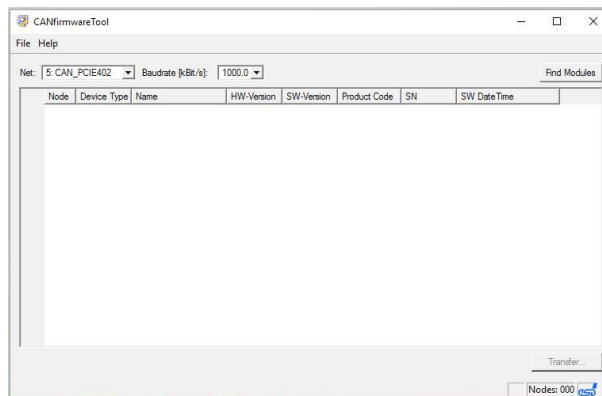




CANfirmwareTool

Upload Tool to Update the Firmware



Manual

to Product C.3005.02



NOTE

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esd electronics gmbh
Vahrenwalder Str. 207
30165 Hannover
Germany

Phone: +49-511-372 98-0
Fax: +49-511-372 98-68
E-Mail: info@esd.eu
Internet: www.esd.eu



This manual contains important information and instructions on safe and efficient handling of the CANfirmwareTool. Carefully read this manual before using CANfirmwareTool and follow the instructions.
The manual is a product component, please retain it for future use.

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Document History

The changes in the document listed below affect changes in the hardware as well as changes in the description of the facts, only.

Rev.	Chapter	Changes versus previous version	Date
1.0	-	First English manual	2017-04-26

Technical details are subject to change without further notice.

Classification of Warning Messages and Safety Instructions

This manual contains noticeable descriptions, warning messages and safety instructions, which you must follow to avoid personal injuries or death and property damage.

NOTICE

Notice statements are used to notify people on hazards that could result in things other than personal injury, like property damage.



NOTICE

This NOTICE statement contains the general mandatory sign and gives information that must be heeded and complied with for a safe use.

INFORMATION



INFORMATION

Notes to point out something important or useful.

Typographical Conventions

Throughout this manual the following typographical conventions are used to distinguish technical terms.

Convention	Example
File and path names	<code>setup.exe</code>
Variable names	<i>Count</i>

Number Representation

All numbers in this document are base 10 unless designated otherwise. Hexadecimal numbers have a prefix of 0x. For example, 42 is represented as 0x2A in hexadecimal.

Abbreviations

API	Application Programming Interface
CAN	Controller Area Network
CPU	Central Processing Unit
CiA	CAN in Automation
HW	Hardware
I/O	Input/Output
n.a.	not applicable
OS	Operating System
SDK	Software Development Kit

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1. Overview

This manual contains a short instruction for the usage of the CANfirmwareTool by esd.

1.1 Introduction

CANfirmwareTool is a CAN tool for easy updating esd firmware (update) as well as installing older firmware versions (downgrade) on your CAN-CBX-IO module by esd.

To simplify the description of the processes only the term update is used in the following description.

1.2 System Requirements

- Windows XP or newer
- 512 MB RAM
- 25 MB free HD hard drive space
- esd CAN hardware and driver



INFORMATION

A CAN network needs at least two CAN devices!

1.3 Installation and Program Call

The CANfirmwareTool consists of the two files:

- CANfirmdown.exe
- qt-mt333.dll

Both files have to be stored in the same directory.

The firmware has a file name with the ending ".mhx" and can be stored in any directory.



INFORMATION

If needed, please contact our Support-Team (support@esd.eu) for a version of the CANfirmwareTool and the needed .mhx file.

