

# IL CO BK(-XC)-PAC - FW UPDATE

## Firmware update for the IL CO BK-PAC/ IL CO BK-XC-PAC Inline bus coupler for CANopen®



Application note  
107148\_en\_00

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## 1 Description

This document describes how you can update the firmware of a bus coupler for CANopen® according to CiA 302-2.

### 1.1 Software used

Version 1.2.3 of the CANopen® UpdateManager software tool from emtas is used to update the firmware.

For the system requirements, please refer to the documentation for the software used.

### 1.2 Hardware requirements

The bus coupler must be connected to your PC/laptop via a suitable CAN interface.

The PCAN-USB CAN interface from PEAK has been used here.

## Table of contents

1	Description .....	1
1.1	Software used.....	1
1.2	Hardware requirements .....	1
2	Ordering data for the bus couplers .....	2
3	Installing the UpdateManager.....	2
4	Starting the UpdateManager .....	3
5	Update.....	4
6	Following firmware update.....	8

## 2 Ordering data for the bus couplers

Description	Type	Order No.
Inline, bus coupler, CANopen®, MINI COMBICON, 500 kbps/2 Mbps transmission speed in the local bus, IP20 protection, including network connector, Inline connector, and marking field	IL CO BK-PAC	2702230
Inline XC, bus coupler, CANopen®, MINI COMBICON, version for extreme conditions, 500 kbps/2 Mbps transmission speed in the local bus, IP20 protection, including network connector, Inline connector, and marking field	IL CO BK-XC-PAC	2702635



Make sure you always use the latest documentation.  
It can be downloaded at [phoenixcontact.net/products](http://phoenixcontact.net/products).

## 3 Installing the UpdateManager

The latest version of the CANopen® UpdateManager can be downloaded from [www.emtas.de](http://www.emtas.de) under “# Download”.



You must have a valid license in order to use the UpdateManager.

- Download the UpdateManager tool.
- Double-click on the “exe” file.

setup-emas-coum-1\_2\_3.exe 05.08.2015 12:53 Anwendung 18.110 KB

Figure 1 “exe” file for the UpdateManager

- Read and accept the license terms and conditions.
- Follow the installation instructions.
- Select your CAN interface. Confirm your selection with “Next”.

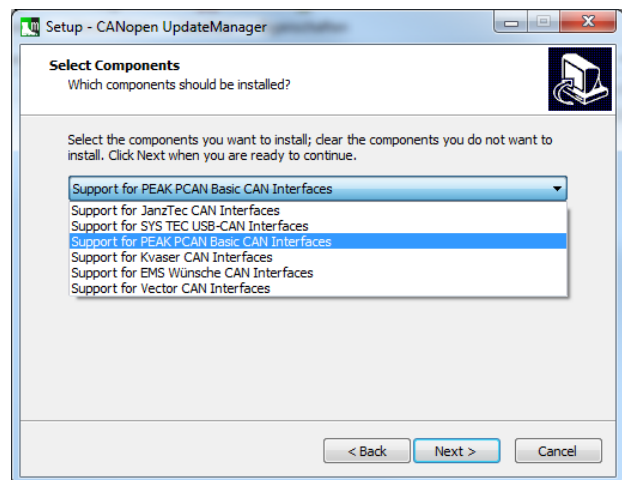


Figure 2 Selecting support for the CAN interface

- Complete the installation process.

## 4 Starting the UpdateManager

- Start the UpdateManager.

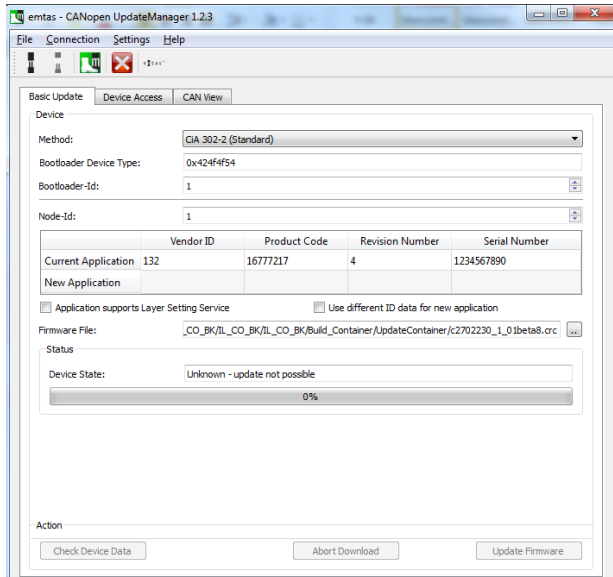


Figure 3 UpdateManager interface

- Select the “Settings, Options” menu item.
- Under “General”, change the setting for “State change timeout” to 20000 ms.



