

# AXL X PN DI16 DO8 ADIO8

**Axioline X remote I/O module for installation in zone 1. PROFINET communication with analog and digital inputs and outputs.**

Data sheet  
111306\_en\_01

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## 1 Description

The module is a remote I/O that is installed in zone 1/21. It serves as the interface between the intrinsically safe signals in potentially explosive areas (zone 0/20 or zone 1/21) and the distributed control system (DCS) or the PLC in the safe area.

It is intended for installation in a certified housing that is certified in accordance with Directive 2014/34/EU, Regulation UK SI 2016 No. 1107, and the IECEx Scheme. The housing must correspond to equipment protection level Gb or Db and provide a degree of protection of at least IP54.

Up to 32 input/output signals are combined in the remote I/O.

The data is transmitted via PROFINET.

## Features

- Intrinsically safe input and output channels with connection to zone 1, zone 0, or division 1
- 16 digital NAMUR input channels for NAMUR proximity sensors in accordance with EN 60947-5-6
- 8 channels for digital output signals
- 8 configurable channels for input/output signals, can be selected as analog input or analog output (0 mA ... 20 mA), digital output (24 V DC), or switch mode
- Integrated web server
- Extended temperature range of -40 °C ... +70 °C

## Observe this note



Make sure you always use the latest documentation.

It can be downloaded at: [phoenixcontact.com/product/1334854](https://phoenixcontact.com/product/1334854)

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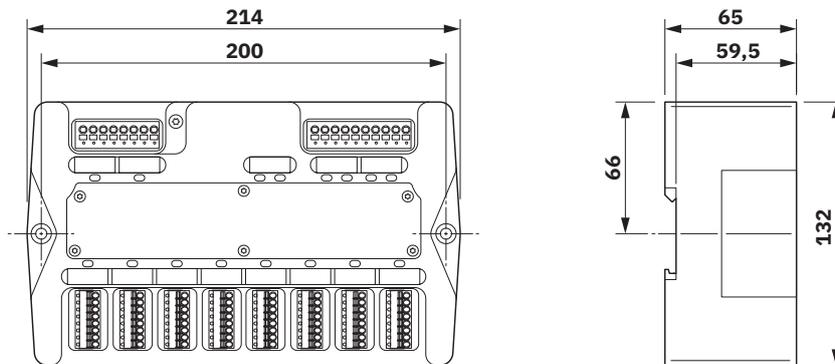
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### 3 Ordering data

Description	Type	Item no.	Pcs./Pkt.
Axioline X remote I/O module for installation in zone 1. PROFINET communication with analog and digital inputs and outputs.	AXL X PN DI16 DO8 ADIO8	1334854	1

## 4 Technical data

### Dimensions (nominal sizes in mm)



Width	214 mm
Height	132 mm
Depth	65 mm
Note on dimensions	The depth applies when a TH 35 DIN rail is used.

### General data

Color	aluminum color
Weight	2700 g
Ambient temperature (operation)	-40 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Degree of protection	IP20 (IEC 60529)
Maximum altitude	3000 m
Mounting position	Horizontal DIN rail

### Connection data: Power supply, Ethernet connection, I/O terminals

Connection method	Push-in connection
Conductor cross section, rigid	0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross section, flexible	0.2 mm <sup>2</sup> ... 1.5 mm <sup>2</sup>
Conductor cross section [AWG]	24 ... 16
Stripping length	8 mm

### Interface: PROFINET

Number of interfaces	2
Connection method	Terminal block
Note on the connection method	Auto negotiation and autocrossing
Permissible conductor cross section	max. 2.5 mm <sup>2</sup>
Transmission speed	100 Mbps (Full duplex)
Transmission length	max. 100 m

**Supported protocols**

Supported protocols PROFINET, LLDP, MRP, DCP

**Supply of module electronics and sensors (U<sub>S</sub>)**

Supply voltage 24 V DC  
 Supply voltage range 18 V DC ... 30 V DC  
 Supply current 450 mA  
 Permissible conductor cross section max. 2.5 mm<sup>2</sup>

**Supply of actuators (U<sub>A</sub>)**

Supply voltage 24 V DC  
 Supply voltage range 18 V DC ... 30 V DC (The supply voltage at the most remote module must not fall short of 18 V DC. At a voltage below 18 V DC, the module shuts down.)  
 Supply current 300 mA  
 Permissible conductor cross section max. 2.5 mm<sup>2</sup>

**Power dissipation**

Maximum power dissipation for nominal condition 15 W

**Analog inputs**

Number of inputs 8 (configurable)  
 Connection method Push-in connection  
 Connection technology 2-conductor, shielded, twisted pair  
 Current input signal 0 mA ... 20 mA  
 Tolerance, relative 0.1 % (of measuring range final value for active mean value generation and 30 Hz filter)  
 Polarity reversal protection of the inputs yes

