AXL F BK ETH ...

Starting up the AXL F BK ETH ... bus coupler

Application note
106075_en_00

This document generally describes how to start up the AXL F BK ETH ... bus coupler, i.e., independent of any engineering tool.

Product

Description	Type	Order No.
Axioline F bus coupler for Ethernet (including bus base module and connector)	AXL F BK ETH	2688459
Axioline F bus coupler for Ethernet for operation in two separate networks (including bus base module and connector)	AXL F BK ETH NET2	2702177

Documentation

Description	Type
User manual, English: Axioline F: System and installation	UM EN AXL F SYS INST
Data sheet, German, Axioline F bus coupler for Ethernet	DB EN AXL F BK ETH
Data sheet, English, Axioline F bus coupler for Ethernet for operation in two separate networks	DB EN AXL F BK ETH NET2
Quick start guide, English, Handling an Axioline station under Startup+	UM QS EN STARTUP+

ⓘ String "⟹ *Text*" refers to the corresponding section in the module-specific data sheet.

Character "●" indicates operating instructions.

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

PHOENIX CONTACT

INSPIRING INNOVATIONS

1 Creating the station

> ℹ️ Please refer to the following documentation when creating the station:
> – Package slips for the modules used
> – User manual UM EN AXL F SYS INST
> – Data sheets for the modules used

- Create the Axioline F station, consisting of bus coupler and I/O modules.
- Connect Ethernet and the supply voltage to the bus coupler (⟹ *Connecting Ethernet and supply*).
- Connect the supply voltages and the sensors and actuators to the I/O modules.

2 Resetting to the default settings

In the following description, it is assumed that the bus coupler is in the delivery state. If this is not the case, reset the bus coupler to the default settings.

To do so, select one of the following options:

Option 1: rotary coding switch

⟹ *Configuration via rotary coding switch, Resetting the default settings*

- Set the rotary coding switch to position 12C.
- Perform a restart (perform voltage reset or press reset button).
- Set the rotary coding switch to position 00 again.
- Perform a restart (perform voltage reset or press reset button).

Option 2: reset button

⟹ *Reset button, Resetting the default settings*

- Disconnect power to the module.
- Press and hold down the reset button.
- Connect power.
- When the RDY LED lights up green, release the button.

3 Assigning an IP address

To avoid any address conflicts, an invalid IP address (0.0.0.0) is preset by default. IP communication therefore is deactivated.

Before accessing the bus coupler via Ethernet, an IP address must be assigned.

To do so, select one of the following options:

Option 1: BootP

- Assign the IP address via a BootP server (e.g., IP Assign).

Option 2: rotary coding switch

- Assign the IP address via the rotary coding switch (⟹ *Configuration via rotary coding switch*)

The IP address can be changed any time.

> ℹ️ When accessing the bus coupler using a PC, make sure that the IP addresses of the bus coupler and PC are in the same subnet.

4   General settings

An overview of all major settings can be found under "Quick Setup" in the web-based management application.

To access web-based management of the bus coupler, enter the URL with the bus coupler IP address (e.g., http://192.168.100.185) in a browser. This opens the homepage of the bus coupler.

• The basic settings of the bus coupler can easily be made in the web-based management application.
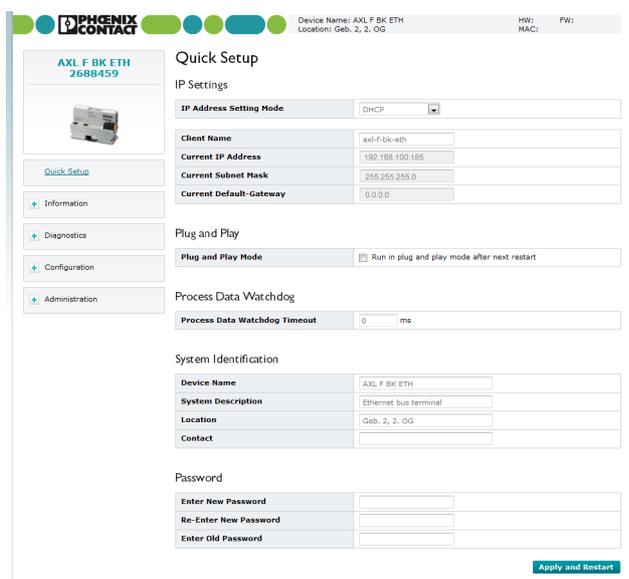

Figure 1   Web-based management, Quick Setup

IP Settings

To change the IP settings, the rotary coding switches must be in position 00.