2. Elements of the Program Window

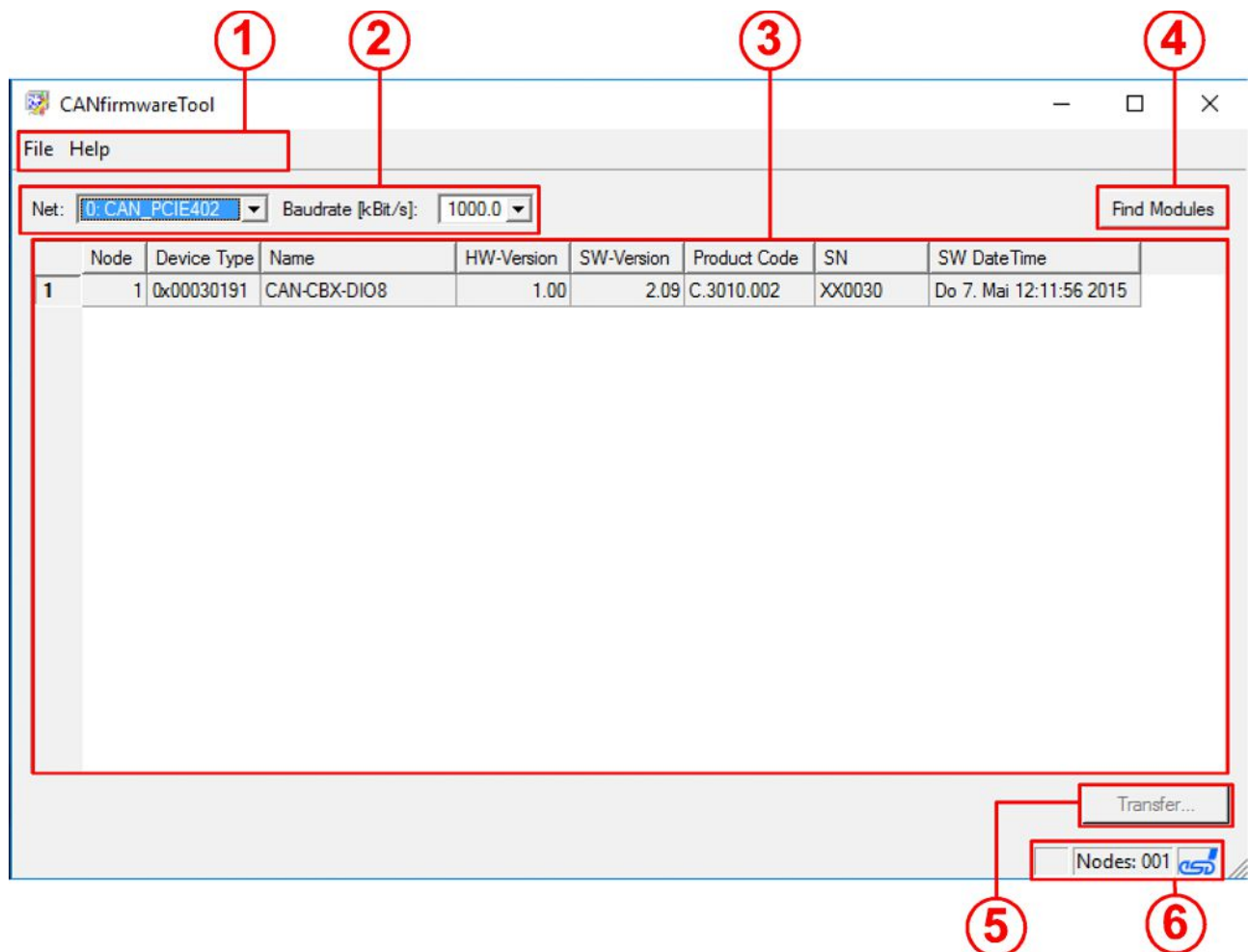


Figure 1: Program window CANfirmwareTool (example CAN-CBX-DIO8)

Elements of the program window:

①	<i>Menu bar</i>	The menu bar contains the main menu with the menu items <i>File</i> and <i>Help</i> (see page 8).
②	<i>Net / Baud rate</i>	Via the drop-down menu <i>Net:</i> the net number can be selected and via <i>Baudrate:</i> the baud rate (see page 8)
③	<i>Display window</i>	The display window contains a list of the detected modules with their properties as <i>Device Type</i> , <i>Software-Version</i> , etc.. (See chapter „Display Window“, page 9).
④	<i>Button Find Modules</i>	Button to start the search of the connected modules. (See chapter „Find Modules“, page 9)
⑤	<i>Button Download</i>	Via this button the update with the selected software has to be started.
⑥	<i>Status bar</i>	The status bar indicates the number of the detected CAN-nodes.

2.1 Description of the Elements

2.1.1 Menu Bar

The menu bar contains the menu items *File* and *Help*.

File

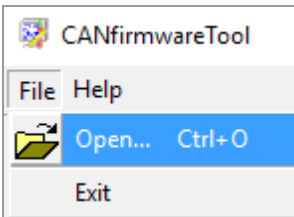


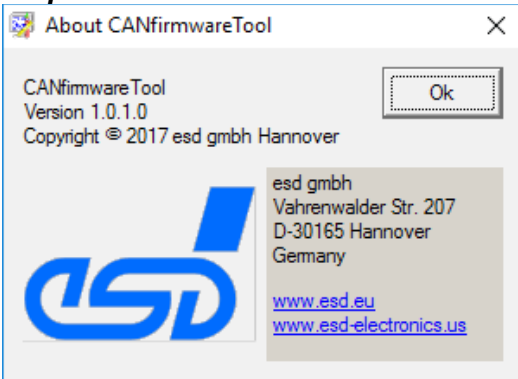
Figure 2: Menu item *File*

Clicking the menu item *File* opens a drop-down-menu with the commands

Open to choose the file, that shall be used for the update (also via the key combination Ctrl+O)

Exit to quit the program CANfirmwareTool.

Help

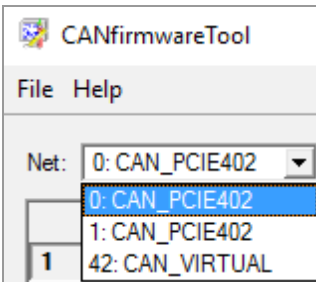


Opens the information window *About CANfirmwareTool*, on the left, which apart from contact data of **esd** also contains information about the current program version of CANfirmwareTool. Click the *OK* button to close the window.

Figure 3: Menu item *Help*

2.1.2 Select Net Number and Baud Rate

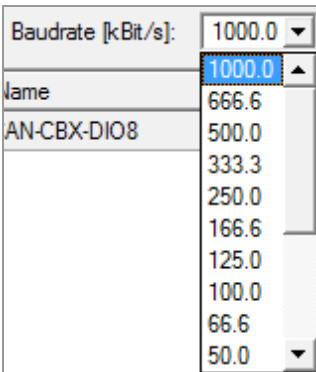
Net:



Select the net number of your CAN net in the program window via the pull-down menu *Net*.

Figure 4: Select net number (example)

Baudrate:



Set the baud rate via the pull-down menu *Baudrate*.

Figure 5: Select baud rate

2.1.3 Find Modules

With the button *Find Modules* (top right in the program window) the search for modules in the selected net can be started.

The detected modules are listed in the display window as described in the chapter above.