**Analog inputs**

Number of inputs 8 (Switch mode, configurable)  
 Description of the input For monitoring an externally connected switch  
 Connection method Push-in connection  
 Connection technology 2-conductor  
 Current input signal 4 mA

**Digital inputs**

Number of inputs 16 (NAMUR)  
 Connection method Push-in connection  
 Connection technology 2-conductor  
 Description of the input NAMUR enabled digital input signals  
 Nominal input voltage 8.2 V DC  
 Polarity reversal protection of the inputs yes

**Analog outputs**

Number of outputs	8 (configurable)
Connection method	Push-in connection
Connection technology	2-conductor, shielded, twisted pair
Current output signal	0 mA ... 20 mA

**Digital outputs**

Number of outputs	8
Connection method	Push-in connection
Connection technology	2-conductor
Output voltage	24 V DC
Output current	25 mA
Polarity reversal protection of the outputs	yes

**Conformance with EMC Directive 2014/30/EU**

**Immunity test in accordance with EN IEC 61000-6-2**

Electrostatic discharge (ESD) IEC 61000-4-2	Criterion B, ±6 kV contact discharge, ±8 kV air discharge
Electromagnetic fields IEC 61000-4-3	Criterion A, Field intensity: 10 V/m
Fast transients (burst) IEC 61000-4-4	Criterion B, supply lines: 2 kV, I/O cables: 1 kV
Transient overvoltage (surge) IEC 61000-4-5	Criterion B, DC supply lines: ±0.5 kV/±1.0 kV (symmetrical/asymmetrical)
Conducted interference IEC 61000-4-6	Criterion A, Test voltage 10 V

**Noise emission test in accordance with EN IEC 61000-6-4**

Class A

**Approvals**

For the current approvals, go to:	<a href="http://www.phoenixcontact.com/product/1334854">www.phoenixcontact.com/product/1334854</a>
ATEX (EPS 22 ATEX 1 044 X)	II 2(1) G Ex eb mb [ia Ga] IIC T4 Gb II (1) D [Ex ia Da] IIIC
IECEX (IECEX EPS 22.0009X)	Ex eb mb [ia Ga] IIC T4 Gb [Ex ia Da] IIIC

**Manufacturer's declarations**

For the current manufacturer's declarations, go to:	<a href="http://www.phoenixcontact.com/product/1334854">www.phoenixcontact.com/product/1334854</a>
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## 5 Derating

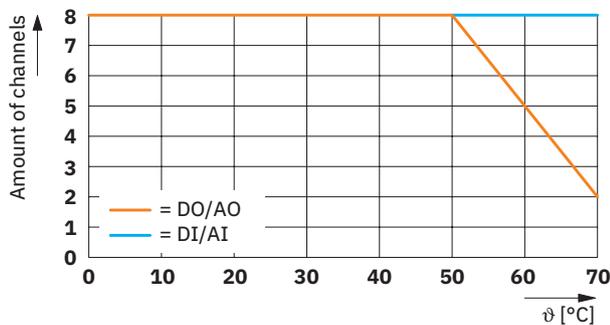
It is no longer possible to use all the channels simultaneously as of an internal temperature of >50°C.

Number of channels that can be used simultaneously:

	40 °C	50 °C	60 °C	70 °C
AI	8	8	8	8
AO	8	8	5	2
DI	8	8	8	8
DO	8	8	5	2

The current temperature value can be queried via the process data.

Figure 1 Derating



The module is equipped with temperature monitoring and continuously measures the operating temperature.

If a temperature of 75°C is exceeded in the module, an error message is output in the process data.

From ≥85°C, all outputs and communication are disabled.

The module automatically switches back to the operating state as soon as the temperature has reached a value of <75°C.



Further information on the temperature of the module can be found in “Diagnostic messages” and “Module information” in the section “Process data”.

## 6 For your safety

### 6.1 Identification of warning notes



This symbol indicates hazards that could lead to personal injury.

There are three signal words indicating the severity of a potential injury.

#### **DANGER**

Indicates a hazard with a high risk level. If this hazardous situation is not avoided, it will result in death or serious injury.

#### **WARNING**

Indicates a hazard with a medium risk level. If this hazardous situation is not avoided, it could result in death or serious injury.

#### **CAUTION**

Indicates a hazard with a low risk level. If this hazardous situation is not avoided, it could result in minor or moderate injury.



This symbol together with the **NOTE** signal word warns the reader of actions that might cause property damage or a malfunction.



Here you will find additional information or detailed sources of information.

### 6.2 Qualification of users

The use of products described in this data sheet is oriented exclusively to electrically skilled persons or persons instructed by them. The users must be familiar with the relevant safety concepts of automation technology as well as applicable standards and other regulations.

The module must be mounted and removed by specialist personnel who are authorized and trained to mount electrical components in potentially explosive areas.

### 6.3 Intended use

Use the module only in accordance with the specifications in this data sheet.

The module has been developed for use in potentially explosive areas of zone 1/21.