• Adapt the IP settings.

Plug and Play

⇒ *Startup behavior of the bus coupler, Plug and play mode*

In the bus coupler delivery state, plug and play mode is activated (yellow PP LED is on).

In plug and play mode, the bus coupler reads in the connected I/O modules and stores the configuration in the bus coupler. In this way, the station can be started up without using a higher-level computer.

• Deactivate plug and play mode to change to normal mode.

The reference configuration created is automatically stored when plug and play mode is exited.

Process Data Watchdog

⇒ *Monitoring*

The process data watchdog expects cyclic write access to the process data, and ensures that the I/O station outputs change to the parameterized substitute value behavior in the event of an error (see Section 5).

• Activate the process data watchdog to monitor Ethernet communication.

> **i** If the process data is not yet written cyclically during the startup phase of your controller (e.g., in debug mode), the process data watchdog should remain deactivated (value = "0"). Otherwise, after initial writing of the outputs, the substitute value behavior will become active (red NT LED on) after the timeout has elapsed.

> **i** The timeout value depends on your application. If possible, the value should be high enough for short-term interference in the network not to trigger the watchdog unintentionally.
>
> However, the value should also be low enough for the substitute values of the outputs to become active before there is damage to the application.

System Identification

The system identification (device name, description, installation location, contact) is part of the electronic rating plate.

• As an option: Enter the application-specific identification of the bus coupler.

In addition to the display in web-based management (e.g., header), this information can also be accessed via SNMP (⇒ *Simple Network Management Protocol - SNMP*) and Modbus/TCP or Modbus/UDP (registers 2075 to 2078) (=> *Modbus protocols and registers, Electronic rating plate (2075 ... 2089)*).

Password

• As an option: Enter a password for protection against access.

The password is required for changing the settings via web-based management and via SNMP. By default upon delivery, enter "private" as the default password in the "Enter Old Password" field.

5 Parameterizing Axioline F I/O modules (startup parameterization)

Axioline F I/O modules can be parameterized and therefore flexibly adapted to your application. For example, the measuring range for analog modules or the filter time of the inputs for digital input modules can be selected. For information on the parameters supported by an I/O module, please refer to the corresponding module-specific data sheet.

To parameterize the modules, select one of the following options:

Option 1: Startup+

The parameterization is stored retentively by an I/O module. It is also retained even if the module is operated with a different bus coupler.

- Use the Startup+ startup tool to make the desired parameterization settings.
  To do so, follow the instructions in the
  UM QS EN STARTUP+ quick start guide, Section "Parameterization".

Option 2: PDI channel

⇒ *Access to PDI objects*

The I/O modules manage the parameterization settings in parameter objects. These can be accessed via the PDI channels and are addressed via an object index.

- Integrate a routine in your control program which writes the objects to the I/O modules upon system start using the tunnel method.

i	Using the PDI channel for parameterization has the advantage that the parameterization is automatically executed when exchanging an I/O module (e.g., in the event of a fault). In this case, manual intervention using Startup+ is not required.

i	When using the PDI channel for startup parameterization, the system startup time can be reduced by executing the parameterization only once after deactivating plug and play mode. When plug and play mode is deactivated (normal mode), bit 3 reports in register 7996 whether at least one I/O module needs to be parameterized (e.g., after module exchange). It is sufficient that you execute the parameterization again in this case only and acknowledge with bit 3 in register 2006.

6 Reading and outputting process data

After deactivation of plug and play mode (normal mode) and parameterization of the I/O modules, process data can be exchanged via registers 8000 … 8999 (inputs) and registers 9000 … 9999 (outputs).

i	The current process data assignment of the individual I/O modules to the Modbus registers can easily be determined via web-based management under the "Information, Modbus I/O Table" menu item.

i	Please note that the outputs can only be written when plug and play mode is deactivated.

7 Diagnostics

It is recommended to request the diagnostic registers (from register 7996) together with the IN process data (from register 8000) in one function code. The station status can be monitored in the control program via status register 7996.

In normal mode, this register provides "0000".

In the event of a malfunction, the individual bits provide information on the cause (⇒ *Modbus protocols and registers, Status register (7996)*).

Registers 7997 to 7999 provide detailed information on the local bus status. If one of the bits for I/O messages is set in register 7997, detailed information can be read beginning from register 1800 (⇒ *Modbus protocols and registers, Register for I/O diagnostics (1800 ... 1989)*).

The Axioline F station with the AXL F BK ETH ... bus coupler has now been started up.