

AXC F XT ETH 1TX

Axioline F, left-alignable Ethernet interface

Data sheet
107237_en_01

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1 Description

An AXC F ... PLCnext controller can be extended with an additional Ethernet interface using the AXC F XT ETH 1TX left-alignable extension module.

Features

- Individual expansion option for PLCnext Controls of the Axioccontrol series
- Left-alignable Gigabit-class Ethernet interface
- Additional independent MAC address
- PROFINET support
- Electrical isolation between Ethernet interface and logic



Ensure that the left-alignable Ethernet interface is only aligned next to a PLCnext controller which has a firmware version that is permissible for this.

AXC F ... PLCnext controllers with the following firmware versions are permitted:

- AXC F 2152 with firmware version \geq 2019.0 LTS



This data sheet is only valid in association with the UM EN AXL F SYS INST user manual.
For information on PROFINET basics, please refer to the UM EN PROFINET SYS user manual.



Make sure you always use the latest documentation.
It can be downloaded at: phoenixcontact.net/product/2403115

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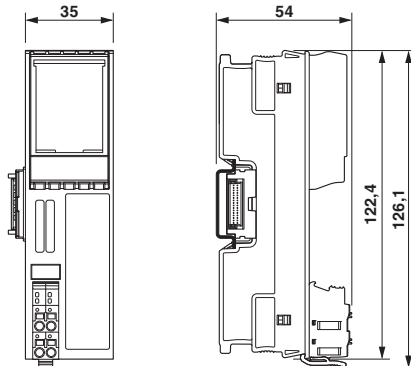
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3 Ordering data

Description	Type	Order No.	Pcs./Pkt.
Left-alignable Ethernet interface, for connection to a compatible modular controller from the Axioccontrol range.	AXC F XT ETH 1TX	2403115	1
Accessories	Type	Order No.	Pcs./Pkt.
PLCnext Control for the direct control of Axioline F I/Os. With two Ethernet interfaces. Complete with connector and bus base module.	AXC F 2152	2404267	1
Bus base for extension modules that can be aligned to the left	AXC BS H XT	2403678	5
Bus base module for left-aligning the AXC F 2xxx controllers	AXC BS L 2	1064312	1
Axioline F short power connector (for e.g., AXL F BK ...) (Replacement item)	AXL CN S/UL	2701421	5
Documentation	Type	Order No.	Pcs./Pkt.
User manual, English, Axioline F: System and installation	UM EN AXL F SYS INST	-	-
User manual, English, Axioline F: Diagnostic registers, and error messages	UM EN AXL F SYS DIAG	-	-
User manual, English, PROFINET basics	UM EN PROFINET SYS	-	-

4 Technical data

Dimensions (nominal sizes in mm)



Width	35 mm
Height	126.1 mm
Depth	54 mm
Note on dimensions	The depth is valid when a TH 35-7,5 DIN rail is used (according to EN 60715).

General data

Type	modular
Color	traffic grey A RAL 7042
Weight	106 g (with connector and bus base module)
Ambient temperature (operation)	-25 °C ... 60 °C (up to 2000 m above sea level)
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Permissible humidity (operation)	5 % ... 95 % (according to DIN EN 61131-2)
Permissible humidity (storage/transport)	5 % ... 95 % (according to DIN EN 61131-2)
Air pressure (operation)	70 kPa ... 106 kPa (up to 3000 m above sea level)
Air pressure (storage/transport)	58 kPa ... 106 kPa (up to 4500 m above mean sea level)
Degree of protection	IP20
Protection class	III, IEC 61140, EN 61140, VDE 0140-1
Mounting type	DIN rail mounting

Connection data: Axioline F connector

Connection method	Push-in connection
Conductor cross section solid / stranded	0.2 mm ² ... 1.5 mm ² / 0.2 mm ² ... 1.5 mm ²
Conductor cross section [AWG]	24 ... 16
Stripping length	8 mm

Interface Ethernet

Number of interfaces	1
Connection method	RJ45 socket
Note on the connection method	Auto negotiation and autocrossing

Interface Ethernet

Bus system	RJ45
Transmission speed	10/100/1000 Mbps (full duplex)
Transmission length	max. 100 m

Interface Axioline F local bus

Number of interfaces	1
Connection method	Bus base module
Transmission speed	100 Mbps

Supply of the logic voltage U_L

Supply voltage	24 V DC
Supply voltage range	19.2 V DC ... 30 V DC (including all tolerances, including ripple)
Polarity reversal protection of the supply voltage	Polarity protection diode
Transient protection	Suppressor diode



NOTE: Damage to the electronics

Provide external protection for the module.