The module may only be operated in a clean, undamaged state and may only be used within the specified temperature class and the temperature range stipulated for this.

Read the documentation carefully before starting up the module. Store it in a location that is accessible to all users at all times.

### 6.4 Product changes

Modifications to hardware and firmware of the device are not permitted.

Incorrect operation or modifications to the device can endanger your safety or damage the device. Do not repair the device yourself. If the device is defective, please contact Phoenix Contact.

## 6.5 Security in the network



### NOTE: Network security jeopardized by unauthorized access

Connecting devices to a network entails the danger of unauthorized access to the network.

#### Observe the following safety notes:

- If possible, deactivate unused communication channels.
- Use secure passwords reflecting the complexity and service life recommended in the latest guidelines.
- Only allow authorized persons to access the device. Limit the number of authorized persons to the necessary minimum.
- Always install the latest firmware version. The firmware can be downloaded via the item ([www.phoenix-contact.com/products](http://www.phoenix-contact.com/products)).
- Observe the IT security requirements and the standards applicable to your application. Take the necessary protective measures. These may include, for example, virtual networks for remote maintenance access or a firewall.
- In security-critical applications, always use the device with an additional security appliance. Phoenix Contact offers security appliances in the mGuard product range. The mGuard routers connect various networks for the remote maintenance and protection of the local network and protect these networks against cyberattacks.
- You must take defense-in-depth strategies into consideration when planning networks.



Additional measures for protection against unauthorized network access can be found in the "INDUSTRIAL SECURITY" application note. The application note can be downloaded via the item ([www.phoenixcontact.com/products](http://www.phoenixcontact.com/products)).

German: AH DE INDUSTRIAL SECURITY, 107913  
English: AH EN INDUSTRIAL SECURITY, 107913

If a security vulnerability exists for products, solutions, or services from Phoenix Contact, it will be published on the PSIRT (Product Security Incident Response Team) website:

[www.phoenixcontact.com/psirt](http://www.phoenixcontact.com/psirt)

## 7 Installation in potentially explosive area



### WARNING: Explosion hazard

Before use in potentially explosive areas, make sure that the following instructions have been observed.

- The non-intrinsically safe terminal blocks of the device (X9 and X10) must be supplied from a source with an SELV output circuit or according to IEC 61010.  $U_{max} = 30 \text{ V DC}$
- The module must be mounted in a housing that is fully certified in accordance with Directive 2014/34/EU, UK SI 2016 No. 1107 and the IECEx scheme.
- The permissible operating temperature range after installation in the housing is  $-40^{\circ}\text{C} \dots +70^{\circ}\text{C}$ .
- Installation, operation, and maintenance may only be carried out by qualified electricians. Follow the installation instructions as described. When installing and operating the device, the applicable regulations and safety directives (including national safety directives), as well as general technical regulations, must be observed. The safety data is listed in this document and in the certificates.
- Observe the specified conditions for use in potentially explosive areas! Also observe the requirements of EN/IEC 60079-14.
- The device must not be opened or modified. Do not repair the device yourself, replace it with an equivalent device. Repairs may only be carried out by the manufacturer. The manufacturer is not liable for damage resulting from violation.
- Do not subject the product to mechanical and/or thermal stress that exceeds the specified limits.
- The device must be stopped and immediately removed from the Ex area if it is damaged, was subject to an impermissible load, stored incorrectly or if it malfunctions.

## 8 Mounting

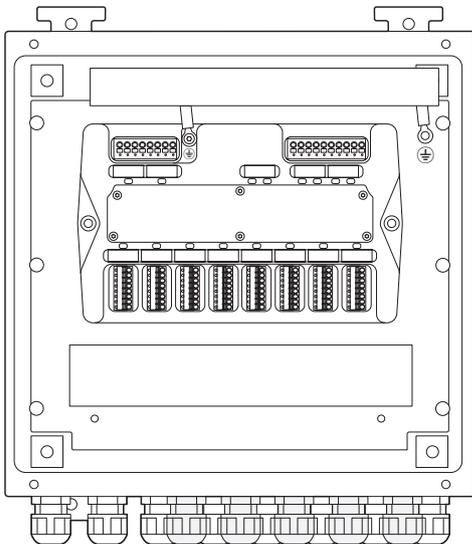
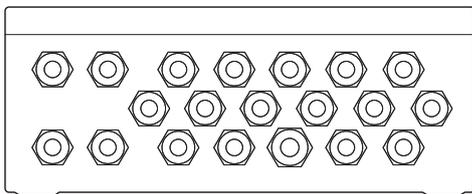


**WARNING: Explosion hazard**

Please also observe instructions in the “Installation in potentially explosive areas” section.

The IP20 module has been developed for use in potentially explosive areas of zone 1/21. For this, it must be installed in a certified housing or control box that corresponds to equipment protection level Gb or Db and has an enclosure rating of at least IP54.

