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TBEN-L|TBEN-S|TBEC-L Firmware Update

Technical Support Document

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1 About These Instructions

These instructions describe the firmware update for block I/O modules of the TBEN-S and TBEN-L product families via FDT/DTM or respectively via the web server as well as the firmware update for block I/O modules of the TBEC-L product family via TwinCAT or respectively via CODESYS. Read these instructions carefully before updating the firmware. This is to avoid possible damage to property. Retain the instructions for future use during the service life of the product. If the product is passed on, pass on these instructions as well.

1.1 Target groups

These instructions are aimed at qualified personal and must be carefully read by anyone operating and maintaining the device.

1.2 Explanation of symbols used

The following symbols are used in these instructions:



DANGER

DANGER indicates a dangerous situation with high risk of death or severe injury if not avoided.



WARNING

WARNING indicates a dangerous situation with medium risk of death or severe injury if not avoided.



CAUTION

CAUTION indicates a dangerous situation of medium risk which may result in minor or moderate injury if not avoided.



NOTICE

NOTICE indicates a situation which may lead to property damage if not avoided.



NOTE

NOTE indicates tips, recommendations and useful information on specific actions and facts. The notes simplify your work and help you to avoid additional work.



CALL TO ACTION

This symbol denotes actions that the user must carry out.



RESULTS OF ACTION

This symbol denotes relevant results of actions.

1.3 Other documents

Besides this document the following material can be found on the Internet at www.turck.com:

- Data sheet
- Instructions for use
- EU Declaration of Conformity (current version)
- Approvals

1.4 Feedback about these instructions

We make every effort to ensure that these instructions are as informative and as clear as possible. If you have any suggestions for improving the design or if some information is missing in the document, please send your suggestions to techdoc@turck.com.

2 TBEN – Updating the Firmware

The firmware of the device can be updated as follows:

- Via FDT/DTM
- Via the web server (depending on the device firmware version)

2.1 Updating the firmware via web server



NOTICE

Interruption of the power supply during the firmware update

Risk of device damage due to faulty firmware update

- ▶ Do not interrupt the power supply during the firmware update.
- ▶ During the firmware update do not reset the power supply.

- ▶ Open the web server.
- ▶ Log on to the device as administrator. The default password for the web server is "password".
- ▶ Click **Firmware** → **SELECT FIRMWARE FILE**
- ▶ Select the new firmware file and load it via **Open**.

