

ctrlX I/O

Bus Coupler XB-EC-12

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DC-AE/PAX (TaDo)/(PiaSt)

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1 About this documentation

Editions of this documentation

Edition	Release date	Notes
01	2022-05	ctrlX I/O Bus Coupler XB-EC-12: Version XB-EC-12-V1.2.0
02	2023-02	Version XB-EC-12-V1.4.0
03	2024-11	Version XB-EC-12-V1.6.0

Further information

- See → [ctrlX I/O bus coupler XB-EC-12 data sheet](#)

2 Important information

2.1 Product information

For the latest information on our products, go to → <https://www.boschrexroth.com>.

For current security advisories, please refer to → <https://psirt.bosch.com/security-advisories/>

ctrlX I/O modules use the EtherCAT® technology.

EtherCAT® is a registered trademark and patented technology licensed by the Beckhoff Automation GmbH, Germany.

EtherCAT is an open, internationally standardized standard and developed further by the EtherCAT Technology Group (ETG).

2.2 Firmware versioning

The ctrlX I/O firmware is versioned according to the following naming structure: MAJOR.MINOR.PATCH

- **MAJOR:**
Is increased in case of incompatible changes or function extensions. It is required to download a new version of the ESI device description file.
- **MINOR:**
Downward-compatible functional changes or bugfixes. It can be required to download a new version of the ESI device description file. Please check if this is necessary. The MINOR version number is always integer for released versions. Odd-numbered MINOR version numbers refer to test version which have not finally been released.
- **PATCH:**
Downward-compatible bugfixes. It can be required to download a new version of the ESI device description file. Please check if this is necessary.

2.3 Firmware

Table 1: Default bus coupler versions

Index	Version	Notes
AA1	1.0.0	Update is executed after a voltage reset
AB1	1.2.0	Update is executed automatically when switching to INIT

Index	Version	Notes
AF1	1.4.0	A downgrade to a version smaller than 1.4.0 is not possible. If you need a downgrade, please contact our customer service
N.N.	1.6.0	Only available as FW upate.



Following a firmware update, the version ID deviates from the change ID.

2.4 Firmware update via FoE

▲ WARNING

Risk of injury due to unsafe machine states

The machine has to be in a safe state before updating.

The firmware of the module can be updated via FoE. For new firmware files, go to www.boschrexroth.com/mediadirectory and search for the type code of the module.

A firmware module can be updated with all EtherCAT masters supporting the file download via FoE. The module has to be in the BOOTSTRAP state. Entering a password or a file name is not required.

If the update has been completed successfully, the module is restarted as soon as the module state changes from BOOTSTRAP to another state. The reloaded firmware is started.



Do not disconnect the voltage supply of the module during the file transfer.

Please note that the logic voltage supply is temporarily interrupted for the following modules when completing the firmware update of the bus coupler and a subsequent restart.



If switching to INIT is not possible, disconnect the ctrlX I/O from the power supply and connect it again.



The new firmware version might require an updated description file in the Engineering to use new functions. For details, refer to the release notes. Check whether the latest version of the description file is installed.

2.4.1 ctrlX I/O Engineering

Within the ctrlX I/O Engineering, the required user interface is only displayed for modules supporting a firmware update.

1. ➤ Switch the EtherCAT master of the ctrlX CORE to the "INIT" state.
2. ➤ First change to the active state in the ctrlX I/O Engineering by enabling "Show online data".
 - ➔ This is the requirement to update the firmware. The corresponding user interface tab is only displayed if the requirement is met.
3. ➤ To open the device editor, double-click on the module in the ctrlX I/O Engineering device tree and select the "FoE". tab.
4. ➤ In the "Download" section, select the firmware file (*.EFW) under "Local file name". Ensure that this is the correct file for the module to be updated.
5. ➤ Check that the option "Required state" is active under "Details" and that "BOOTSTRAP" is selected.
6. ➤ Use the "Download" button to start the firmware update.

3 XB-EC-12-V1.6.0

3.1 Resolved defects and modifications

3.1.1 Bug 699222: "Complete Access" to CoE objects incorrect

Description

Access via "Complete Access" to a complete CoE object only worked for the first subindex.

Bugfix

"Complete Access" now works as expected.

4 XB-EC-12-V1.4.0

4.1 Note about the new functions

NOTICE

To use the new features of this version, you must use the latest version of the device description file (revision 00010100(hex)).

Check and update the description file if necessary.

4.2 New functions

4.2.1 Feature 501251: Supporting the DC Reference Clock Master function

Description

The master can now configure the module as Reference Clock Master for subsequent DC slaves.



The XB-EC-12 bus coupler only operates in "SM synchronous" mode.

4.2.2 Feature 607923: Activating the device identification function

Description

It is now possible to write the device ID (configured station alias) to the EEPROM (offset 0x0012) and to read it from there.

5 XB-EC-12-V1.2.0

5.1 Resolved defects and modifications

5.1.1 Bug 388808: Improved noise behavior of the measured values of current and voltage

Bugfix

The mean value filter for the measured values of current and voltage is enabled.

5.1.2 Bug 407376: Cyclic diagnostic message: Overvoltage at UP

Description

If no module is plugged in, the diagnostic message "0x2316 Overcurrent at periphery power supply (UP)" is sporadically generated.

Bugfix

In case no module is plugged in , the diagnostic message is not generated anymore.

5.1.3 Bug 442157: Improving the EtherCAT communication via LVDS

Bugfix

The LVDS data transfer stability was increased to avoid incorrectly transferred packages.

5.1.4 Bug 459708: XB-EC-12 Incorrect mailbox configuration when reading the CoE object

Description

The Sync Manager types in object 0x1C00 are reversed. If an EtherCAT master stack directly reads this from the device and does not generate it from an ESI device description file, a different WKC behavior is expected. This resulted in an error.

Bugfix

The Sync Manager types in the 0x1C00 object have been correctly.

5.1.5 Bug 470118: Automatic restart after a firmware update

Description

A voltage cycle is required following a firmware update. The restart cannot be executed automatically after an update.

Bugfix

If V1.2.0 or newer is loaded and if thus the firmware is updated to a new version, the module automatically restarts when changing from BOOTSTRAP to INIT and the new firmware is loaded. The communication to this module and to the following modules is temporarily interrupted.

A manual PowerCycle is required for the V1.0.0 update.



6 Service and support

Our worldwide service network provides an optimized and efficient support. Our experts provide you with advice and assistance. You can contact us **24/7**.

Service Germany

Our technology-oriented Competence Center in Lohr, Germany, is responsible for all your service-related queries for electric drive and controls.

Contact the **Service Hotline** and **Service Helpdesk** under:

Phone: **+49 9352 40 5060**

Fax: **+49 9352 18 4941**

Email: [↗ service.svc@boschrexroth.de](mailto:service.svc@boschrexroth.de)

Internet: [↗ http://www.boschrexroth.com](http://www.boschrexroth.com)

Additional information on service, repair (e.g. delivery addresses) and training can be found on our internet sites.

Service worldwide

Outside Germany, please contact your local service office first. For hotline numbers, refer to the sales office addresses on the internet.

Preparing information

To be able to help you more quickly and efficiently, please have the following information ready:

- Detailed description of malfunction and circumstances
- Type plate specifications of the affected products, in particular type codes and serial numbers
- Your contact data (phone and fax number as well as your e-mail address)

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