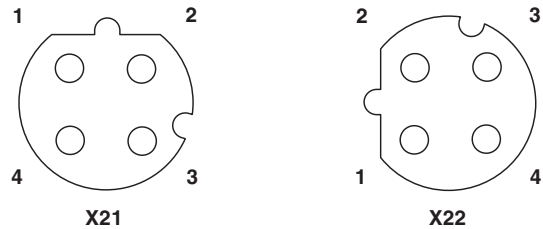


Figure 3 Ethernet pin assignment, D-coded

| Pin | Ethernet port 1 (X21) | Ethernet port 2 (X22) |
|-----|-----------------------|-----------------------|
| 1 | TX+ | TX+ |
| 2 | RX+ | RX+ |
| 3 | TX- | TX- |
| 4 | RX- | RX- |



The shield is connected to FE in the device.



The thread is used for additional shielding.

6.3 Pin assignment of the power supply U_S/U_A

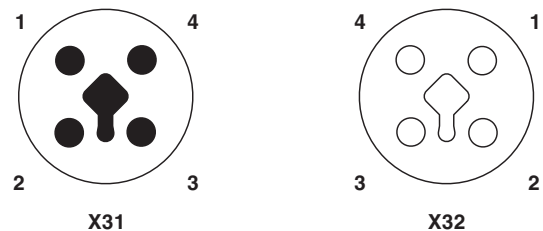


Figure 4 Pin assignment of the power supply, T-coded

| Pin | IN | OUT | Conductor colors |
|-----|----------------------------|----------------------------|------------------|
| 1 | +24 V DC (U _S) | +24 V DC (U _S) | Brown |
| 2 | GND (U _A) | GND (U _A) | White |
| 3 | GND (U _S) | GND (U _S) | Blue |
| 4 | +24 V DC (U _A) | +24 V DC (U _A) | Black |

6.4 Input connection

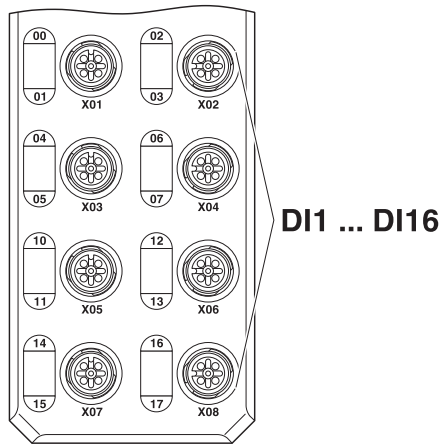


Figure 5 Input connections

| Designation | Meaning |
|----------------------------|-----------------|
| DI1 ... DI16 (X01 ... X08) | Inputs 1 ... 16 |

6.5 Pin assignment of the inputs

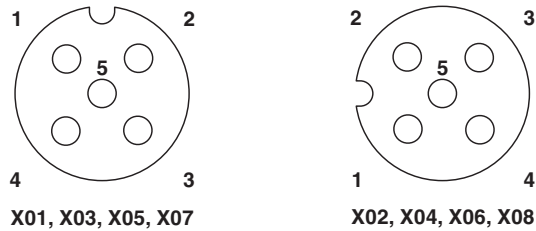


Figure 6 Pin assignment of the inputs, A-coded

| Pin | Input socket |
|-----|-----------------------|
| 1 | +24 V DC (U_S) |
| 2 | Input 2, 4, 6, ... 16 |
| 3 | GND |
| 4 | Input 1, 3, 5, ... 15 |
| 5 | FE |

7 Connection example

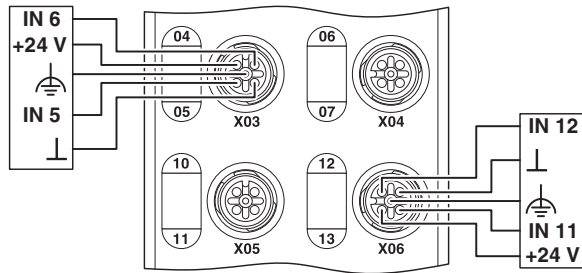


Figure 7 Typical connection of sensors

8 Connection notes



Note: data corruption or loss

Implement the FE connection using mounting screws, in order to ensure immunity to interference.