Error messages to the higher level control or computer system

None

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
Continuous shock according to EN 60068-2-27/ IEC 60068-2-27	10g

Conformance with EMC Directive 2014/30/EU

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 overvoltage (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 according to EN 61000-6-3 Class B

Approvals

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

5 Internal circuit diagram

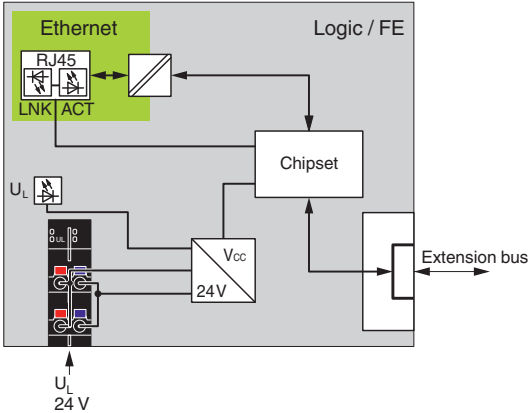


Figure 1 Basic circuit diagram

Key:

- RJ45 RJ45 interface
- LED LED
- Power supply unit with electrical isolation
- Power supply unit
- Chipset Chipset
- Extension bus Axioline F extension modules aligned to the left

6 Module components

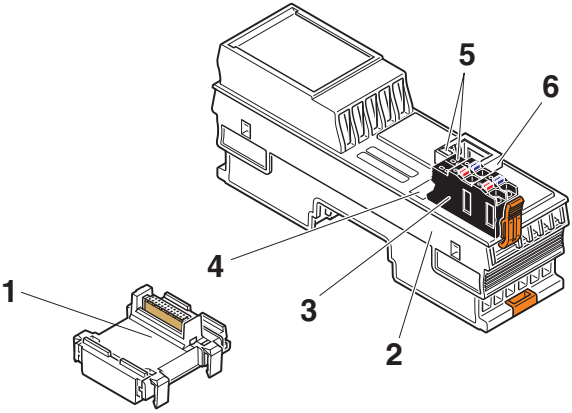


Figure 2 Module components

- 1 Bus base module
- 2 Electronics module
- 3 Supply connector
- 4 Function identification
- 5 Diagnostic and status indicators
- 6 Ethernet interface

7 Mounting



Please note:

Mount all the modules required **before** supplying power to the Axioline F station. Modules to which power is only supplied following the controller boot process are not detected or may result in a malfunction. To ensure that the left-alignable Ethernet interface is detected correctly, proceed as follows:

- Switch on the power to the left-alignable Ethernet interface **before** switching on the power to the controller
- OR
- Switch on the power to the left-alignable Ethernet interface and to the controller **simultaneously**.

7.1 Removing the controller supply connector

- Release the locking latch (A), tilt the supply connector upwards slightly (B), and remove it from the controller (C).

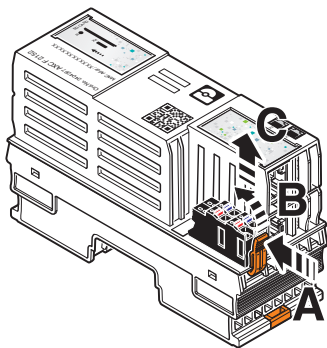


Figure 3 Removing the supply connector

7.2 Removing other connectors from the controller

- Remove all other connectors from the controller.

7.3 Removing electronics modules

Before the left-alignable Ethernet interface can be aligned to the controller, you must remove the controller electronics module.

In the case of AXC ... controllers, you must also remove the electronics module of the first module aligned to the right.

To do this, proceed as follows:

- Insert a suitable tool (e.g., bladed screwdriver) into the upper and lower snap-on mechanisms (base latches) of the controller/module one after the other and release it (A).

The base latches are locked in place in the open position.

- Remove the electronics module vertically out of the DIN rail (B).

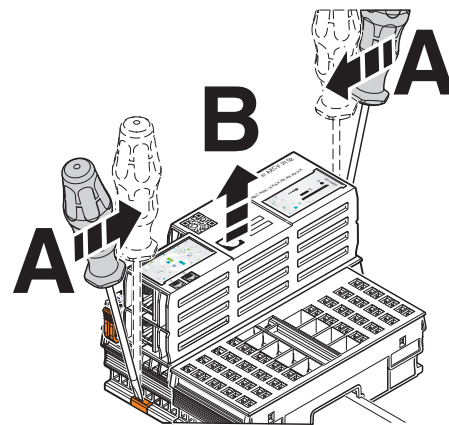


Figure 4 Removing the electronics module

To operate the left-alignable Ethernet interface on a controller for Axioline F, a special bus base module is required for the respective controller.

The bus base module is not supplied as standard with AXC ... controllers. For the ordering data, please refer to the user manual for the controller you are using.

In the case of AXC ... controllers, you must first replace the existing bus base module with the special bus base module.

To do this, proceed as follows:

- Remove the controller bus base module from the bus base of the first module aligned to the right.
- Remove the controller bus base module from the DIN rail.