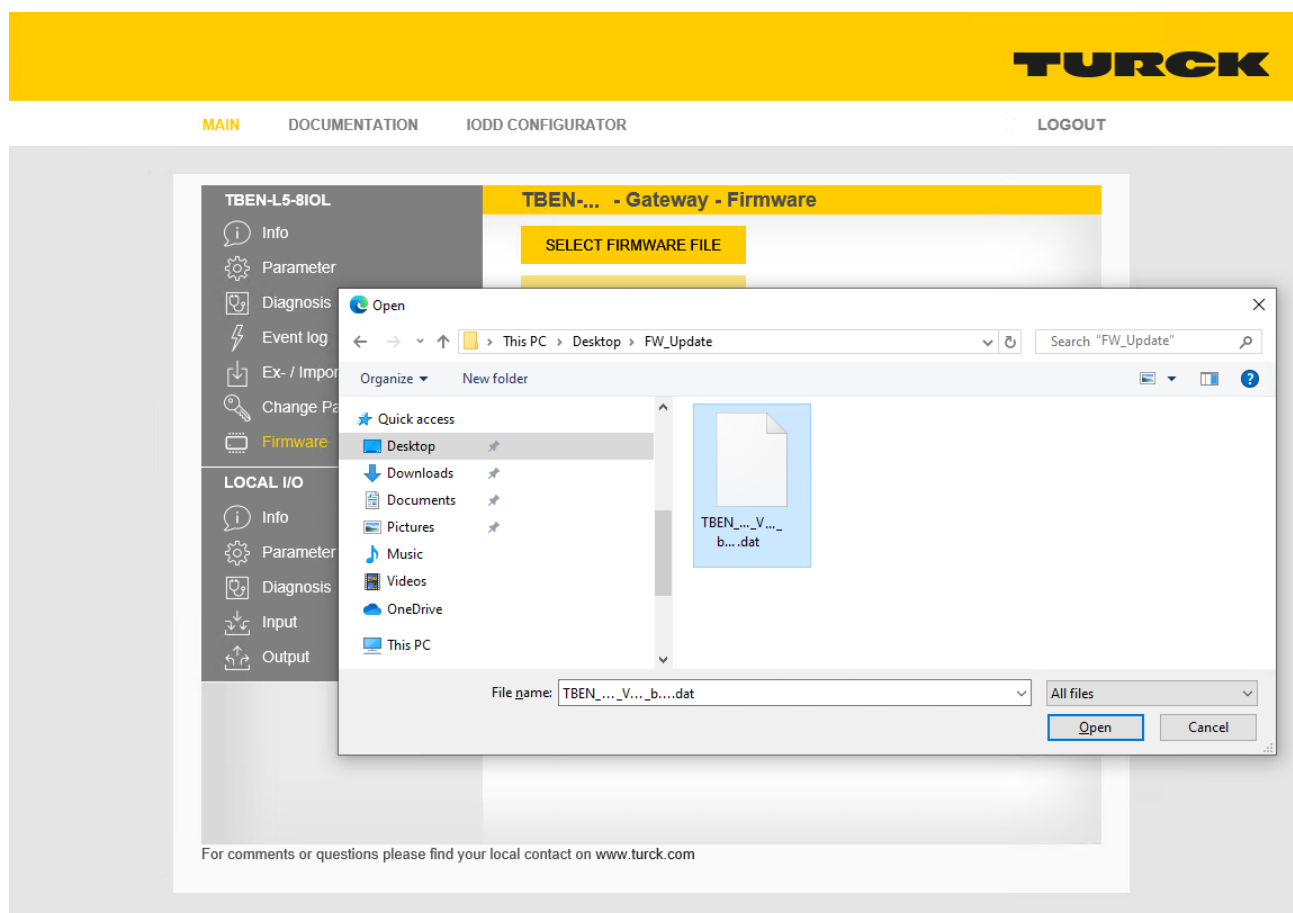


Fig. 1: Webserver – Selecting the firmware file

- Click **Update Firmware** and start the update.

