PCAN-Router FD

User Manual

Relevant Products

Product Name	Model	Part Number
PCAN-Router FD	2 D-Sub connectors	IPEH-002214 from SN 10000
PCAN-Router FD	Screw terminal block (Phoenix)	IPEH-002215 from SN 1000

Imprint

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Document version 3.1.0 (2023-06-15)

Contents

1 Introduction

The PCAN-Router FD allows the connection to two CAN FD or CAN buses. Based on a ARM Cortex M4F microcontroller, the module‘s behavior and the data routing between both CAN FD channels is freely programmable. In particular, the module allows the conversion from CAN to CAN FD or vice versa. This makes it easy to accomplish the integration of CAN FD applications into existing CAN 2.0 networks.

Using the programming library and the GNU compiler for C and C++, a firmware is created and then transferred to the module via CAN. On delivery, the PCAN-Router FD is provided with a demo firmware. The corresponding source code is included as example in the scope of supply.

The module is installed in an aluminum profile casing, and is shipped in versions with two D-Sub connectors or a screw terminal block.

1.1 Properties at a Glance

- NXP LPC4078 microcontroller (ARM Cortex M4 with FPU, 120 MHz)
- On-chip 4 kByte EEPROM
- 8 MByte SPI Flash
- Two High-speed CAN channels (ISO 11898-2)
  - Comply with CAN specifications 2.0 A/B and FD
  - CAN FD support for ISO and Non-ISO standards
  - CAN FD bit rates for the data field (64 bytes max.) from 40 kbit/s up to 12 Mbit/s
  - CAN bit rates from 40 kbit/s up to 1 Mbit/s
  - NXP TJA1043T CAN transceiver with wake-up
- CAN termination can be activated through solder jumpers, separately for each CAN channel
- Connections via two 9-pin D-Sub connectors or one 10-pole screw terminal block (Phoenix)
- RS-232 connector for serial data transfer
- I/O connection:
  - One digital input (Low-active)
  - One digital output (Low-side switch, max. 600 mA)
- 2 additional digital inputs alternatively to RS-232 (Low-active)
- Status signaling with two 2-color LEDs
- Aluminum casing, optional with DIN rail fixing option available
- Voltage supply from 8 to 30 V
- Extended operating temperature range from -40 to +85 °C (-40 to +185 °F)
- New firmware can be loaded via CAN interface

1.2 Scope of Supply

- PCAN-Router FD in aluminum casing
- IPEH-002215: Mating connector Phoenix Contact MC 1.5/10-ST-3.81

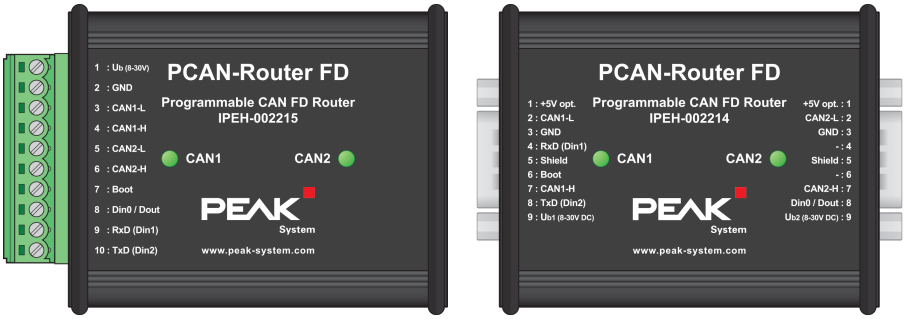
Download

- Windows development package with:
  - GCC ARM Embedded
  - Flash program
  - Programming examples
- Manual in PDF format

1.3 Prerequisites for Operation

- Power supply in the range of 8 to 30 V DC
- For uploading a new firmware via CAN:
  - CAN interface of the PCAN series for the computer (e.g. PCAN-USB)
  - Operating system Windows 11 (x64/ARM64), 10 (x86/x64)

2 Connectors and Operating Elements



PCAN-Router FD with 10 connection poles or
2 x 9-pin D-Sub connectors and 2 status LEDs

The following connections can be used depending on the version:

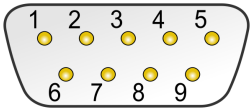
- 10-pole screw terminal block (IPEH-002215)
- 2 x 9-pin D-Sub connectors (m) (IPEH-002214)
- I/O pin: digital output, digital input
- RS-232 interface for serial data transmission;
  alternatively 2 x digital inputs via hardware configuration
  (see section 3.3 *Two Additional Digital Inputs*)
- Boot input for activation of the CAN bootloader for firmware upload
  (see chapter 6 *Firmware Upload*)

2.1 D-Sub Connectors

The two D-Sub connectors (IPEH-002215) are used for the CAN FD channels CAN1 and CAN2. The CAN lines (CAN-High, CAN-Low) are laid out corresponding to the CiA® 106 specification.