Proceed as follows to mount the special bus base module:

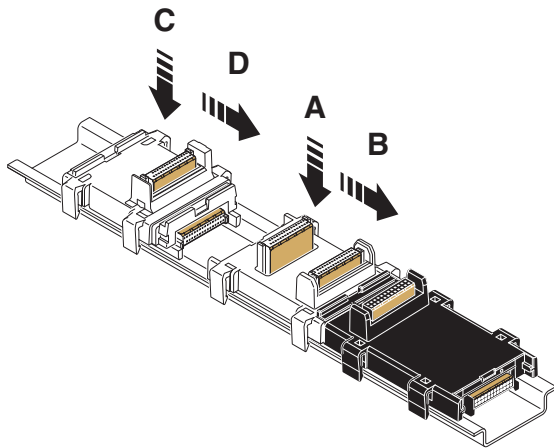


Figure 5 Mount bus base module(s)

- Place the special controller bus base module on the DIN rail (A).
- Push the special controller bus base module into the connection for the bus base module of the module aligned to the right (B).
- Place the bus base module of the left-alignable Ethernet interface on the DIN rail (C).
- Push the left-alignable Ethernet interface bus base module into the connection for the special bus base module of the controller (D).

Align additional AXC F XT ... modules on the left (in preparation):

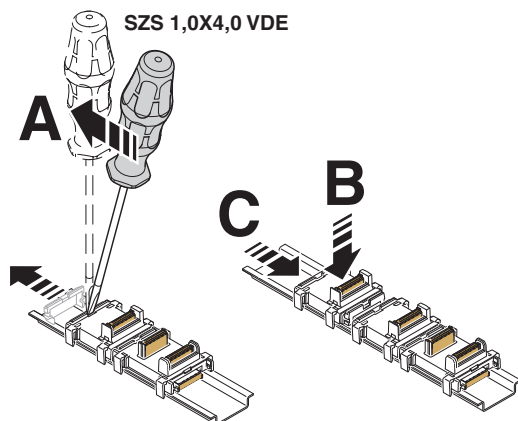


Figure 6 Mounting the bus base modules of further AXC F XT ... modules

- Remove the cover cap of the preceding bus base module (A).

- Place the bus base modules of the additional AXC F XT ... modules to be aligned on the left on the DIN rail (B).
- Push each subsequent bus base module into the connection of the previous bus base module (C).

7.4 Snapping on electronics modules

- Working from right to left, place each electronics module vertically on the corresponding bus base module and on the DIN rail until it snaps into place with a click. Make sure that the device plug for the bus base connection is situated above the corresponding socket on the bus base module.

7.5 Inserting supply connector

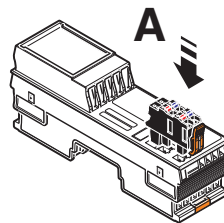


Figure 7 Inserting supply connector

- Place all supply connectors in position and press firmly. Make sure that the respective locking latch snaps in.

8 Connecting the supply voltage and Ethernet

8.1 Connecting the supply voltage



Please note:
The supply voltage of the controller and the left-alignable Ethernet interface must be fed in via a **shared** power supply unit.

- Connect the supply voltage via the Axioline F connector.

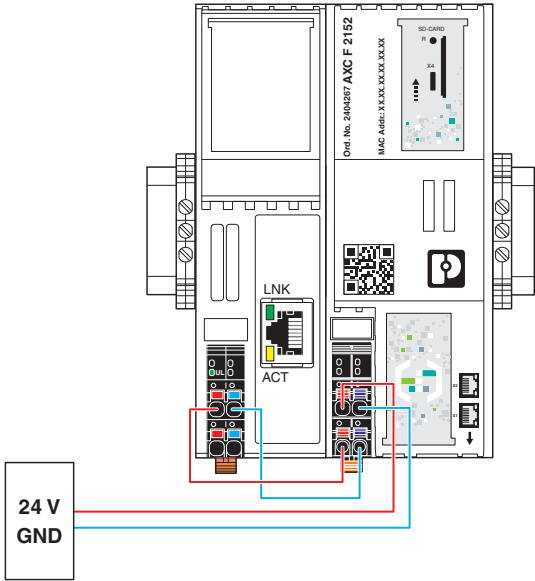


Figure 8 Connecting the supply voltage

Terminal point assignment



Figure 9 Terminal point assignment

Terminal point	Color	Assignment	
Supply voltage input			
a1, a2	Red	24 V DC (U _L)	Supply voltage feed-in (bridged internally)
b1, b2	Blue	GND	Reference potential of the supply voltage (bridged internally)

8.2 Connecting Ethernet

- Connect the Ethernet network to the RJ45 socket.