The update takes place in the boot loader. In order to perform the firmware update, there are two changes in state:

- Before the firmware update: from the application to the boot loader.
- After the firmware update: from the boot loader to the application.

Specify the timeout time for both changes in state here. It must be at least 20 seconds.

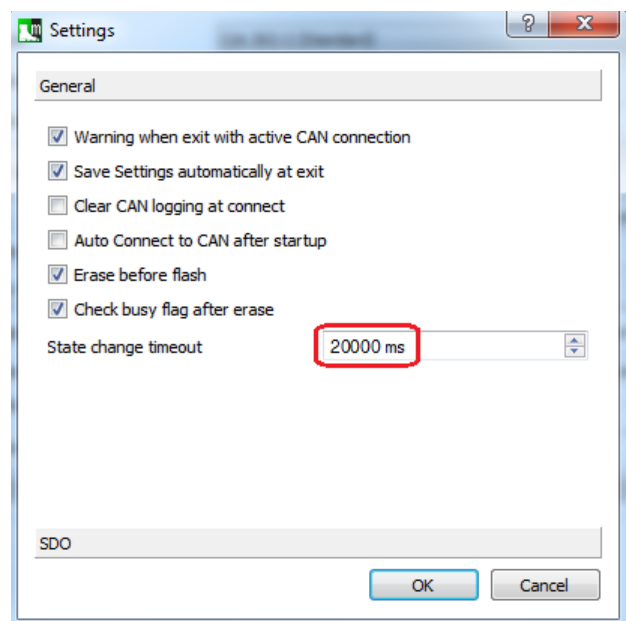


Figure 4 “Settings, Options, General”

- Under “SDO”, change the setting for “SDO Timeout for Flash access (ms)” to 30000 or higher.



After upload, time is needed for saving to the Flash. Specify the timeout time for saving here. It must be at least 30 seconds.

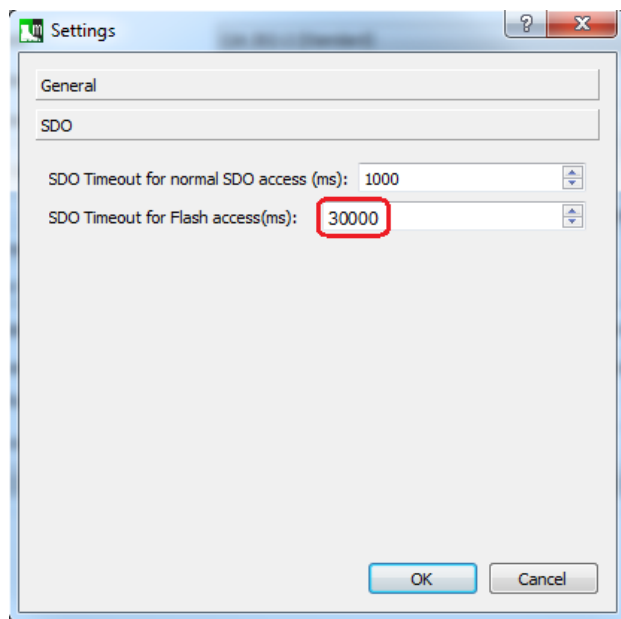


Figure 5 “Settings, Options, SDO”

## 5 Update

You can now get started with the actual update.

- Under “Bootloader-Id” and “Node-Id”, enter the device address that you set on the bus coupler via the DIP switches.
- Select the update file under “Firmware File”.



The firmware file can be downloaded at [phoenix-contact.net/products](http://phoenix-contact.net/products).