Figure 2 Installation example: Module in a certified Ex e stainless steel control box with cable entries

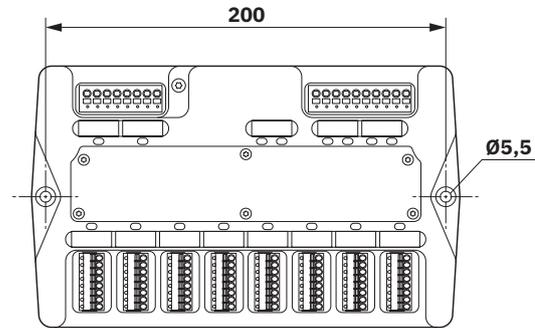


Under item no. 1371410, you can order the module that is already assembled in a housing (AXL X PN DI16 DO8 ADIO8 ENC).

There are two options for mounting the module:

1. DIN rail mounting on a 35 mm DIN rail (TH 35-15 according to EN 60715)
2. Screw mounting via the two drill holes in the module

Figure 3 Drill hole spacing



## 9 Connecting cables

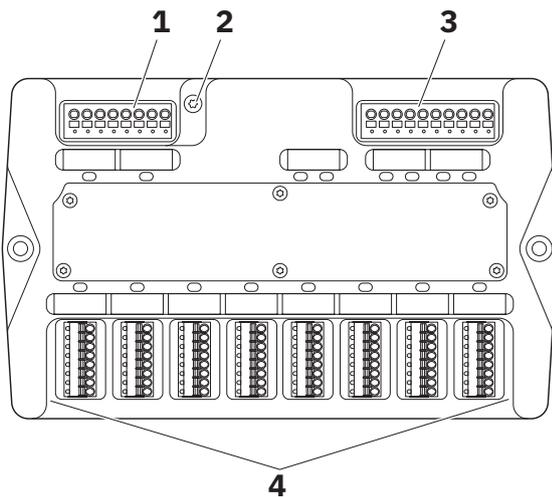


### WARNING: Explosion hazard

Cables that are not cleanly wired can lead to hazardous mix-ups between intrinsically safe and non-intrinsically safe circuits that can ignite an explosive mixture.

Observe the installation instructions according to IEC/EN 60079-14.

Figure 4 Connections on the module



Conne- ction	Desig- nation	Function
1	X9	Power supply for the module, the sensors, and the actuators Ex e terminal block (increased safety)
2	⏚	Grounding/equipotential bonding via M4 screw and ring eye
3	X10	Ethernet Ex e terminal block (increased safety)
4	X1 ... X8	Intrinsically safe sensors and actuators Ex i plug-in terminal block (intrinsically safe)

### 9.1 Grounding

- Use a ring eye and an M4 screw for the grounding connection.
- Connect the ground connection of the module to the equipotential bonding conductor of the potentially explosive area.

The conductor cross-section must be at least 4 mm<sup>2</sup>.

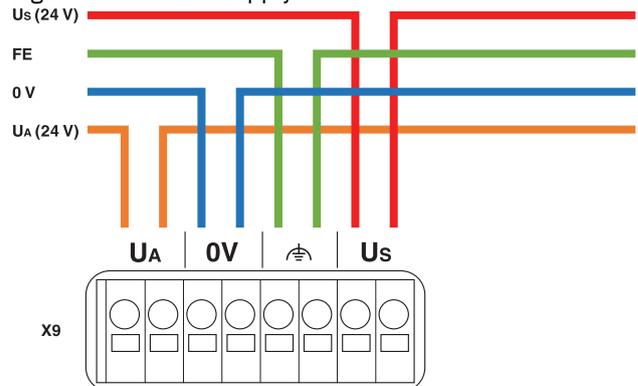
### 9.2 Power supply

The input voltages  $U_S$  and  $U_A$  are internally protected against polarity reversal.



The supply voltage  $U_S$  must not be switchable. It supplies the module electronics.

Figure 5 Power supply

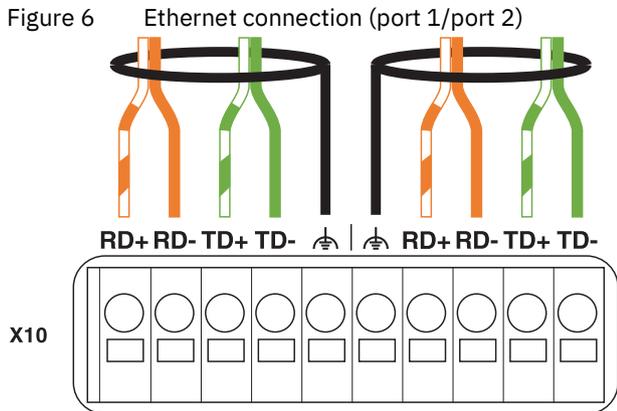


X9	
Terminal point	Assignment
$U_A$	Power supply for actuators
0 V	Ground / Earth
⏚	Functional ground
$U_S$	Power supply for module and sensors

### 9.3 Ethernet

The built-in switch allows the connection of additional network devices.