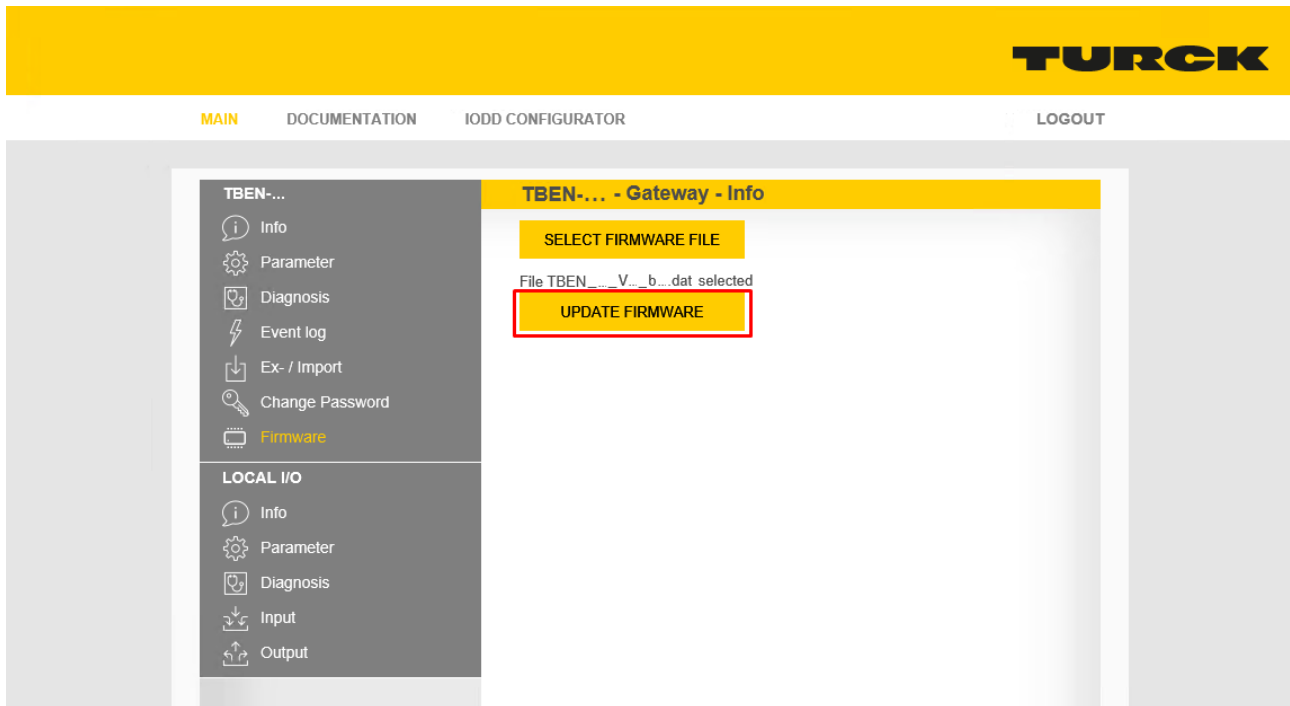


Fig. 2: Webserver – Starting the firmware update

- ⇒ The progress of the firmware update is displayed.

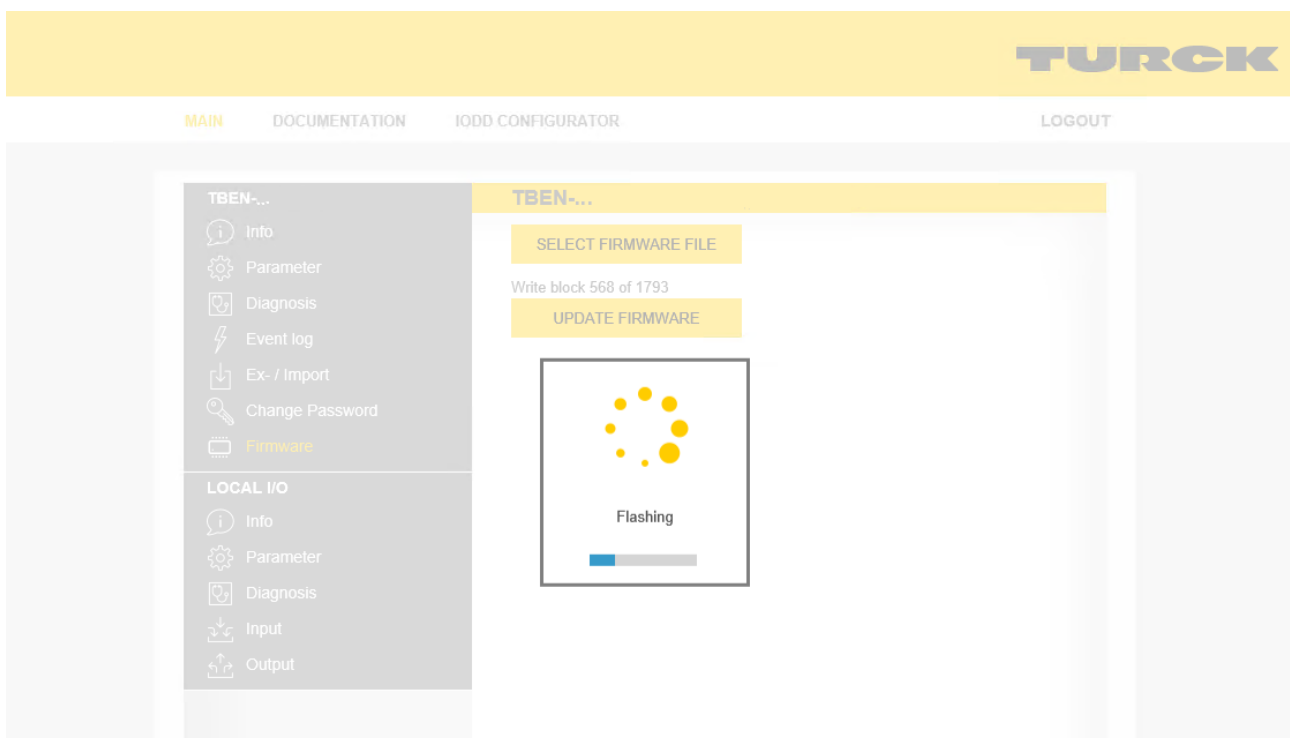


Fig. 3: Webserver – Firmware update running

- Restart the device after the update process has been completed.