NOTE: device damage

To ensure IP65/IP67 protection, cover unused sockets with protective caps.



NOTE: Damage to the electronics

Only supply the sensors with the voltage U_S provided at the terminal points.



NOTE: Damage to the electronics

Observe the correct polarity of the supply voltages U_S and U_A in order to prevent damage to the device.



NOTE: Malfunction

When connecting the sensors, observe the assignment of the connections to the Ethernet input data.



Secure the device to a level surface or to a profile. Do not use this device to bridge gaps, in order to prevent forces being transmitted via the device.



Use standard M5 screws with toothed lock washer and self-locking nuts. Observe the maximum torque of the screws.

9 Configuration via rotary encoding switch

You can configure the address assignment and other functions using rotary encoding switches.

After modifying the switch position, restart the device, as the modification to the switch position does not take effect during operation.

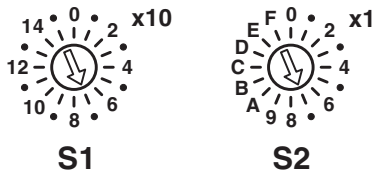


Figure 8 Rotary encoding switch

The code results from the sum of S1 x 10 plus S2 x 1. The image shows code 77 (7 x 10 + 7).

| S1 | S2 | Code | Function |
|----------|---------|------------|-----------------------------------|
| 0 | 0 | 00 | Remote access (default) |
| 0 ... 5 | 1 ... 0 | 01 ... 50 | Manual address assignment |
| 5 ... 15 | 0 ... 9 | 51 ... 159 | DHCP name assignment |
| 0 | A | 0A | Static address |
| 0 | E | 0E | Resetting IP parameters |
| 0 | F | 0F | Resetting to the default settings |
| Other | | | Reserved |

9.1 Remote access

Switch position 00

At this switch position, it is possible to remotely configure the device using corresponding tools (e.g., Startup+, web-based management (WBM)).

Behavior during initial startup, after resetting the IP parameters or after resetting to default settings

Default: BootP aktiviert, DHCP deaktiviert

A valid IP address is not assigned (0.0.0.0) and communication is therefore not possible.

The device transmits continuous BootP requests, until a valid IP address has been received.

Valid IP parameters are then automatically saved as configuration data on the device.

Each additional startup

BootP activated

BootP requests are transmitted even in the case of a valid configuration. If the device receives a BootP reply, the new IP parameters are applied. Otherwise the device starts with the last valid configuration.

DHCP activated

For behavior, see switch position 51 ... 159. The station name can be selected in WBM, the default station name is the MAC address with "-" used as the separator.

Static (BootP and DHCP deactivated)

The device starts with the last valid assigned IP configuration.

9.2 Manual address assignment

Switch position 01 ... 50

Default: BootP deactivated, DHCP activated

The first three octets in the IP address are preset as 192.168.0.x.

The subnet mask is 255.255.255.0.

Specify the last byte with the switch position.

As such, you can select IP addresses between 192.168.0.1 and 192.168.0.50.

Prior to transferring the IP address, a test is performed to check for any potential IP address conflicts. If a conflict is detected, the device temporarily switches the IP address to 0.0.0.0 (no IP communication). In this case, the NET LED flashes red. Eliminate the conflict and restart the device.

9.3 DHCP name assignment

Switch position 51 ... 159

This switch position is used to easily specify the DHCP host name for the device.

The host name is provided to the DHCP server via DHCP options. This is therefore able to send a DNS update to the DNS server.

The DNS name consists of one set part, which is based on the order designation, and a variable part, which is determined by the switch position.

The first part of the station name is AXL-E-ETH-.

The set number is added.

This results in the following station names:
AXL-E-ETH-051 ... AXL-E-ETH-159.

Behavior during initial startup, after resetting the IP parameters or after resetting to default settings

A valid IP address is not assigned (0.0.0.0) and communication is therefore not possible.

The device transmits continuous DHCP discover messages until a valid IP address has been received.

Each additional startup

The device transmits continuous DHCP requests.

There are two possible scenarios:

1. The DHCP server assigns a new IP address.
⇒ The device applies the new IP parameters.
2. The DHCP server does not respond.
⇒ The device transmits continuous DHCP Discover messages until new IP parameters have been received.