- Use an Ethernet cable that complies with at least CAT5 of IEEE 802.3.
- Observe the bending radii of the Ethernet cable used.

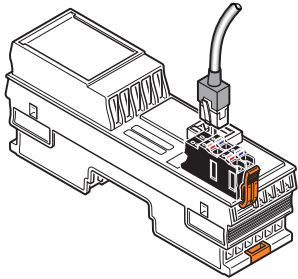


Figure 10 Connecting Ethernet

Pin assignment

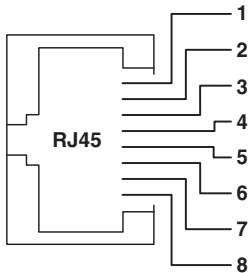


Figure 11 Pin assignment of the Ethernet socket (RJ45)

10Base-T (10 Mbps)/100Base-T (100 Mbps)	
Pin	Assignment
1	TxD + (transmit data +)
2	TxD - (transmit data -)
3	RxD+ (receive data +)
4	Reserved
5	Reserved
6	RxD- (receive data -)
7	Reserved
8	Reserved

1000Base-T (1000 Mbps)	
Pin	Assignment
1	DA+ (bidirectional)
2	DA- (bidirectional)
3	DB+ (bidirectional)
4	DC+ (bidirectional)
5	DC- (bidirectional)
6	DB- (bidirectional)
7	DD+ (bidirectional)
8	DD- (bidirectional)

9 Connection example

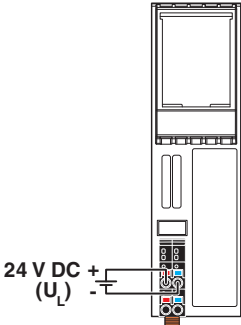


Figure 12 Connection of the cables

10 Application example

With the left-alignable Ethernet interface, you are extending the PLCnext controller by adding another separate network interface. You can thus realize two networks that are independent of each other:

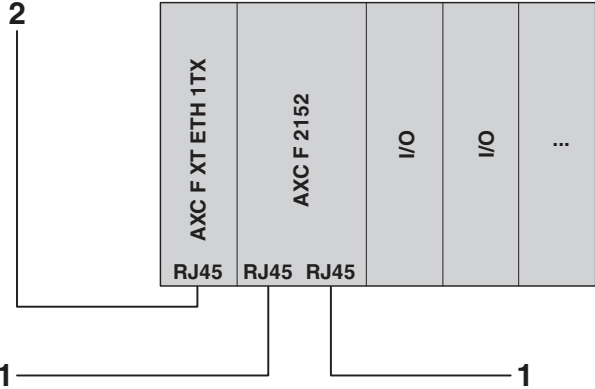


Figure 13 Example application

Key:

- 1 Network 1: Communication with the I/O level, e. g., as a PROFINET controller
- 2 Network 2: Communication with a control system

11 Diagnostics and status indicators

11.1 Diagnostics and status indicators of the left-alignable Ethernet interface

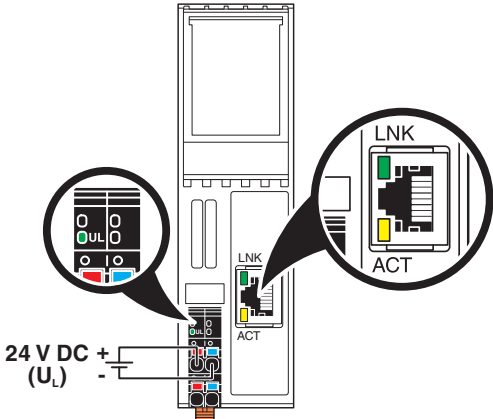


Figure 14 Diagnostics and status indicators of the left-alignable Ethernet interface

Designation	Color	Meaning	State	Description
UL	Green	Communications power	On	Communications power present.
			Off	Communications power not present.
LNK	Green	Link status	On	Connection active
			Off	Connection not active
ACT	Yellow	Activity status	On	Data transmission active
			Off	No data transmission

11.2 Diagnostic indicators of the controller

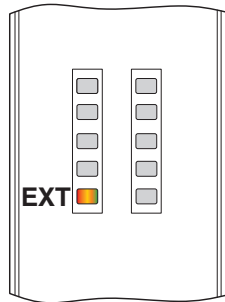


Figure 15 Diagnostic indicators of the controller

The controller has an LED for diagnosing Axioline F extension modules that are aligned to the left.



For information on all other LEDs, please refer to the user manual for the controller you are using.

Designation	Color	Meaning	State	Description
EXT	Red	Left alignment	On	Error at extension module Possible error causes: - Extension module is not supported. - Extension module is not mounted correctly or is defective. - Extension module was disconnected from power during operation or has been removed.
	Yellow		On	Test of the extension module during the boot procedure
	Green		On	Extension module operating without errors