2.2 Updating the firmware via FDT/DTM

The firmware of the device can be updated via FDT/DTM. The PACTware FDT frame application, the DTM for the device and the current firmware are available as downloads free of charge from www.turck.com.

Example: Updating the Firmware with the PACTware FDT Frame Application

- ▶ Launch PACTware.
- ▶ Right-click **Host PC** → **Add device**.

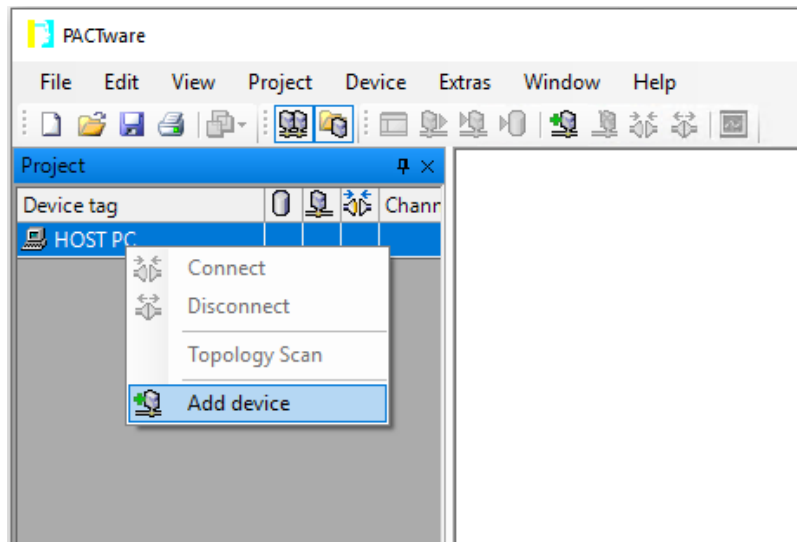


Fig. 4: Adding the device in PACTware

- ▶ Select **BL Service Ethernet** and confirm with **OK**.