The power supply of the PCAN-Router FD can be done via both D-Sub connectors. The supply connections U_{b1} and U_{b2} are connected internally in a non-reactive configuration. This means that also different power sources can be connected.

With the D-Sub connector CAN1, the bootloader for the firmware upload can be additionally activated via pin 6. The channel CAN1 contains additionally, alternatively to the RS-232 interface, two digital inputs named Din1 and Din2, which can be evaluated by the microcontroller. For more information, see section 3.3 *Two Additional Digital Inputs*.



Pin assignment D-Sub connector

Pin assignment CAN1 and CAN2:

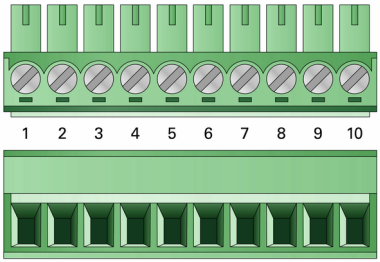
Pin	Function at CAN channel 1	Function at CAN channel 2
1	+5 V supply for external devices (optional)	+5 V supply for external devices (optional)
2	CAN1-Low	CAN2-Low
3	GND1	GND2
4	RS-232 RxD (alternative digital input Din1)	Not used
5	Shield	Shield
6	Boot (High level) Activation CAN bootloader	Not used
7	CAN1-High	CAN2-High

Pin	Function at CAN channel 1	Function at CAN channel 2
8	RS-232 TxD (alternative digital input Din2)	Digital input Din0, digital output Dout (600 mA)
9	Power supply $+U_{b1}$ (8 - 30 V DC)	Power supply $+U_{b2}$ (8 - 30 V DC)

2.2 Screw Terminal Block

The PCAN-Router FD (IPEH-002214)has a 10-pin screw terminal block for connecting the following components:

- Power supply
- CAN FD channels 1 and 2
- RS-232
- CAN bootloader activation (via pin 7)
- Alternatively to the RS-232 interface, two digital inputs named Din1 and Din2 can be activated, which can be evaluated by the microcontroller. For more information, see section 3.3 *Two Additional Digital Inputs*.



Screw terminal block (Phoenix)
Mating connector Phoenix Contact MC 1.5/10-ST-3.81

Terminal assignment Screw terminal block:

Terminal	Identifier	Function
1	U_b	Power supply 8 to 30 V DC
2	GND	Ground
3	CAN1-Low	CAN FD channel 1 Low
4	CAN1-High	CAN FD channel 1 High
5	CAN2-Low	CAN FD channel 2 Low
6	CAN2-High	CAN FD channel 2 High
7	Boot CAN	Activation CAN bootloader (High level)
8	Din0 / Dout	Digital input Din0 Digital output Dout (600 mA)
9	RS-232 RxD (Din1)	RS-232 interface (alternative digital input Din1)
10	RS-232 TxD (Din2)	RS-232 interface (alternative digital input Din2)

3 Hardware Configuration

For special applications, several settings can be done on the circuit board of the PCAN-Router FD by using solder bridges.

- Coding solder bridges for polling by the firmware
  (see section 3.1 *Coding Solder Bridges*)
- D-Sub version only: Supply of external devices with 5 Volts via the D-Sub connector
  (see section 3.2 *Power supply of external devices*)
- Use of two additional digital inputs (Din1, Din2) instead of the serial RS-232 interface
  (see section 3.3 *Two Additional Digital Inputs*)
- Termination of the CAN buses with 120 Ω
  (see section 3.4 *Termination of the CAN Buses*)

3.1 Coding Solder Bridges

The board has four coding solder bridges to assign a permanent state to the corresponding input bits of the microcontroller. The four positions for coding solder bridges (ID 0 - 3) are each assigned to one port of the microcontroller. A bit is set (1) if the corresponding solder field is open.