2.1.4 Display Window

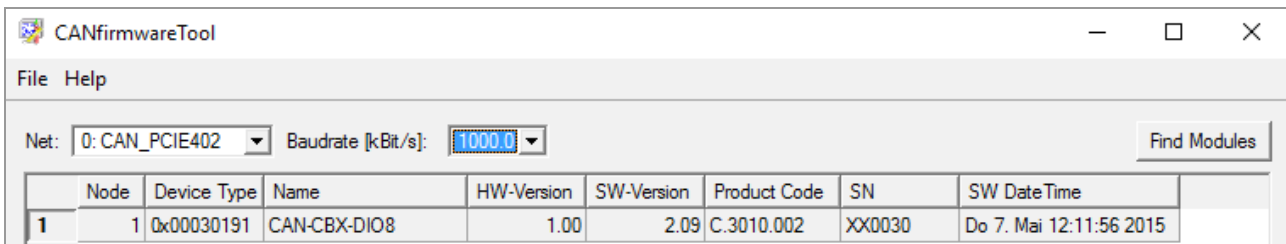


Figure 6: Display window (example: CAN-CBX-DIO8)

After successful search (via button *Find Modules*) the Display Window contains a list of the detected modules with their properties. As an example Figure 5 shows a detected CAN-CBX-DIO8 module.

Property	Description	Example
<i>Node</i>	Net number	1
<i>Device Type</i>	Device type	0x0003 0191
<i>Name</i>	Name of the module	CAN-CBX-DIO8
<i>HW-Version</i>	Hardware version	1.00
<i>SW-Version</i>	Software version	2.09
<i>Product Code</i>	esd order number	C.3010.02
<i>SN</i>	Serial number	XX0030
<i>SW Date Time</i>	Date and time of firmware release	Do.7.Mai 12:11:56 2015

3. Loading Software

NOTICE
 During software update process no other CAN-Bus frames are allowed on the bus!
 The device might become inoperable if other frames are transmitted and has to be send back to esd for factory firmware update.

3.1 Preparing the CAN Bus

1. Remove all other devices from the CAN-bus.
2. Take care that the wiring of the CAN-Bus is correct. (two terminators, etc.)

3.2 Software Preparation

3. Start the software via file `CANfirmwareTool.exe`
4. Select the net number in the pull-down menu *Net:*. (see Figure 4)
5. Select the baud rate in the pull-down menu *Baudrate:*. (see Figure 5)
6. Click on the button *Find Modules*.
 After a short period the detected modules are shown in the table in the display window (see Figure 6).
7. Choose the module you want to update in the table by clicking on it.