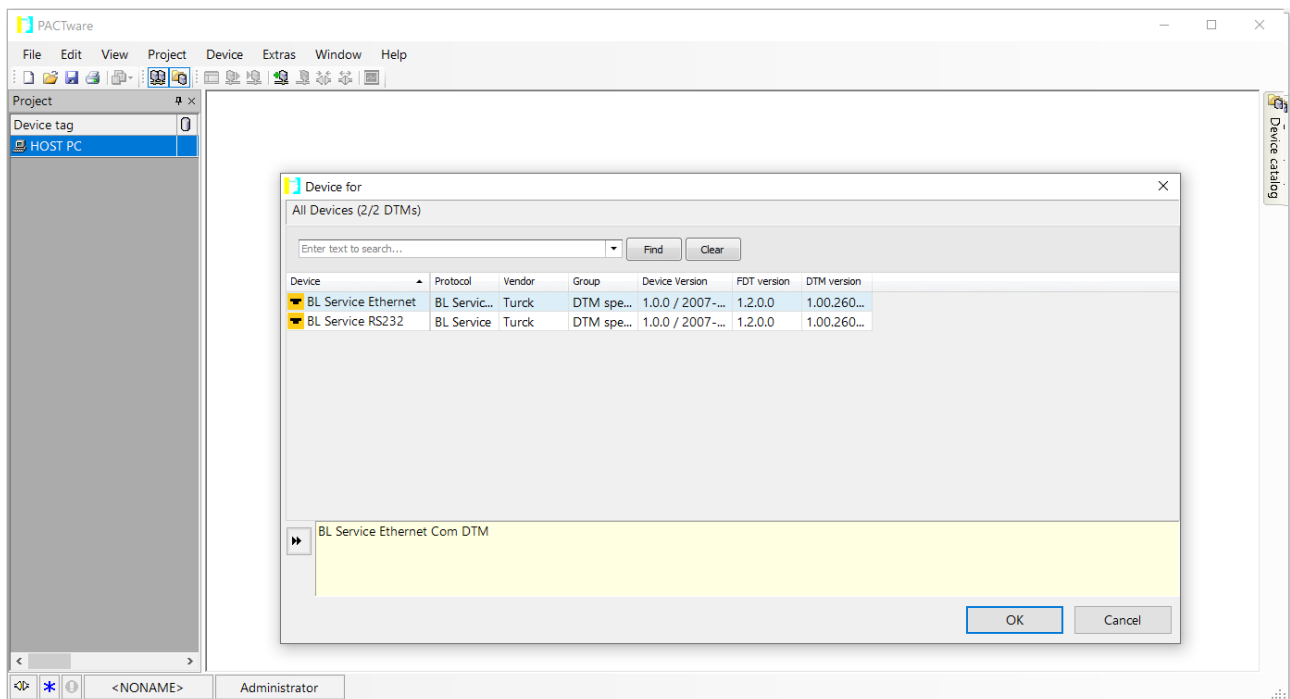


Fig. 5: Selecting the Ethernet interface

- ▶ Double-click the connected device.
- ⇒ PACTware opens the busaddress management.

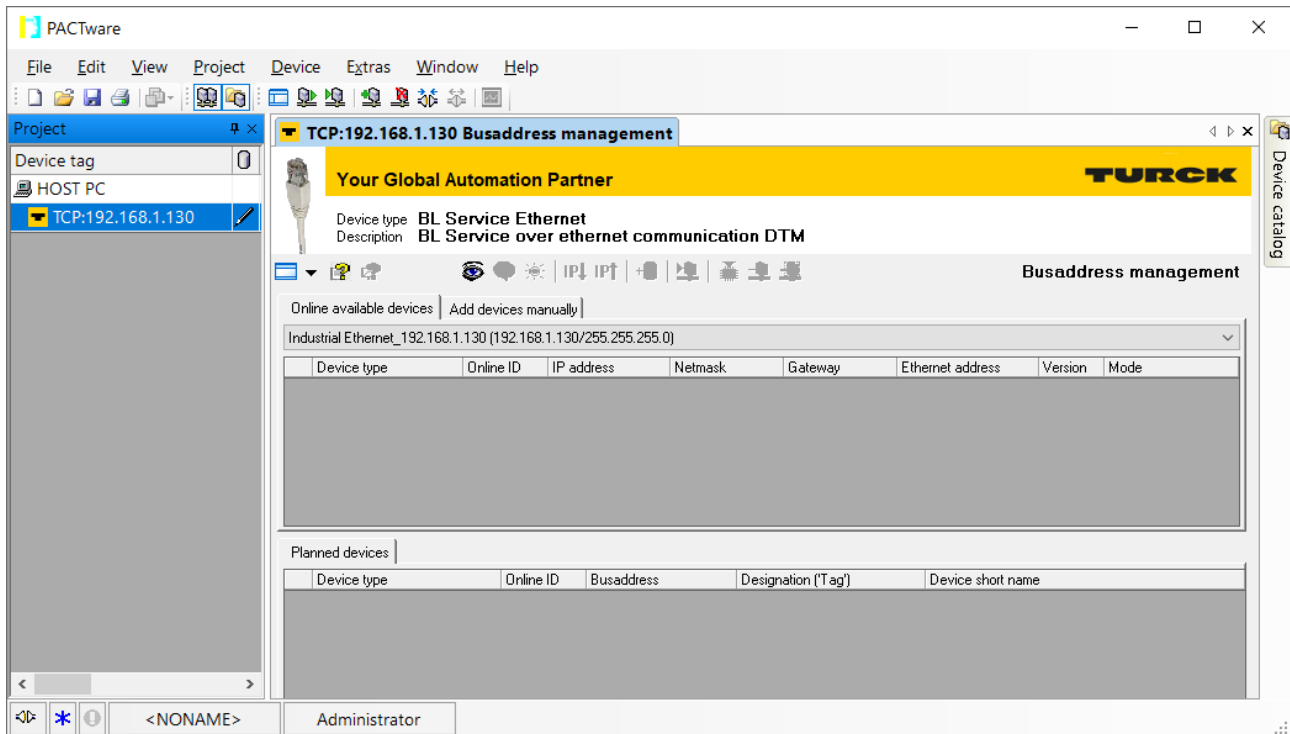


Fig. 6: Opening the busaddress management

- ▶ Search for connected Ethernet devices: Click the **Search** icon.
- ▶ Select the required device.