A concrete application is the identification of a PCAN-Router FD on the CAN bus during a firmware upload, especially if several routers are connected and in operation.

The status of the ports is relevant in the following cases:

- The loaded firmware is programmed so that it reads the status at the corresponding ports of the microcontroller. For example, the activation of certain functions of the firmware or the coding of an ID is conceivable here.
- For a firmware upload via CAN the PCAN-Router FD is identified by a 4-bit ID which is determined by the solder bridges (default setting: ID15, all solder fields open).

Solder Field	ID0	ID1	ID2	ID3
Binary Digit	0001	0010	0100	1000
Decimal Equivalent 1	1	2	4	8

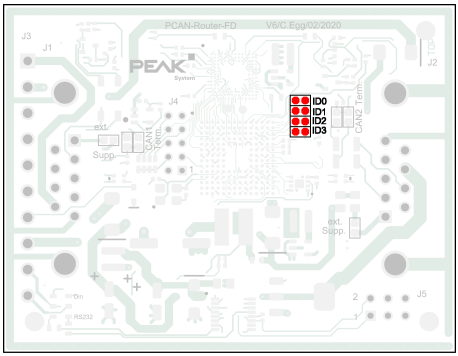
Activate coding solder bridges:

Risk of short circuit! Soldering on the PCAN-Router FD may only be performed by qualified electrical engineering personnel.

Attention! Electrostatic discharge (ESD) can damage or destroy components on the card. Take precautions to avoid ESD.

1. Disconnect the PCAN-Router FD from the power supply.
2. Unscrew the housing on both sides.
   For D-Sub version:
   Remove the screws next to one of the two D-Sub connectors.
3. Pull out the board.

4. Solder the solder bridge(s) on the board according to the desired setting.



Position of the coding solder fields

Position	0	1	2	3
Port µC	P0.4	P0.5	P0.6	P0.7

Solder Field Status	Port Status
	Low
	High

5. Carefully put the board back into the housing.
6. For D-Sub version:
   Reinsert the two screws at the D-Sub connector.
7. Screw the two sides of the housing back together.

3.2 Power supply of external devices

External devices with low power consumption (e.g. bus converters) can be supplied via the CAN connection CAN1 and CAN2. With a solder bridge for each CAN channel on the board of the PCAN-Router FD a voltage of 5 Volt can be applied to pin 1 of the D-Sub connector. The current consumption may not exceed 100 mA per CAN connection.

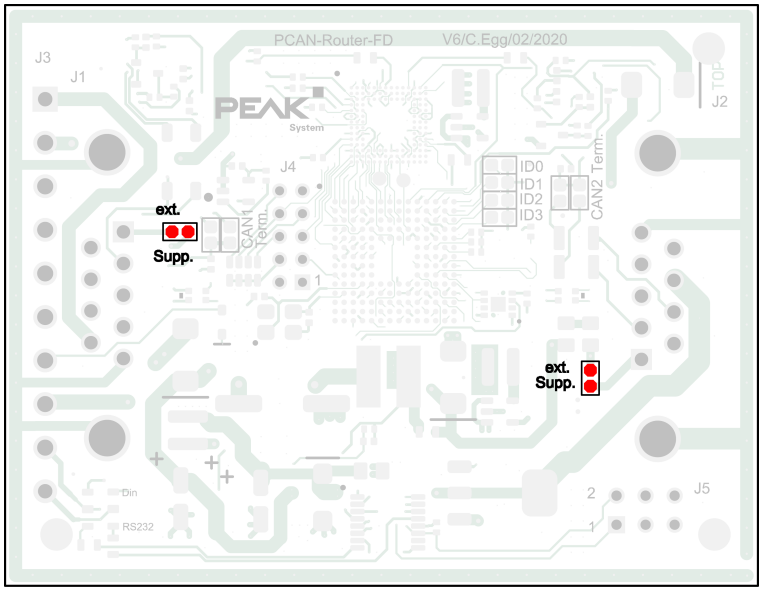
Activate 5 V supply:

Risk of short circuit! Soldering on the PCAN-Router FD may only be performed by qualified electrical engineering personnel.