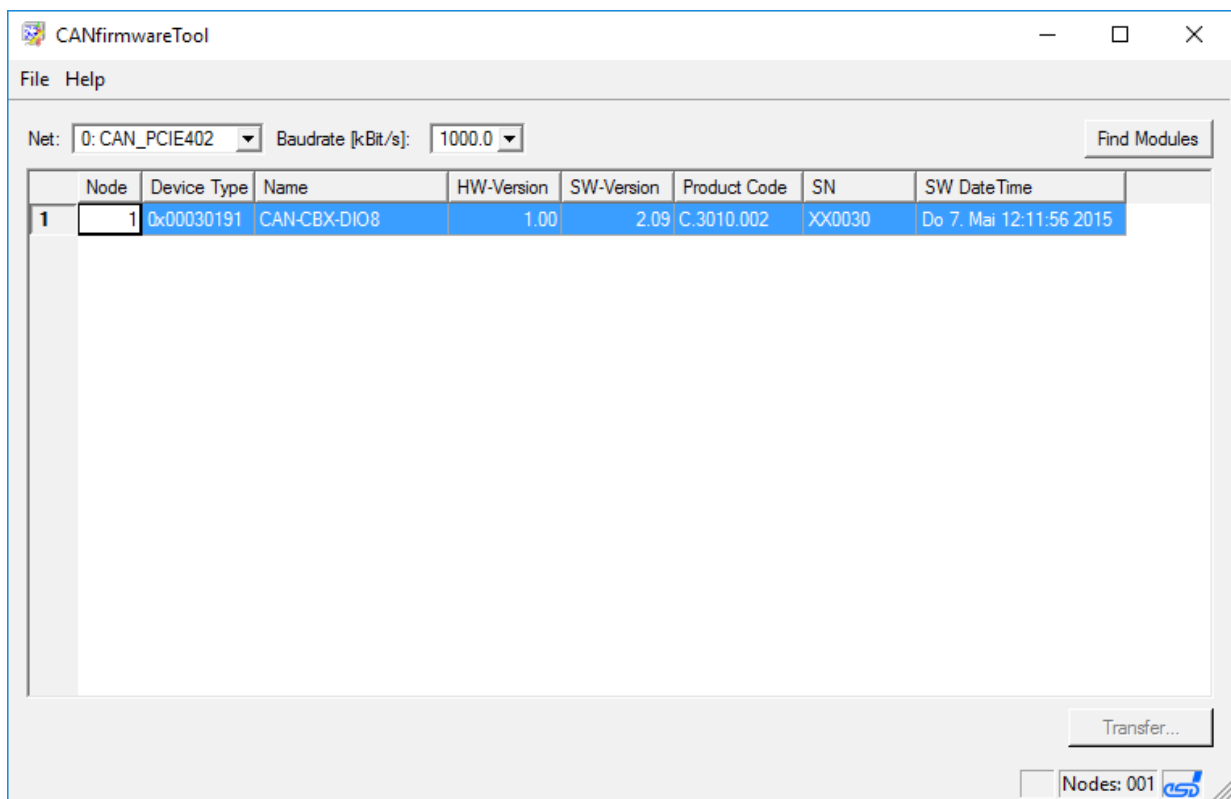


Figure 7: Detected Modules

- Click on the menu item *File* of the main menu and then choose the menu item *Open*. The window *Choose a file* opens. Here you can select the file which shall be sent to the module. (The files have the extension *.mhx*)