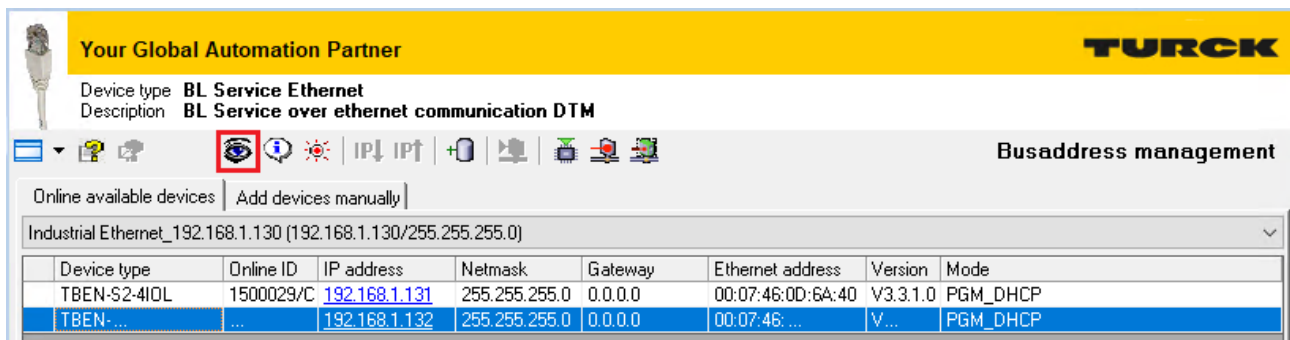


Fig. 7: Selecting the device

- Click **Firmware Download** to start the firmware update.

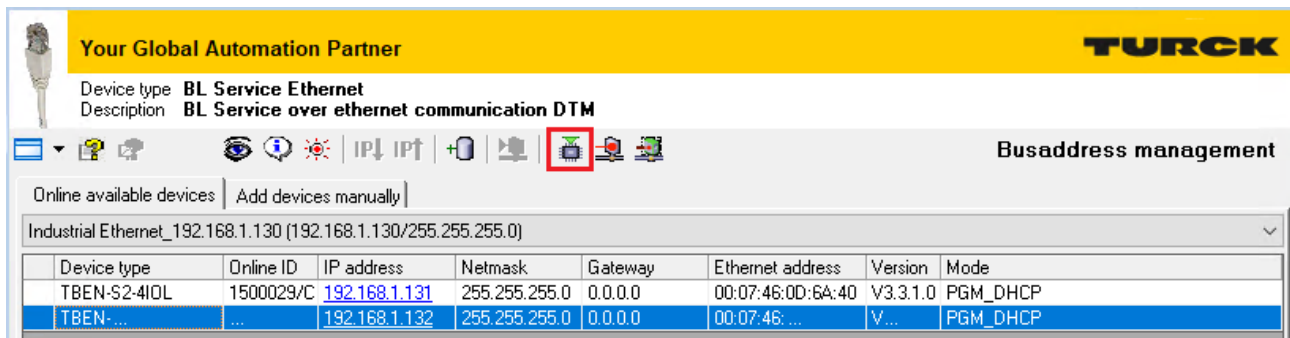


Fig. 8: Starting the firmware update

- Select the storage location and confirm with **OK**.
- ⇒ PACTware shows the progress of the firmware update with a green bar at the bottom of the screen.