Attention! Electrostatic discharge (ESD) can damage or destroy components on the card. Take precautions to avoid ESD.

1. Disconnect the PCAN-Router FD from the power supply.
2. Unscrew the housing on both sides.
3. Remove the screws next to one of the two D-Sub connectors.
4. Pull out the board.

5. Solder the solder bridge(s) on the board according to the desired setting.



Position of the solder fields for the supply of external devices
(for D-Sub connector CAN1 on the left, for CAN2 on the right)

D-Sub Connector	5 Volt Supply	
	None (Default)	Pin 1
CAN1 (left)		
CAN2 (right)		

6. Carefully put the board back into the housing.
7. Reinsert the two screws at the D-Sub connector.
8. Screw the two sides of the housing back together.

3.3 Two Additional Digital Inputs

Instead of the preset serial RS-232 interface for the serial data transmission, two additional digital inputs (Din1, Din2) can be assigned to the corresponding pins or screw terminals. The inputs can be activated either by changing two 0-Ohm resistors or alternatively by solder bridges.

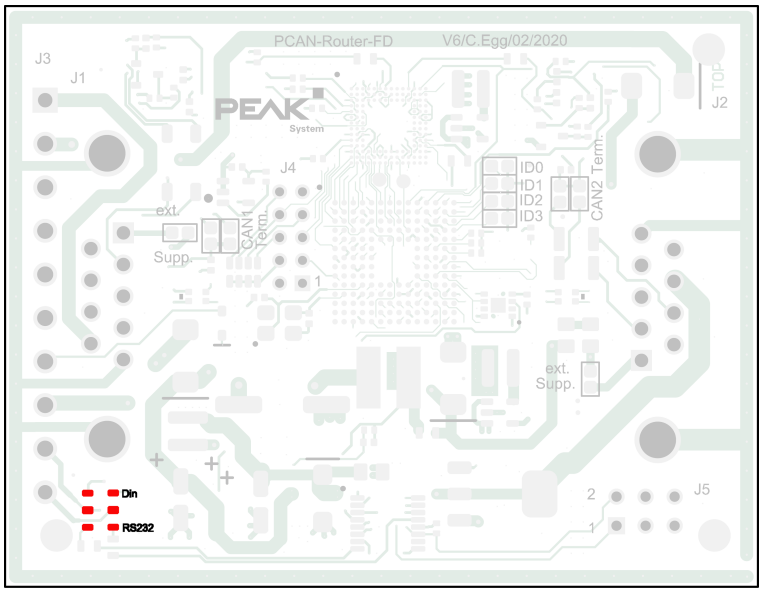
Activate two additional digital inputs:

Risk of short circuit! Soldering on the PCAN-Router FD may only be performed by qualified electrical engineering personnel.

Attention! Electrostatic discharge (ESD) can damage or destroy components on the card. Take precautions to avoid ESD.

1. Disconnect the PCAN-Router FD from the power supply.
2. Unscrew the housing on both sides.
   For D-Sub version:
   Remove the screws next to one of the two D-Sub connectors.
3. Pull out the board.

4. Move the two 0-Ohm resistors or solder the solder bridge(s) on the board according to the desired setting.



Position of the solder fields for switching between RS-232 and Din (pre-equipped with 0-Ohm resistors)

Function for Pins/Screw Terminals	Positions of the Solder Bridges (or 0-Ohm Resistors)
RS-232 RxD, RS-232 TxD (Default)	
Din1, Din2	

5. Carefully put the board back into the housing.
6. For D-Sub version:
   Reinsert the two screws at the D-Sub connector.
7. Screw the two sides of the housing back together.

3.4 Termination of the CAN Buses

If the PCAN-Router FD is connected to one end of a CAN bus and if there's no termination of the CAN bus yet, an internal termination with 120 Ω between the lines CAN-High and CAN-Low can be activated. Termination is possible independently for both CAN channels.

Tip: We recommend adding termination at the CAN cabling, for example with termination adapters (e.g. PCAN-Term). Thus, CAN nodes can be flexibly connected to the bus.