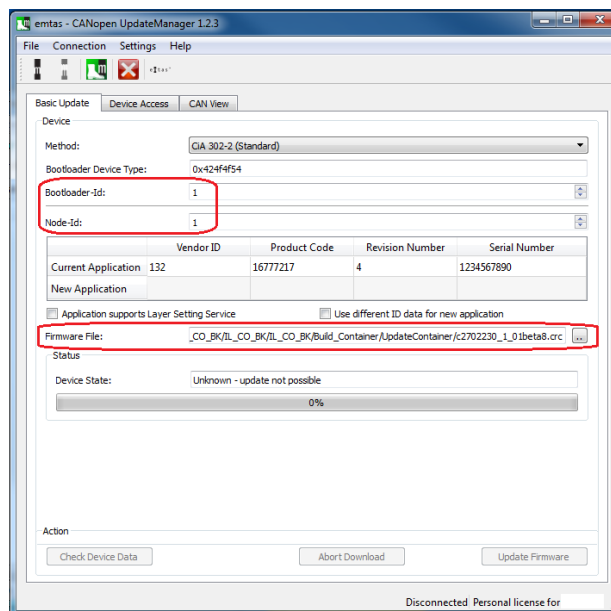


Figure 6 “Basic Update”: settings

- Select the “Connection, CAN Interface Settings” menu item.
- Specify the settings for your CAN connection.



Select a fixed baud rate.  
Do **not** select Autobaud.  
When Autobaud is selected, the CAN transceiver is in passive mode. The first few telegrams are lost until the baud rate is detected. This can lead to problems.

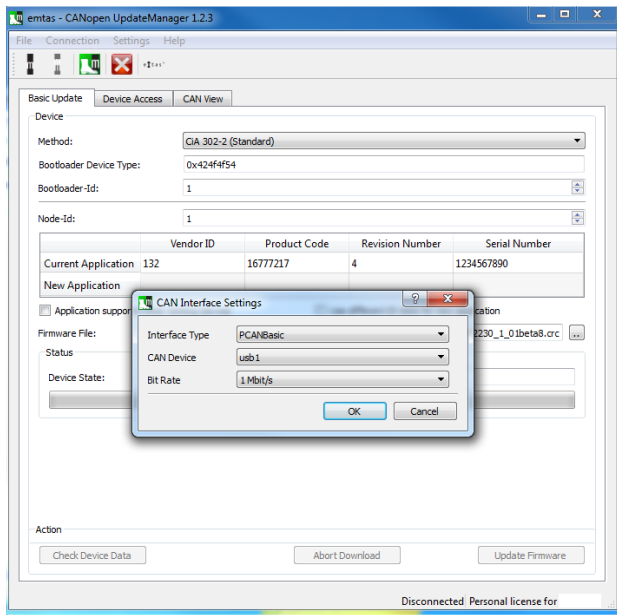


Figure 7 “Connection, CAN Interface Settings”

- Confirm your selection with “OK”.

- Connect the CAN bus by clicking on the “Connect” icon.

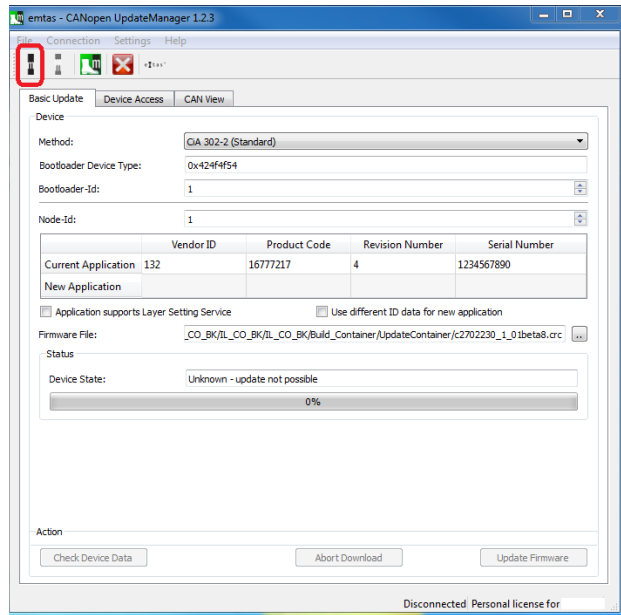


Figure 8 Connecting the CAN bus

- Confirmation of the transmission speed is provided in the footer of the interface.