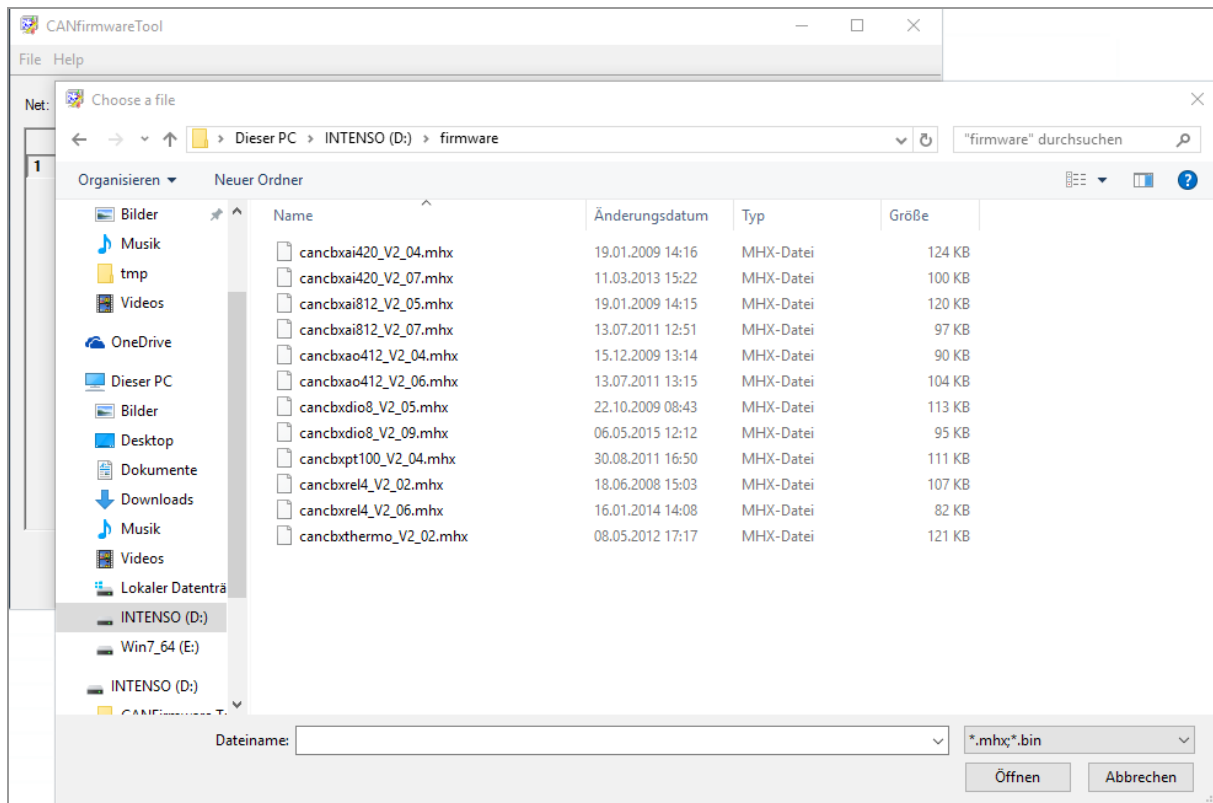


Figure 8: Firmware selection

- Select the file with a click on it in the table. Confirm the selection by clicking on the *Öffnen (Open)* button.

3.3 Start the Update



NOTICE

During software update process no other CAN-Bus frames are allowed on the bus! The device might become inoperable if other frames are transmitted and has to be send back to esd for factory firmware update.



NOTICE

Do not interrupt the update process!

10. Click on the button *Transfer*.

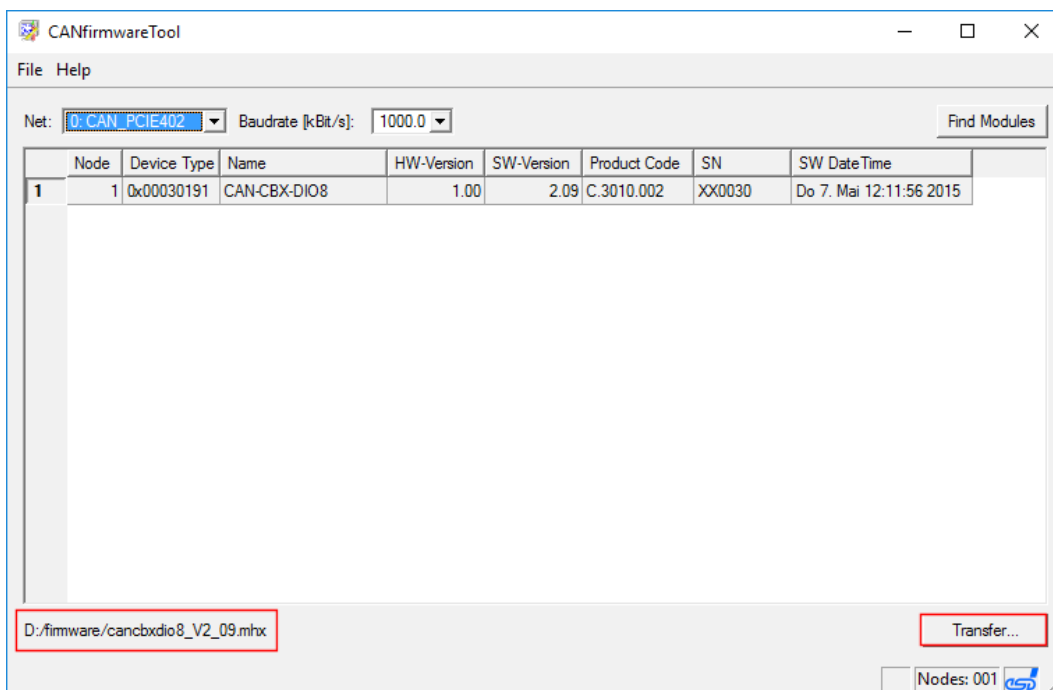


Figure 9: Start firmware transfer

A message box is opened.