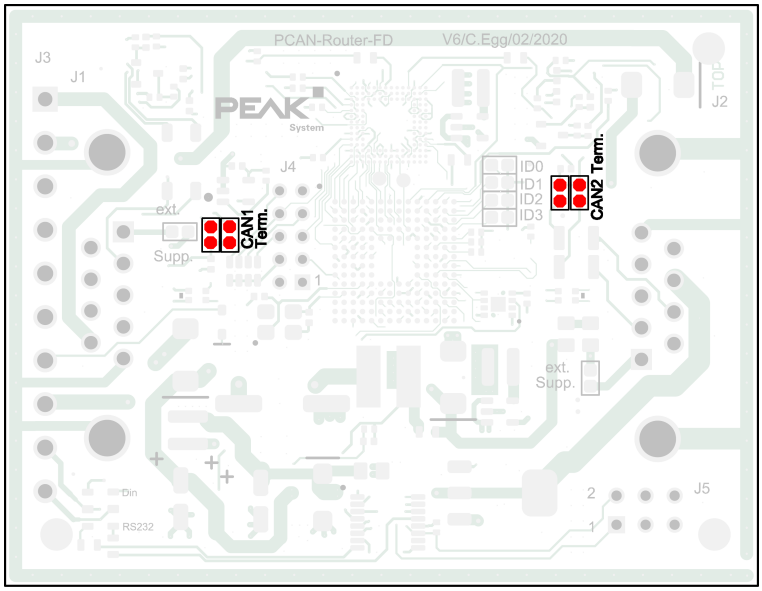
Activate the internal termination:

Risk of short circuit! Soldering on the PCAN-Router FD may only be performed by qualified electrical engineering personnel.

Attention! Electrostatic discharge (ESD) can damage or destroy components on the card. Take precautions to avoid ESD.

1. Disconnect the PCAN-Router FD from the power supply.
2. Unscrew the housing on both sides.
   For D-Sub version:
   Remove the screws next to one of the two D-Sub connectors.
3. Pull out the board.

4. Solder the solder bridge(s) on the board according to the desired setting.



Position of the solder fields for the termination of the CAN bus (CAN1 on the left, CAN2 on the right)

CAN Channel	Without Termination (Default)	With Termination
CAN1		
CAN2		

5. Carefully put the board back into the housing.
6. For D-Sub version:
   Reinsert the two screws at the D-Sub connector.
7. Screw the two sides of the housing back together.

4 Operation

The PCAN-Router FD is activated by applying the supply voltage to the respective connectors. More information about the connections can be found in chapter 2 *Connectors and Operating Elements*. The firmware in the flash memory is subsequently run.

On delivery, the PCAN-Router FD is equipped with an standard firmware which forwards CAN messages 1:1 between both CAN FD channels (CAN FD ISO, 500 kbit/s nominal, 4 Mbit/s data). An incoming CAN message causes a change between green and orange of the LED status indication for the respective CAN channel.

The source code for the standard firmware `01_ROUTING` and further examples can be downloaded from the following link:

www.peak-system.com/quick/DLP-DevPack

More about firmware can be found in chapter 5 *Creating Own Firmware*.

4.1 Status LEDs

Routing firmware is pre-installed on delivery. Therefore, the LEDs CAN1 and CAN2 light up between green and orange on incoming CAN messages.

Additionally, they light up orange when the bootloader is activated. Additional LED functions can be programmed with your own firmware. More details can be found in the programming examples supplied.

5 Creating Own Firmware

With the help of the PEAK-DevPack development package, you can program your own application-specific firmware for PEAK-System programmable hardware products. For each supported product, examples are included.

On delivery the PCAN-Router FD is supplied with the standard firmware `01_ROUTING` which forwards CAN messages 1:1 between both CAN FD channels.

System requirements:

- Computer with operating system Windows 11 (x64), 10 (x86/x64)
- CAN interface of the PCAN series to upload the firmware to your hardware via CAN

Download development package:

www.peak-system.com/quick/DLP-DevPack

Content of the package:

- `Build Tools Win32\`
  Tools for automating the build process for Windows 32-bit
- `Build Tools Win64\`
  Tools for automating the build process for Windows 64-bit
- `Compiler\`
  Compilers for the supported programmable products
- `Debug\`
  - OpenOCD and configuration files for hardware which supports debugging
  - VBScript `SetDebug_for_VSCode.vbs` to modify the example directories for the Visual Studio Code IDE with Cortex-debug
  - Detailed information about debugging in the enclosed documentation of the PEAK-DevPack Debug Adapter