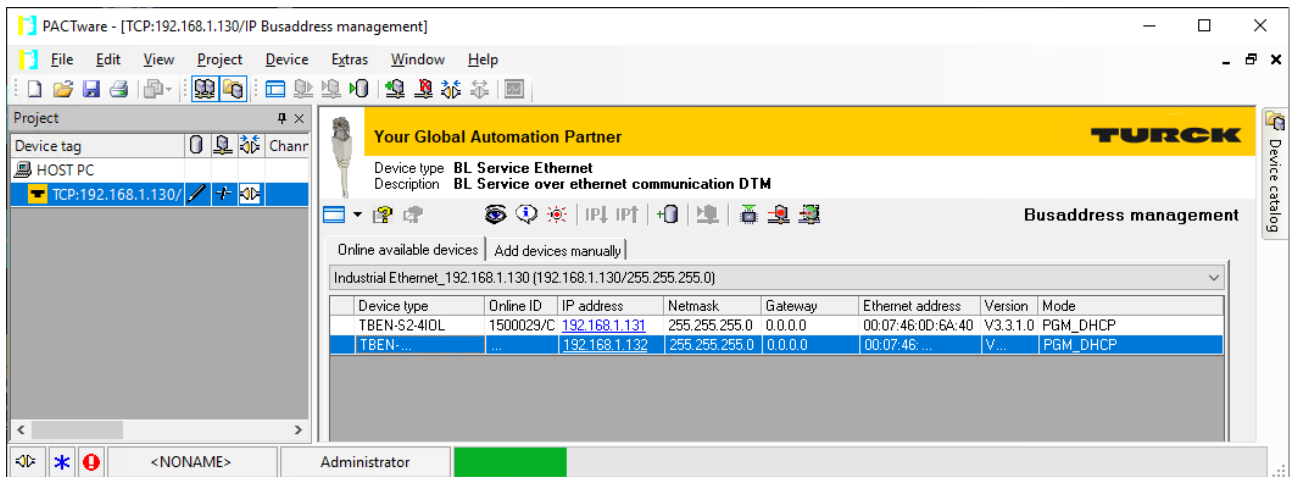


Fig. 9: Firmware update in progress

3 TBEC – Updating the Firmware

The firmware of the device can be updated as follows:

- Via TwinCAT
- Via CODESYS

The firmware update is performed according to ETG specification ETG.5003.0002. The FoE protocol (File access over EtherCAT) is used for the firmware update of the device. The device must be in "Bootstrap" status for the update process.

The current firmware version of the device can be read from CoE index 0x100A "Manufacturer Software Version", the current hardware version from CoE index 0x1009 "Manufacturer Hardware Version".



NOTICE

Interruption of data connection and power supply during firmware update

Risk of device damage due to faulty firmware update

- Do not interrupt the data connection and the power supply during the firmware update.

3.1 Updating the firmware via TwinCAT

Downloading the firmware file

The firmware file for the device is available free of charge for download from www.turck.com.

- ▶ In the project tree double-click **Box 1 (TBEC-LL-...)**.
- ▶ Click **Online** tab → **State Machine** → **Bootstrap**.
- ▶ Click **File Access over EtherCAT** → **Download...**