9.4 Static address

Switch position 0A

Behavior during initial startup, after resetting the IP parameters or after resetting to default settings

A valid IP address is not assigned (0.0.0.0) and communication is therefore not possible.

Assign an address initially with another switch position.

Each additional startup

After a voltage reset, the device maintains the IP address which was assigned last.



With this switch position, modifying the IP address via tools or web-based management is not possible.

9.5 Resetting IP parameters

Switch position 0E

The IP parameters stored on the device are reset.

All other settings made on the device are retained.

- BootP is activated for switch position 00.
- IP address, subnet mask: 0.0.0.0

As long as the switch position 0E remains selected, no connection to the device can be established.

IP communication is deactivated (LED NET static yellow).

9.6 Resetting to the default settings

Switch position 0F

All settings are reset to default settings, including IP parameters.



The device is ready for operation after powering up, as soon as the RDY LED lights up green.

A connection to the device however cannot be established in this switch position.

As soon as the RDY LED lights up green, a new switch position can be selected on the rotary encoding switch and the device can be restarted.

9.7 Reserved/invalid switch position

The device starts with the previous settings, e.g., with the settings that were valid before the device was restarted.

An invalid switch position is indicated by the RDY LED (red on).

10 Local status and diagnostic indicators

10.1 Indicators for Ethernet ports and power supply

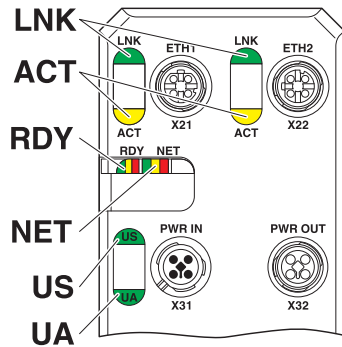


Figure 9 Indicators for Ethernet ports and power supply

| Designation | Color | Mean- ing | State | Description |
|-------------|--------------------------|-----------------------|---------------------------|-------------------------------------------------------------------------------------------------------------------------|
| LNK 1/2 | Green | Link | Green ON | Connection present at port 1/2. |
| | | | OFF | Connection not present at port 1/2. |
| ACT 1/2 | Yellow | Activity | Yellow ON | Data transmission present at port 1/2. |
| | | | OFF | Data transmission not present at port 1/2. |
| RDY | Green/ yellow/ red | Ready | Green ON | Device is ready for operation. |
| | | | Green flashing | Firmware update is being performed. |
| | | | Flashing green/ yellow | Over- or undervoltage at U_S |
| | | | | Temperature of the device is in the critical area. |
| | | | | And red US LED: sensor supply overload |
| | | | Red ON | Rotary encoding switches are set to an invalid/reserved position. |
| NET | Green/ yellow/ red | Network status | OFF | Device is not ready for operation. |
| | | | Green flashing | A connection can be established to the device. |
| | | | Green ON | At least one connection has been established to the device. |
| | | | Yellow flashing | BootP request or DHCP requests/discover messages are being transmitted. |
| | | | Yellow ON | The IP configuration/IP address (0.0.0.0) is invalid. |
| | | | Red flashing | An IP address conflict has occurred during static configuration via rotary coding switches (IP address assigned twice). |
| US | Green/ red | U_{Sensorik} | Red ON | A network error has occurred. The monitoring function detected an error or the process data watchdog was activated. |
| | | | OFF | Device is not ready for operation. |
| | | | Green ON | Communications power/sensor voltage present |
| UA | Green | U_{Aktorik} | OFF | Communications power/sensor voltage not present or too low. |
| | | | Red ON | Sensor voltage overload |
| UA | Green | U_{Aktorik} | ON | Actuator voltage present. |
| | | | OFF | Actuator voltage not present. |

10.2 Input indicators

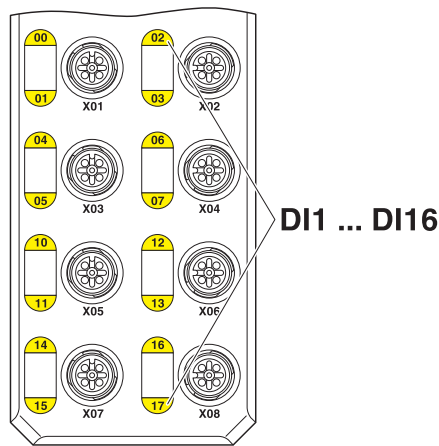


Figure 10 LEDs of the inputs

| Designation | Color | Meaning | State | Description |
|-------------------------|--------|----------------------|-------|-------------------|
| 00 ... 07, 10 ... 17 | Yellow | Status of the inputs | ON | Input is set. |
| | | | OFF | Input is not set. |

The numbering of the LEDs is as follows: the first number specifies the byte, the second number specifies the bit.