- `Hardware\`

  Sub directories with firmware examples for supported hardware. Use the examples for starting your own firmware development.
- `PEAK-Flash\`

  Windows software for uploading the firmware to your hardware via CAN
- `LiesMich.txt` and `ReadMe.txt`

  Short documentation how to work with the development package in German and English
- `SetPath_for_VSCode.vbs`

  VBScript to modify the example directories for the Visual Studio Code IDE

Creating your own firmware:

1. Create a folder on your computer. We recommend using a local drive.
2. Unzip the development package `PEAK-DevPack.zip` completely into the folder. No installation is required.
3. Run the script `SetPath_for_VSCode.vbs`. This script will modify the example directories for the Visual Studio Code IDE. Afterwards, each example directory has a folder called `.vscode` containing the needed files with your local path information.
4. Launch Visual Studio Code. The IDE is available free of charge from Microsoft: https://code.visualstudio.com.
5. Select the folder of your project and open it. For example: `d:\PEAK-DevPack\Hardware\PCAN-Router_FD\Examples\01_ROUTING`

   You can edit the C code and use the menu *Terminal* > *Run Task* to call *make clean*, *make all*, or to compile a single file.
6. Create your firmware with *make all*. The firmware is the `*.bin` in the `out` subdirectory of your project folder.
7. Prepare your hardware for firmware upload like described in section 6.2 *Preparing Hardware*.

8. Use the PEAK-Flash tool to upload your firmware to the PCAN-Router FD via CAN.

   The tool is either started via the menu *Terminal* > *Run Task* > *Flash Device* or from the subdirectory of the development package. Chapter 6.2 *Preparing Hardware* describes the process. A CAN interface of the PCAN series is required.

5.1 Library

The development of applications for the PCAN-Router FD is supported by the library `libPCAN-Router_FD_*.a` (`*` stands for version number), a binary file. You can access all resources of the PCAN-Router FD by means of this library. The library is documented in the header files (`*.h`) which are located in the `inc` subdirectory of each example directory.

6 Firmware Upload

The microcontroller in the PCAN-Router FD is equipped with new firmware via CAN. The firmware is uploaded via a CAN bus with the Windows software PEAK-Flash.

6.1 System Requirements

- CAN interface of the PCAN series for the computer, for example PCAN-USB
- CAN cabling between the CAN interface and the PCAN-Router FD with correct termination at both ends of the CAN bus with 120 Ohm each.
- Operating system Windows 11 (x64/ARM64), 10 (x86/x64)
- If you want to update several PCAN-Router FD on the same CAN bus with new firmware, you must assign an ID to each device. See section 3.1 *Coding Solder Bridges*.

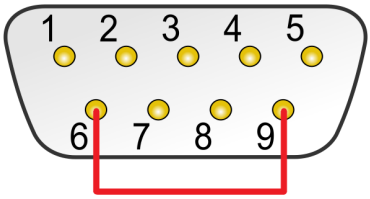
6.2 Preparing Hardware

For an upload of new firmware via CAN, the CAN bootloader must be activated in the PCAN-Router FD. For the D-Sub version this can only be done via CAN channel 1. Firmware transfer, on the other hand, can also be done via CAN channel 2.

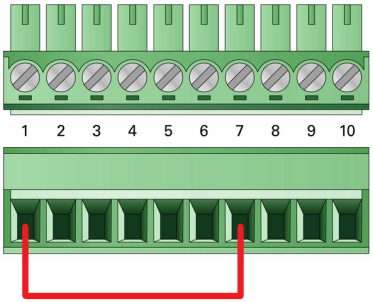
Activating CAN Bootloader:

> **Attention!** Electrostatic discharge (ESD) can damage or destroy components on the card. Take precautions to avoid ESD.

1. Disconnect the PCAN-Router FD from the power supply.
2. Establish a connection between **Boot** and the power supply **U_{b1} or U_b**.



Connection at D-Sub connector CAN1 between the pins 6 and 9



Connection at the screw terminal block between terminals 1 and 7

Because of that, a High level is later applied to the Boot connection.

3. Connect a CAN bus of the PCAN-Router FD with a CAN interface connected to the computer. Pay attention to the proper termination of the CAN cabling (2 x 120 Ohm).