 In the safe area, the Ethernet connection does not require a signal conditioner.



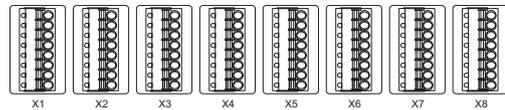
X10 (port 1/port 2)	
Terminal point	Assignment
RD+	Receive data +
RD-	Receive data -
TD+	Transmit data +
TD-	Transmit data -

### 9.4 Intrinsically safe sensors and actuators

All terminal blocks have the same assignment.

- Due to the intrinsic safety, use the light blue color for the connecting cables.
- Use a 2-wire cable for fixed installation.
- Use a shielded cable for the analog signals.

Figure 7 Terminal blocks X1 ... X8

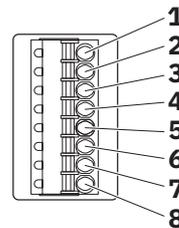


 **NOTE: Destruction of the sensor or actuator**  
Pin 1 is an active current source.

 **NOTE: Destruction of the sensor**  
Connecting an intrinsically safe NAMUR sensor to a function other than DI can result in the destruction of the sensor.

- Only connect intrinsically safe NAMUR sensors to pins with the DI function.

Figure 8 Terminal point assignment



X1 ... X8	
Terminal point	Assignment
1	Digital output or analog output or analog input or switch mode(+), configurable
2	GND or switch mode(-)
3	NAMUR digital input
4	GND
5	NAMUR digital input
6	GND
7	Digital output
8	GND

In switch mode, the module outputs 4 mA at pin 1. When the external switch is closed, this signal is read back at pin 2. In this case, the corresponding bit in the input byte shows a "1".

## 10 Connection examples

Figure 9 Connection example: Analog input

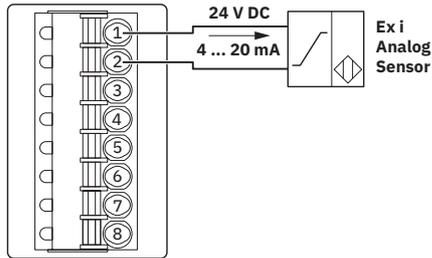


Figure 13 Connection example: Digital input (switch mode)

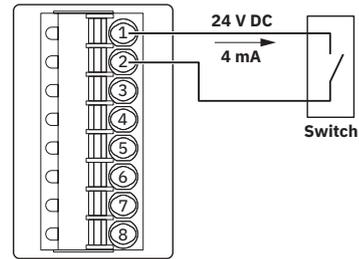


Figure 10 Connection example: Analog input (Pt 100 or thermocouple)

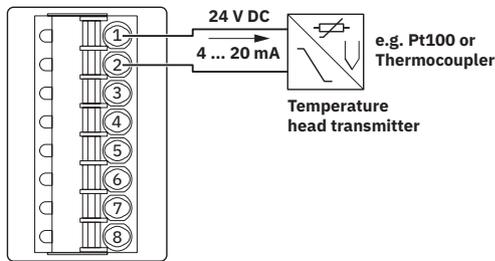


Figure 14 Connection example: Digital input (resistance coupling element)