11 Modbus protocols and registers

The device supports a Modbus/TCP server.

As such, the Modbus protocol can be used in a connection-related (TCP) manner.

11.1 Modbus connections

The device supports up to eight Modbus/TCP connections at the same time.

The connection can access different addresses simultaneously.

Since eight connections are supported, a connection can quickly be restored. This means that the client can successfully restore an interrupted Modbus connection.

11.2 Modbus conformity classes

The device supports Modbus conformity classes 0 and parts of classes 1 and 2.

11.3 Modbus function codes

The following function codes are supported:

| Function code | Function | Description |
|---------------|-------------------------------|------------------------------------------------------------|
| FC1 | Read coils | Read output and input bits |
| FC2 | Read input discretes | Read multiple input bits |
| FC3 | Read holding registers | Read words from outputs and inputs |
| FC4 | Read input registers | Read words from inputs |
| FC5 | Write coil | Write an output bit |
| FC6 | Write single registers | Write word for output data |
| FC15 | Write multiple coils | Write multiple output bits |
| FC16 | Write multiple registers | Write several output words |
| FC23 | Read/write multiple registers | Read and write several process data for inputs and outputs |

11.4 Modbus register

| Modbus register (16-bit word) | Access | Function | Access with function code |
|-------------------------------|--------|----------------------------|---------------------------|
| Special register | | | |
| 2006 | W | Command register | FC6, FC16, FC23 |
| Diagnostics | | | |
| 7996 | R | Status register | FC3, FC4, FC23 |
| 7997 | R | Diagnostic status register | FC3, FC4, FC23 |
| Process data | | | |
| 8000 | R | Input process data | FC1, FC2, FC3, FC4, FC23 |

R Read
W Write



In write access to the Modbus/TCP clients on the "Read only" register, the data is not transferred and is answered with exception code 02.

11.5 Command register (2006)

Only set one bit for the command register, otherwise an error message is output. Only write access is enabled for the register.

| Bit | Code (hex) | Meaning |
|-----|------------|-------------------------------------------|
| 0 | 0001 | Reserved |
| 1 | 0002 | Reserved |
| 2 | 0004 | Reserved |
| 3 | 0008 | Reserved |
| 4 | 0010 | Reserved |
| 5 | 0020 | Reserved |
| 6 | 0040 | Reserved |
| 7 | 0080 | Delete a detected I/O warning/malfunction |
| 8 | 0100 | Reserved |
| 9 | 0200 | Reserved |
| 10 | 0400 | Reserved |
| 11 | 0800 | Reserved |
| 12 | 1000 | Reserved |
| 13 | 2000 | Reserved |
| 14 | 4000 | Reserved |
| 15 | 8000 | Reserved |

11.6 Status register (7996)

| Bit | Code (hex) | Meaning |
|-----|------------|---------------------------------------------------------------------------------------------------------------------------------|
| 0 | 0001 | 1 An error occurred (e.g., a bit in the diagnostic register is set). For additional information, please refer to register 2004. |
| | | 0 No error |
| 1 | 0002 | Reserved |
| | | 0 No error |
| 2 | 0004 | Reserved |
| 3 | 0008 | Reserved |
| 4 | 0010 | Reserved |
| 5 | 0020 | Reserved |
| 6 | 0040 | Reserved |
| 7 | 0080 | Reserved |
| 8 | 0100 | Reserved |
| 9 | 0200 | Reserved |
| 10 | 0400 | Reserved |
| 11 | 0800 | Reserved |
| 12 | 1000 | Reserved |
| 13 | 2000 | Reserved |
| 14 | 4000 | Reserved |
| 15 | 8000 | Reserved |