   Risk of short circuit! A CAN cable with D-Sub connectors must not have a connection on pin 6, as it can be seen on 1:1 cables, for example. At other CAN nodes (e.g. a CAN interface of the PCAN series) this line may be applied to the mass. Damage or destruction of the electronics is a possible consequence.

4. Reconnect the power supply.
   Due to the High level at the **Boot** connection, the PCAN-Router FD starts the CAN bootloader. This can be determined by the status LEDs:

LED	State	Color
CAN1	quickly blinking	orange
CAN2	on	orange

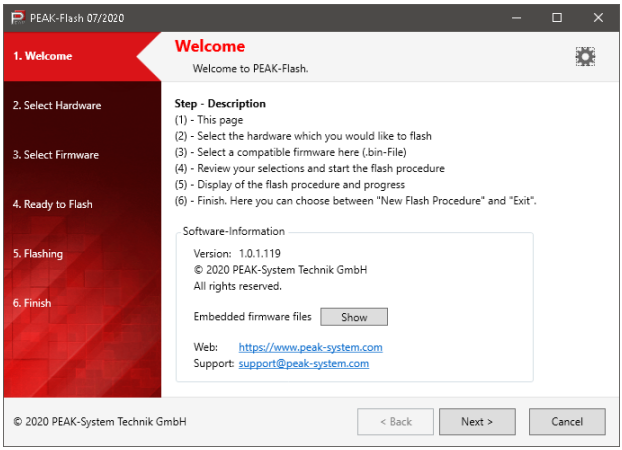
6.3 Firmware Transfer

A new firmware version can be transferred to the PCAN-Router FD. The firmware is uploaded via a CAN bus using the Windows software PEAK-Flash.

Transfer firmware with PEAK-Flash:

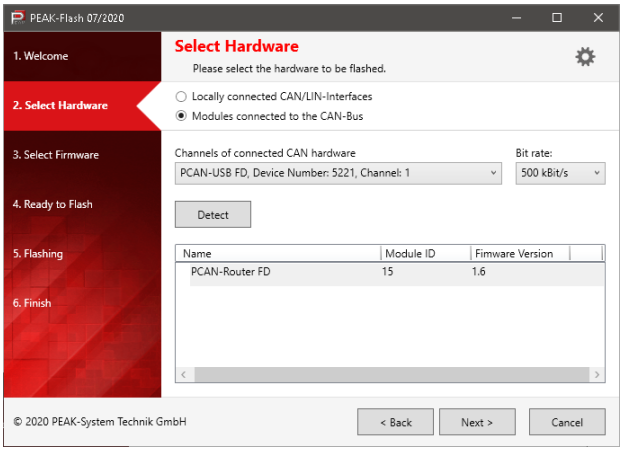
The software PEAK-Flash is included in the development package, which can be downloaded via the following link: www.peak-system.com/quick/DLP-DevPack

1. Open the zip file and extract it to your local storage medium.
2. Run the `PEAK-Flash.exe`.
   The main window of PEAK-Flash appears.



3. Click the button *Next*.

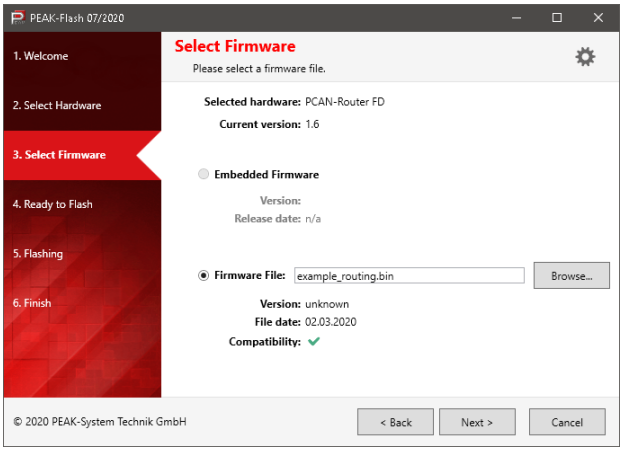
   The *Select Hardware* window appears.



4. Click on the *Modules connected to the CAN bus* radio button.
5. In the drop-down menu *Channels of connected CAN hardware*, select a CAN interface connected to the computer.
6. In the drop-down menu *Bit rate*, select the nominal bit rate 500 kbit/s.
7. Click on *Detect*.