11. Check the selected firmware file and the node number again in the message box.

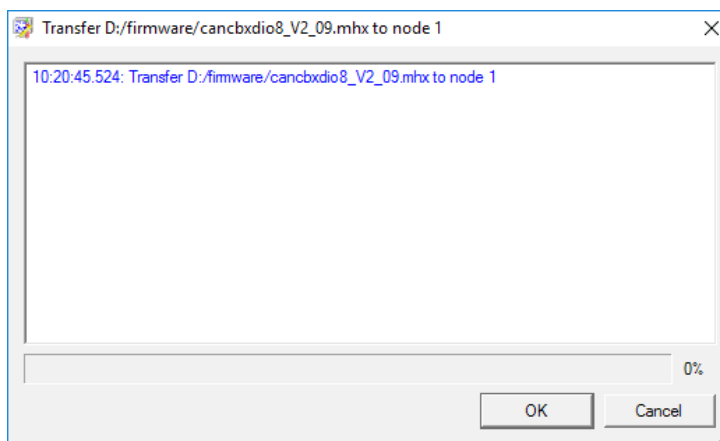


Figure 10: Firmware transfer

12. If the selection of firmware file and the node number are correct, you can start the transfer process. Otherwise click the button *Cancel* and select the correct file and node number.
13. Start the transfer process by clicking the button *OK*.

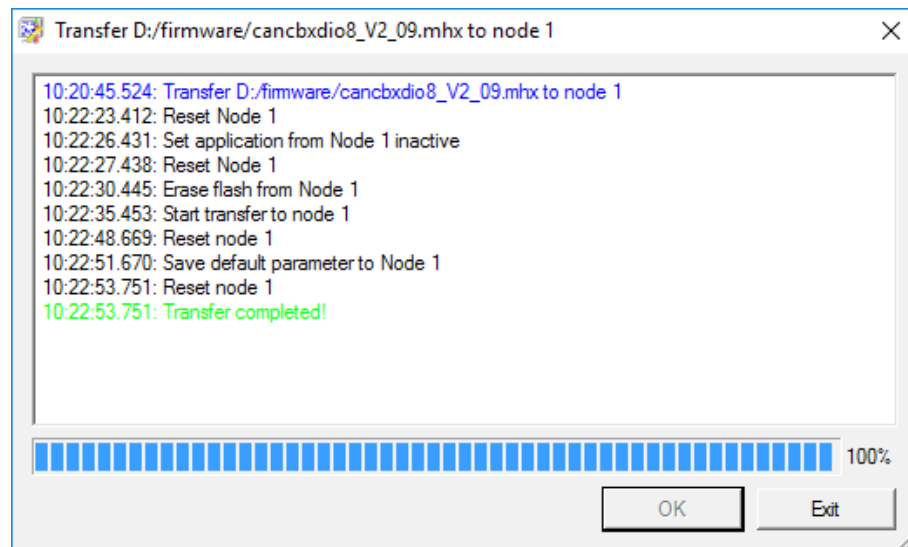


Figure 11: Transfer progress

The current step of the progress is displayed and the progress bar shows the progress in percent. If 100% are reached, the transfer is completed.

The duration of the update process depends on the baud rate and the size of the firmware file (e.g. 40 to 50 s at a CAN baud rate of 1Mbaud).

3.4 Automatic Update Process

14. During the update process the following steps will be executed automatically, as shown in Figure 11. No user interaction is necessary!

Reset node
Set application from node inactive
Reset node
Erase flash from node
Start Download to node
Reset node
Save default parameter to node
Reset node

3.5 Finish Transfer Process

15. Wait for the message *Transfer completed!* in the message window.
16. Click on *Exit* button to close the program window.
17. To verify the update process click again on the button *Find Modules*.
 The updated data of the module are displayed now and you can check the parameters of the module.

4. Order Information

The program CANfirmwareTool and the CANfirmwareTool manual are only available on request. Please contact our sales team: sales@esd.eu for further information.