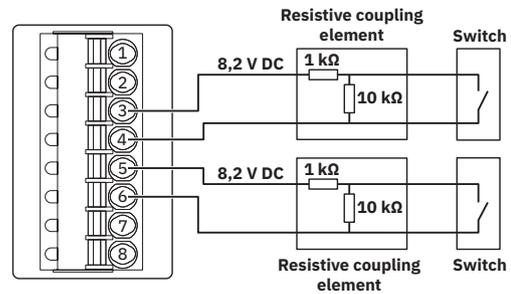


Figure 11 Connection example: Analog output

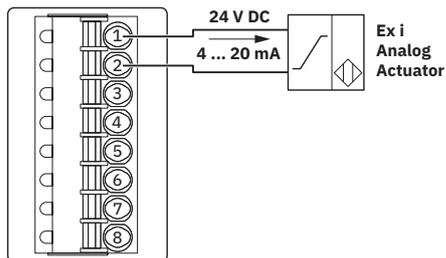


Figure 15 Connection example: Digital output

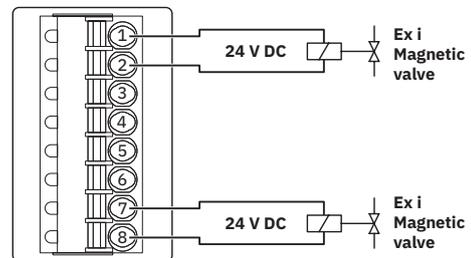
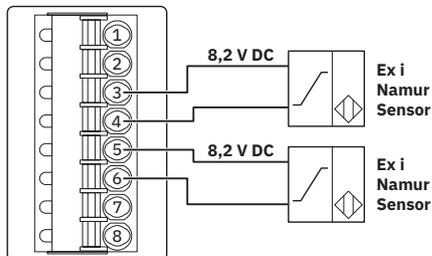
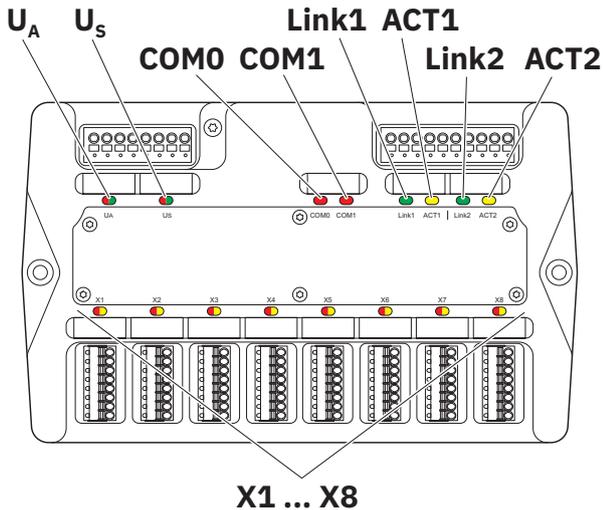


Figure 12 Connection example: Digital input NAMUR



## 11 Local diagnostic and status indicators

Figure 16 Local diagnostic and status indicators



Designation	Color	Meaning	State	Description
U <sub>A</sub>	Green/red	U <sub>Actuators</sub>	Green on	Actuator supply is sufficient (> 18 V).
			Red on	Actuator supply is not sufficient (< 18 V).
			Off	Actuator supply not available.
U <sub>S</sub>	Green/red	U <sub>Sensors</sub>	Green on	Module and sensor supply is sufficient (> 18 V).
			Red on	Module and sensor supply is not sufficient (< 18 V).
			Off	Module and sensor supply is not present.
COM0	Red	Communication status: System Fault	Red on	PROFINET alarm: error at terminal block X1 ... X8 or error at internal voltage or internal temperature
			Red flashing	Device identification (DCP)
			Off	No PROFINET alarms active
COM1	Red	Communication status: Bus Fault	Red on	No network connection
			Red flashing	Ready for PROFINET connection
			Off	PROFINET connection to at least one PROFINET controller active
Link1/2	Green	Ethernet connection port 1/port 2	On	Connection is present at port 1/2.
			Off	Connection is not present at port 1/2.
ACT1/2	Yellow	Communication port 1/port 2	Flashes	Communication is established.
			Flashing (0.5 Hz)	Communication active
			Off	No network connection
X1 ... X8	Red/yellow	Status of terminal blocks X1 ... X8	Red on	Error on the respective terminal block
			Yellow on	Output (pin 7) is set. No error on the terminal block.
			Off	Output (pin 7) is not set. No error on the terminal block.

## 12 Startup

### 12.1 Delivery state

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

#### PROFINET

Device name:	No name assigned
IP address:	0.0.0.0
Subnet mask:	0.0.0.0
Default Gateway:	0.0.0.0
Device designation:	1334854 AXL X PN DI16 DO8 ADIO8
Vendor ID:	00B0 <sub>hex</sub>
Device ID:	0185 <sub>hex</sub>

#### System identification

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

### 12.2 PROFINET engineering tool

The device exchanges process data with the controller via PROFINET. For process data communication to take place, the controller and device must be configured and parameterized.

The PROFINET device is parameterized using the engineering tool of the PROFINET controller. For parameterization, integrate the corresponding device description file for the device in the relevant PROFINET engineering tool.

You can use the installed device description file to add the PROFINET device to a project.



For the latest device description files, go to [www.phoenixcontact.com/products](http://www.phoenixcontact.com/products).

If several versions of the device description file are available, use the version that corresponds to the firmware and hardware version used.

### 12.3 Configuring the PROFINET device name and IP address

In the delivery state and following a factory reset, the PROFINET device does not have a device name and the IP address is 0.0.0.0.

A unique device name must be assigned to the PROFINET device so that the PROFINET controller can communicate with the PROFINET device.

Use the PROFINET engineering tool to assign a device name to the PROFINET device.

The IP address is configured by the PROFINET controller during PROFINET startup.

## 13 Parameterization

The parameters for configuring the inputs and outputs and for (de-)activating the PROFINET alarm can be found in slot 0. You can configure these parameters in the PROFINET engineering tool.

### 13.1 Module startup parameters

These parameters can be used to configure the I/O functions of the individual pins for terminal blocks X1 ... X8.

Terminal block X1 ... X8 configuration	Value range	
Pins 1/2 mode	<b>0</b>	<b>Disabled (default)</b>
	1	Digital output
	2	Analog output
	3	Analog input
	4	Switch mode digital output
Pins 3/4 NAMUR digital inputs	<b>0</b>	<b>Disabled (default)</b>
	1	Enabled
Pins 5/6 NAMUR digital inputs	<b>0</b>	<b>Disabled (default)</b>
	1	Enabled
Pins 7/8 digital outputs	<b>0</b>	<b>Disabled (default)</b>
	1	Enabled

### 13.2 PROFINET alarm startup parameters

These parameters can be used to deactivate or activate the PROFINET alarm for the individual pins of terminal blocks X1 ... X8.