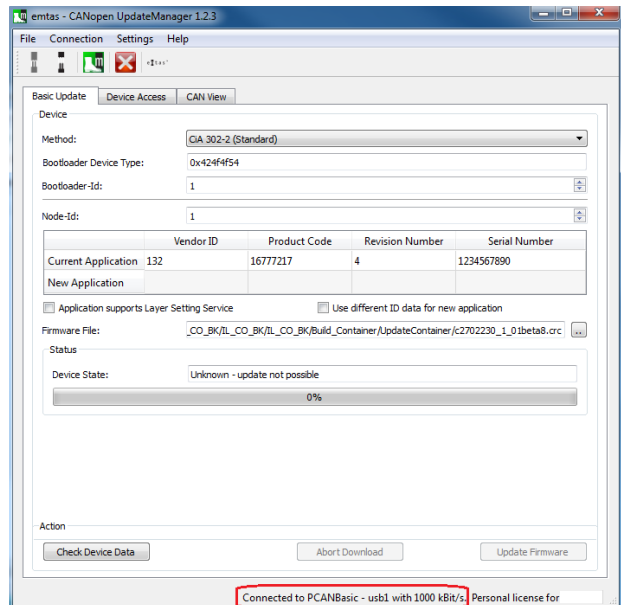


Figure 9 Transmission speed

- To view the status of the bus coupler, click on the “Check Device Data” button.

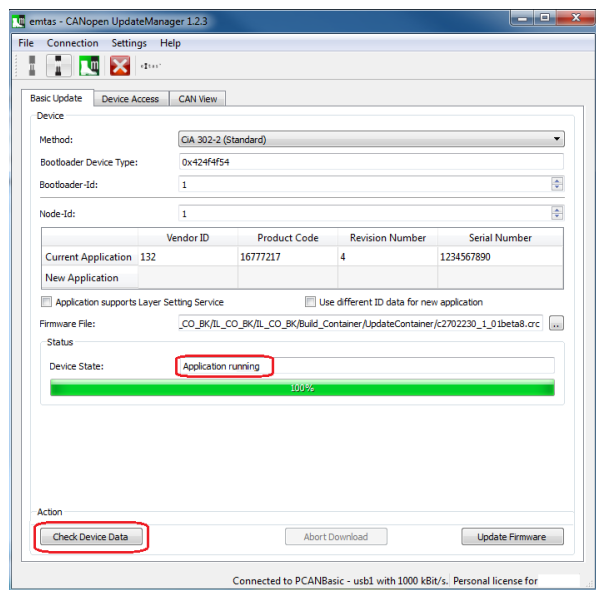


Figure 10 Status of the bus coupler

You can execute the update when the bus coupler is in “Bootloader running” or “Application running” status.

- To upload the firmware file, click on the “Update Firmware” button.

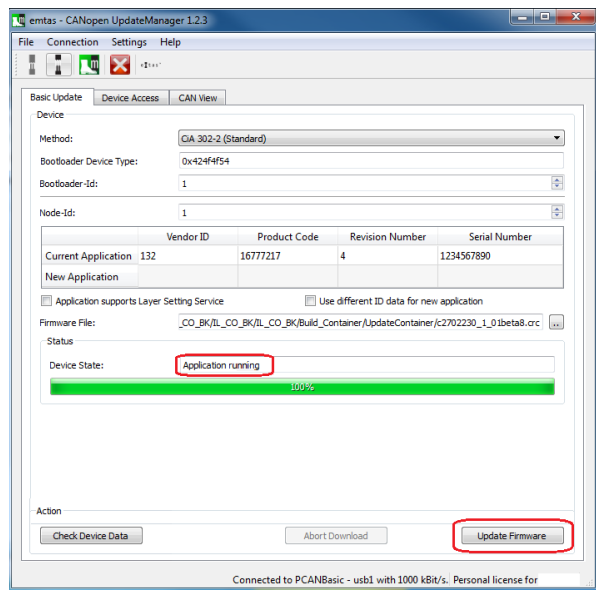


Figure 11 Starting the firmware update

Once uploaded, the firmware is automatically stored on the bus coupler. The bus coupler then starts with the new firmware.

Successful upload is indicated under “Device State”.