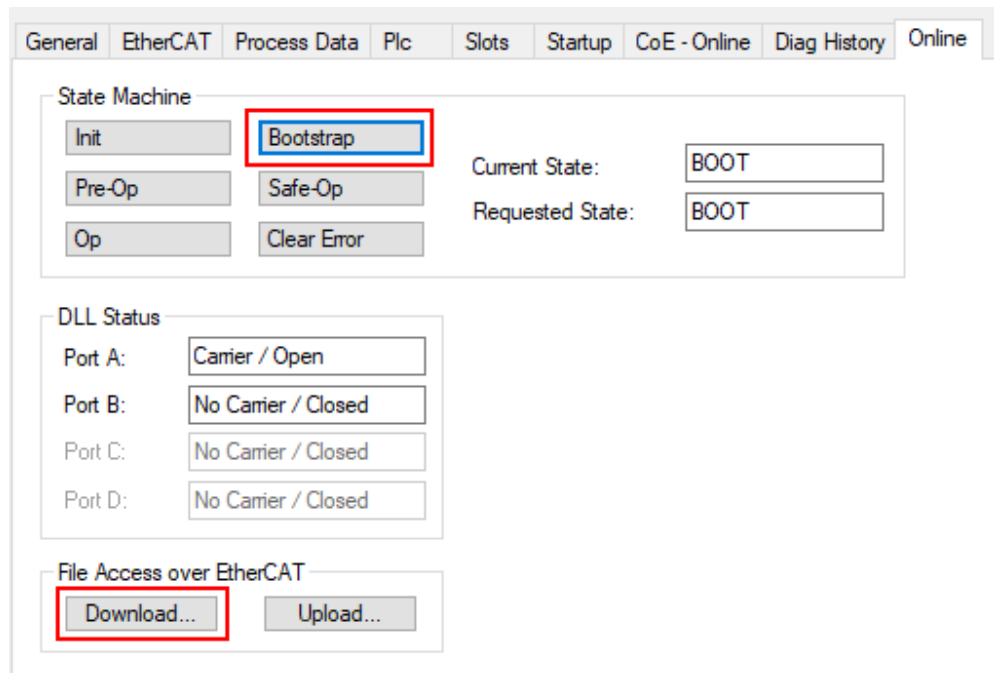


Fig. 10: Starting the firmware update

- ▶ Select the firmware file in the new window.
- ▶ Confirm with **OK**.
- ⇒ The firmware file is loaded in the flash memory of the device.
- ⇒ The STAT LED flickers green.
- ⇒ TwinCAT displays a progress bar at the bottom of the screen to indicate the download of the firmware file.

Carrying out an update

- ▶ Click **Online** tab → **State Machine** → **Init**.
- ⇒ The update is carried out.
- ⇒ The INFO LED is orange during the firmware update.
- ⇒ If the update is completed the device switches to normal operating mode.

3.2 Updating the firmware via CODESYS

Prerequisites

- The device is logged in online.
- The **Expert settings** are activated on the **General** tab.
- The option **Restart slaves automatically** on the **General** tab is deactivated.

Downloading the firmware file

The firmware file for the device is available free of charge for download from www.turck.com.

- ▶ In the project tree double-click **TBEC_LL_...** (TBEC-LL-...).
- ▶ Click **Online** tab → **State Machine** → **Bootstrap**.
- ▶ Click **File access over EtherCAT** → **Download...**
- ▶ In the new window select the firmware file and click → **Open**.
- ⇒ The firmware file is loaded in the flash memory of the device.
- ⇒ The STAT LED flickers green.
- ⇒ CODESYS displays a progress bar at the bottom of the screen to indicate the download of the firmware file.

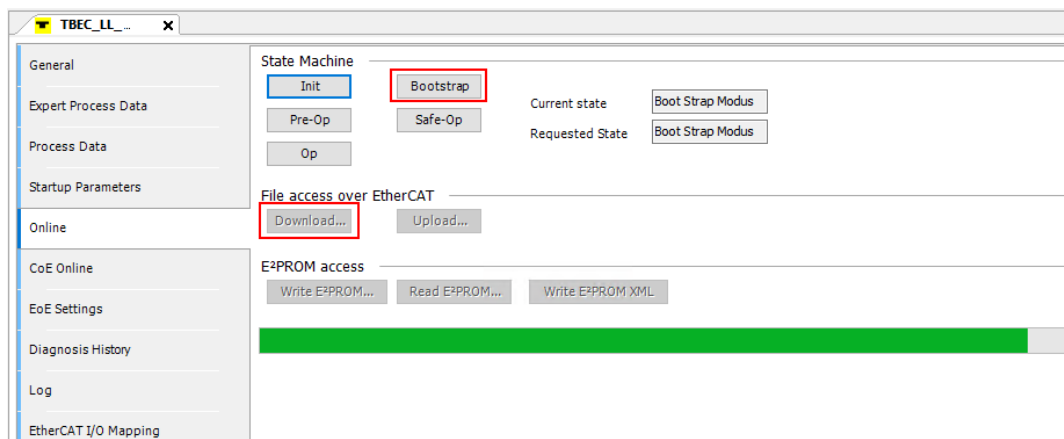


Fig. 11: Download of the firmware file

Carrying out an update

- ▶ Click **Online** tab → **State Machine** → **Init**.
- ⇒ The update is carried out.
- ⇒ The INFO LED is orange during the firmware update.
- ⇒ If the update is completed the device switches to normal operating mode.
- ▶ Activate the option **Restart slaves automatically** on the **General** tab.

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