PROFINET Alarm terminal block X1 ... X8 configuration	Value range	
Pins 1/2 PN alarm	0	Disabled
	<b>1</b>	<b>Enabled (default)</b>
Pins 3/4 PN alarm	0	Disabled
	<b>1</b>	<b>Enabled (default)</b>
Pins 5/6 PN alarm	0	Disabled
	<b>1</b>	<b>Enabled (default)</b>
Pins 7/8 PN alarm	0	Disabled
	<b>1</b>	<b>Enabled (default)</b>

## 14 Process data

### 14.1 Input process data of the analog inputs

Slot 1, subslot 1 contains the process data of the configurable analog inputs on pins 1 and 2.

Slot 1, subslot 1																
Byte	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Terminal block	X8		X7		X6		X5		X4		X3		X2		X1	
Pin	1 and 2															
Signal	IN08		IN07		IN06		IN05		IN04		IN03		IN02		IN01	

Decimal value / 1000 = analog input value in mA

Example:

9987 (decimal) / 1000 = 9.987 mA

### 14.2 Input process data of the digital inputs

Slot 2 contains the process data of the digital inputs.

Subslot 1 contains the process data for the configurable switch mode [Digital Input] on pins 1 and 2.

Slot 2, subslot 1								
Byte	0							
Terminal block	X8	X7	X6	X5	X4	X3	X2	X1
Pin	1 and 2							
Signal	IN08	IN07	IN06	IN05	IN04	IN03	IN02	IN01

Subslot 2 contains the process data for the NAMUR digital inputs on pins 3 and 4 and pins 5 and 6.

Slot 2, Subslot 2								
Byte	1							
Terminal block	X8	X7	X6	X5	X4	X3	X2	X1
Pin	5 and 6							
Signal	NAMUR_ IN16	NAMUR_ IN15	NAMUR_ IN14	NAMUR_ IN13	NAMUR_ IN12	NAMUR_ IN11	NAMUR_ IN10	NAMUR_ IN09

Slot 2, Subslot 2								
Byte	0							
Terminal block	X8	X7	X6	X5	X4	X3	X2	X1
Pin	3 and 4							
Signal	NAMUR_ IN08	NAMUR_ IN07	NAMUR_ IN06	NAMUR_ IN05	NAMUR_ IN04	NAMUR_ IN03	NAMUR_ IN02	NAMUR_ IN01

### 14.3 Output process data of the analog outputs

Slot 3, subslot 1 contains the process data of the configurable analog outputs on pins 1 and 2.

Slot 3, Subslot 1																
Byte	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
Terminal block	X8		X7		X6		X5		X4		X3		X2		X1	
Pin	1 and 2															
Signal	OUT08		OUT07		OUT06		OUT05		OUT04		OUT03		OUT02		OUT01	

Analog output value in mA \* 1000 = decimal value

Example:

9.987 mA \* 1000 = 9987 (decimal)

### 14.4 Output process data of the digital outputs

Slot 4, subslot 1 contains the process data for the configurable digital outputs on pins 1 and 2 and the digital outputs on pins 7 and 8.

Slot 4, Subslot 1								
Byte	1							
Terminal block	X8	X7	X6	X5	X4	X3	X2	X1
Pin	7 and 8							
Signal	OUT16	OUT15	OUT14	OUT13	OUT12	OUT11	OUT10	OUT09

Slot 4, Subslot 1								
Byte	0							
Terminal block	X8	X7	X6	X5	X4	X3	X2	X1
Pin	1 and 2							
Signal	OUT08	OUT07	OUT06	OUT05	OUT04	OUT03	OUT02	OUT01

### 14.5 Diagnostic messages

In slot 5, the following diagnostic options are provided cyclically via the process data:

Slot 5, subslot 1								
Byte	0							
Bit	7	6	5	4	3	2	1	0
<b>Error</b>	Reserved	Temperature	Short-circuit	Reserved	Cable break	8V2	U <sub>A</sub>	U <sub>S</sub>

Bit	Meaning	
7		Reserved
6	0	OK
	1	Temperature outside the range (>75°C)
5	0	OK
	1	Short circuit at a terminal block
4		Reserved
3	0	OK
	1	Line break at a terminal block
2	0	OK
	1	8V2: NAMUR voltage too low
1	0	OK
	1	U <sub>A</sub> : Actuator voltage too low
0	0	OK
	1	U <sub>S</sub> : Sensor voltage too low

### 14.6 Module information

In slot 6, the following information is provided cyclically via the process data:

#### Internal voltage

Slot 6, subslot 1			
Byte	2	1	0
	8V2	$U_A$	$U_S$
	NAMUR	Actuator supply	Sensor supply

Decimal value / 10 = voltage value in V DC

Example:

243 (decimal) / 10 = 24.3 V DC

The voltage is measured with a tolerance of  $\pm 10\%$ .