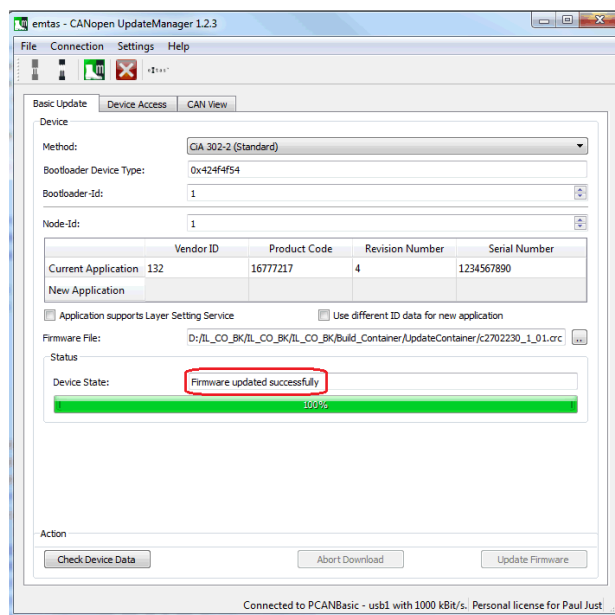


Figure 12 Status of the bus coupler: Firmware updated successfully

## Messages

During the update process, various messages may be displayed. Rectify the causes and restart the update process.

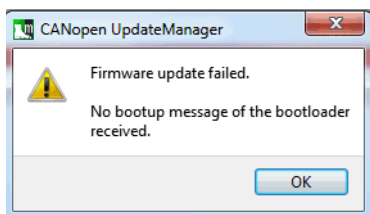


Figure 13 Firmware update failed

**Cause** The bus coupler was unable to switch to the “Bootloader running” state within the specified time.

**Remedy** Increase the time for this state change. See Figure 4 on page 3.

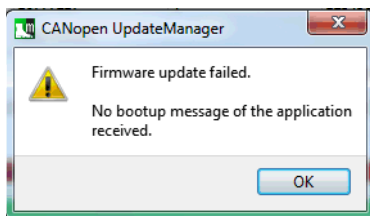


Figure 14 Firmware update failed

**Cause** The bus coupler was unable to switch to the “Application running” state within the specified time.

**Remedy** Increase the time for this state change. See Figure 4 on page 3.

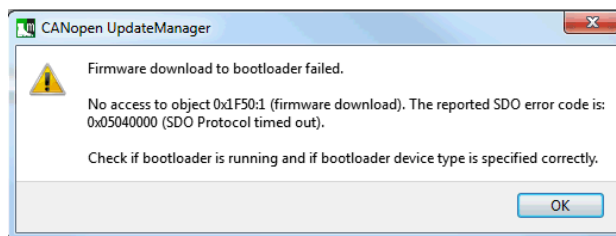


Figure 15 Firmware download to bootloader failed

**Cause** Timeout time for accessing the boot loader has expired.

**Remedy** Increase the time for access. See Figure 5 on page 4.

## 6 Following firmware update

After updating the firmware, you can read the firmware version via CAN object 100A<sub>hex</sub>.

- Load the EDS file via the “File, Load EDS” menu.



The EDS file is required in order to display all supported objects.

If you do not have the latest EDS file for the bus coupler on your PC/laptop, save it to a directory of your choice.

The EDS file can be downloaded at [phoenixcontact.net/products](http://phoenixcontact.net/products).

- Switch to the “Device Access” tab.
- Use the internal command “SDO read” to read the objects. To do so, click on the “Read value” button.

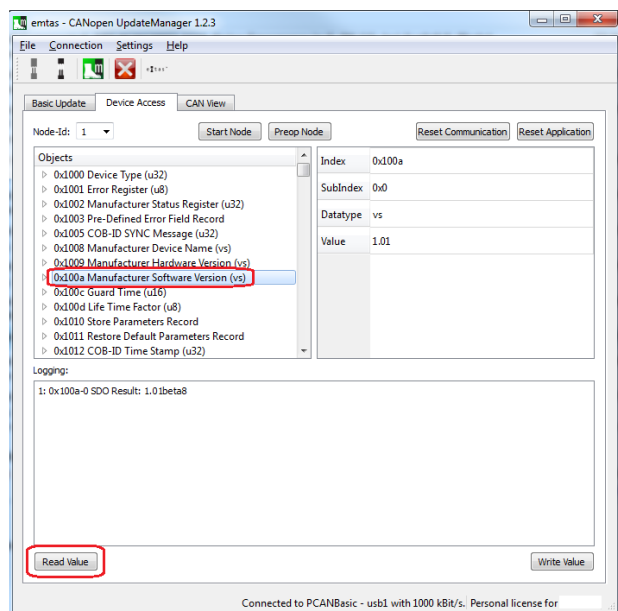


Figure 16 “Device Access”: all supported objects are displayed

You have successfully performed the firmware update.



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