11.7 Diagnostic status register (7997)

| Bit | Code (hex) | Meaning |
|-----|------------|------------------------------------------------|
| 0 | 0001 | Reserved |
| 1 | 0002 | Reserved |
| 2 | 0004 | Undervoltage of sensor supply |
| 3 | 0008 | Surge voltage of sensor supply |
| 4 | 0010 | Short circuit or overload of the sensor supply |
| 5 | 0020 | Reserved |
| 6 | 0040 | Reserved |
| 7 | 0080 | Reserved |
| 8 | 0100 | Reserved |
| 9 | 0200 | Reserved |
| 10 | 0400 | Overtemperature of the device |
| 11 | 0800 | Reserved |
| 12 | 1000 | Reserved |
| 13 | 2000 | Reserved |
| 14 | 4000 | Reserved |
| 15 | 8000 | Reserved |

11.8 Figure of process data on Modbus register 8000

| Process data input word 8000 | | | | | | | | | | | | | | | | |
|------------------------------|--------|----|-----|----|-----|----|-----|----|--------|----|-----|----|-----|----|-----|----|
| Byte | Byte 0 | | | | | | | | Byte 1 | | | | | | | |
| Bit | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| IN | 07 | 06 | 05 | 04 | 03 | 02 | 01 | 00 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 |
| Connection | X04 | | X03 | | X02 | | X01 | | X08 | | X07 | | X06 | | X05 | |
| Pin | 2 | 4 | 2 | 4 | 2 | 4 | 2 | 4 | 2 | 4 | 2 | 4 | 2 | 4 | 2 | 4 |
| DI | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 |

Key:

Bit: Process data assignment
 IN: LED marking
 DI: Device input

12 Startup

12.1 Delivery state/default settings

By default upon delivery, the following functions and features are available:

IP settings

IP parameters: 0.0.0.0
 Subnet mask: 0.0.0.0
 Default Gateway: 0.0.0.0
 BootP: activated

Firmware update

Firmware update on next re-start: deactivated
 TFTP server IP address: 192.168.210.211
 Firmware file name: FIRMWARE.NXF

System identification

Device name: No name assigned
 Description: No description assigned
 Device location: No location assigned
 Contact: No contact assigned

Web-based Management (WBM)

User name: admin
 Password: private

12.2 Restoring the default settings

There are two options for resetting the default settings:

- Via web-based management, go to the Administration web page > default settings and follow the instructions.
- Via the rotary coding switch, switch position 0F

12.3 Starting the firmware

Once you have connected the power, the firmware is started.

After completion of the firmware boot process, the NET LED either lights up or flashes green.

13 SNMP - Simple Network Management Protocol

The device supports SNMP v1.

Management Information Base - MIB



The corresponding latest MIBs are available on the Internet at phoenixcontact.net/products.

For the object descriptions, please refer to the ASN1 descriptions for this product.

The password for read access is “public” and cannot be changed.

By default upon delivery, the password for write/read access is “private” and can be modified at any time.

14 WBM - Web-based management

The device has a web server, which generates the required pages for web-based management and, depending on the requirements of the user, sends them to a standard web browser. Web-based management can be used to access static information (e.g., technical data, MAC address) or dynamic information (e.g., IP address, status information).

Calling web-based management

The device web server can be addressed using the IP address if configured accordingly. The homepage (web page) of the device is accessed by entering the URL “http://ip-address”.

Example: http://172.16.113.38

The default user name is “admin”, the default password is “private”.



If you cannot access the WBM pages, check the connection settings in your browser and deactivate the proxy, if set.

15 Firmware update

In order to update the firmware of the device, the device must be provided with a firmware container via a TFTP server or it must be loaded onto the device via FTP. Any FTP client or TFTP server can be used for this. The update must always be initiated by the web-based management. When carrying out the firmware update, the RDY LED flashes yellow.

16 Quick Connect

The device supports Quick Connect Class A.

After switching on the mains voltage, it is ready to operate in under 350 ms in order to process a connection request.

A cyclic process data connection can be established in under 500 ms.

17 Endianness

The Modbus specification stipulates Big Endian format; words (16-bit) are mapped 1:1.

Individual bytes (modules with a process data width of 1 byte) are mapped to the lower byte (low byte) of a register. In the read direction, the upper byte (high byte) contains 00_{hex} and is ignored in the write direction.