#### Internal temperature

Slot 6, subslot 2		
Byte	1	0
	Value	Sign bit
		0      1
	Decimal value = value in °C	+      -

Example:

Input data [dec]		Value
Byte 1	Byte 0	
24	1	-24 °C

The temperature is measured with a tolerance of  $\pm 5$  K.

If the internal temperature exceeds 75°C, an error message is output in slot 5 (byte 0, bit 6).

#### Hour counter

Slot 6, subslot 3			
Byte	2	1	0
	Lowest value	Median value	Highest value

Value = operating hours in hours

Example:

0000 0000 0001 1010 0100 0111 = 6727 hours

#### Serial number

Slot 6, subslot 4				
Byte	3	2	1	0
	Lowest value			Highest value

Example:

0000 0111 0101 1011 1100 1101 0001 0101 = 123456789

## 15 Web-based management (WBM)

The device has a web server that generates the pages required for web-based management (WBM). Via the WBM, you can access static and dynamic information of the device and change certain settings.

### Calling WBM



To call up the current status of the web pages in WBM, start by emptying your browser's cache.

You can address the device's WBM using the IP address if it is configured accordingly. The device's homepage (web page) is accessed by entering the URL `http://<IP address>`. Example: `http://172.16.113.38`

Basic device information is available to you on the home page.



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

The following information is available in the WBM:

- Basic device information
- Device status with attached diagnostics
- Diagnostic history

The following functions are available in the WBM:

- Firmware update



To perform a firmware update, you must log in to the WBM.

## 16 Safety data for explosion protection

### Maximum connection values for zone 0

Maximum  $U_m$  (X9/X10) = 30 V DC

The following tables show the output parameters of each pin on terminal blocks X1 to X8. Pins may not combined.

Pins 1, 2, 7, and 8 ( $U_0 = 26$  V DC,  $I_0 = 82$  mA,  $P_0 = 533$  mW):

Group IIC				
$L_0$	3 mH	1 mH	0.5 mH	0 mH
$C_0$	42 nF	62 nF	78 nF	99 nF
Group IIB / III				
$L_0$	20 mH	2 mH	0.5 mH	0 mH
$C_0$	350 nF	350 nF	490 nF	770 nF

Pins 3, 4, 5, and 6 ( $U_0 = 9.6$  V DC,  $I_0 = 31$  mA,  $P_0 = 75$  mW):

Group IIC				
$L_0$	49 mH	10 mH	1 mH	0 mH
$C_0$	310 nF	640 nF	1.1 $\mu$ F	3.6 $\mu$ F
Group IIB / III				
$L_0$	100 mH	10 mH	1 mH	0 mH
$C_0$	2 $\mu$ F	3.6 $\mu$ F	6.1 $\mu$ F	26 $\mu$ F

GND pins (X2, X4, X6, and X8) are galvanically separated from input GND (X9 and X10).

Output parameters of each pin. Pins are not allowed to be combined.

Pins Xn	Function	$U_0$
1	DO/AO/AI/Switch mode(+)	26 V DC
2	GND/Switch mode(-)	GND
3	DI	9.6 V DC
4	GND	GND
5	DI	9.6 V DC
6	GND	GND
7	DO	26 V DC
8	GND	GND

## 17 Troubleshooting

<b>Error</b>	<b>Possible cause</b>	<b>Measure</b>
Channels do not output or read in anything	Each channel must be switched on individually.	Activate the desired pin via the module startup parameters, see Section "Parameterization".
Digital output no longer switches	If there is an overload or short circuit at an output, the output is switched off. The output remains switched off even after the error has been removed.	To delete the short-circuit memory, switch off the output via the controller.
Error message at unused pins	No sensors or actuators are connected to the pins.	Deactivate the unused pins via the module startup parameters, see Section "Parameterization".

## 18 Transport and storage

- Transport and store the module only in the original packaging.
- Observe the temperature range specifications in the “Technical data” section for transport and storage.

## 19 Maintenance, repair, and disposal

### 19.1 Maintenance

The device is maintenance-free.

### 19.2 Device defect and repair

Repairs may only be carried out by Phoenix Contact.

- If the device is faulty, contact Phoenix Contact.

### 19.3 Disposal



The symbol with the crossed-out trash can indicates that this item must be collected and disposed of separately from other waste.

Phoenix Contact or public collection sites will take the item back for free disposal. For information on the available disposal options, visit [www.phoenixcontact.com](http://www.phoenixcontact.com).

Delete personal data before returning the item.

- Dispose of packaging materials that are no longer needed (cardboard packaging, paper, bubble wrap sheets, pillow bags, etc.) with household waste in accordance with the currently applicable national regulations.