   In the list, the PCAN-Router FD appears together with the Module ID and Firmware version. If not, check whether a proper connection to the CAN bus with the appropriate nominal bit rate exists.

8. Click *Next*.
   The *Select Firmware* window appears.



9. Select the *Firmware File* radio button and click *Browse*.
10. Select the corresponding file (`*.bin`).
11. Click *Next*.
    The *Ready to Flash* dialog appears.
12. Click *Start* to transfer the new firmware to the PCAN-Router FD.
    The *Flashing* dialog appears.
13. After the process is complete, click *Next*.
14. You can exit the program.
15. Disconnect the PCAN-Router FD from the power supply.
16. Remove the connection between **Boot** and the power supply **U_{b1} or U_b**.
17. Connect the PCAN-Router FD to the power supply.

You can now use the PCAN-Router FD with the new firmware.

7 Technical Data

Connectors IPEH-002214	
Power	2 x D-Sub (m), pin 9 (U_b)
CAN channel 1 and 2	2 x D-Sub (m), pins 2 and 7, assignment according to specification CiA® 106
RS-232	1 x D-Sub (m), CAN 1, pins 4 and 8

Connectors IPEH-002215	
Screw terminal block	10 connection poles, pitch 3.81 mm Phoenix Contact MC 1.5/10-ST-3.81
Power	Pin 1 (U_b)
CAN channel 1	Pins 3 and 4
CAN channel 2	Pins 5 and 6
RS-232	Pins 9 and 10

Power Supply		
Supply voltage (U_b)	12 V DC, 8 to 30 V DC	
Current consumption	Idle: Maximum:	75 mA at 12 V 150 mA at 8 V 100 mA at 12 V 50 mA at 30 V
Power saving modes	Power-down mode with 40 µA	
Protection	±1 kV surge protection -60 V reverse polarity protection ±4 kV ESD protection	

CAN (FD)			
Protocols	CAN FD ISO 11898-1:2015, CAN FD non-ISO, CAN 2.0 A/B		
Physical transmission	ISO 11898-2, High-speed CAN		
Transceiver	NXP TJA1043		
CAN bit rates	Nominal:	40 kbit/s to 1 Mbit/s	
CAN FD bit rates	Nominal: Data:	40 kbit/s to 1 Mbit/s 40 kbit/s to 12 Mbit/s[1]	
Controller	FPGA implementation		
Supported clock frequencies	20 MHz, 24 MHz, 30 MHz, 40 MHz, 60 MHz, 80 MHz		
Supported bit timing values		Nominal	Data
	Prescaler (BRP)	1 to 1024	1 to 1024
	Time Segment 1 (TSEG1)	1 to 256	1 to 32
	Time Segment 2 (TSEG2)	1 to 128	1 to 16
	Synch. Jump Width (SJW)	1 to 128	1 to 16
Galvanic isolation	None		
Internal termination	Via solder bridges, disabled at delivery		
Listen-only mode	Programmable; not activated at delivery		
Dielectric strength	V_{ESD} ±4 kV V_{CAN} ±18 V per pin		

[1] With the specified timing only CAN FD transfer rates up to 5 Mbit/s are guaranteed according to the CAN transceiver datasheet.

RS-232	
Connectors	RxD and TxD
Bitrate maximum	230400 Baud
Signal level maximum	±25 V
Dielectric strength	±25 V
Galvanic isolation	None

Digital Inputs	
Count	3 (thereof 2 alternativly to RS-232)
Connectors	Din0 to Din2
Behavior	Low-active
Input voltage	0 to 35 V
Input impedance	20 kΩ
Switching thresholds	Low: < 0.8 V or < 10 kΩ to ground High: > 1.5 V or > 30 kΩ to ground
Protection	V_{ESD} 4 kV
Galvanic isolation	None

Digital Outputs	
Count	1
Connectors	Dout
Type	N-FET Low-Side driver
Driver chip	BSP77
Output current nominal	2.17 A
Drop-out voltage maximum	217 mV @ 2.17 A
Maximum output current (current limitation)	2.17 A minimal 2.8 A typically Maximum thermal protected
Protection	4 kV ESD protection 10 to 20 A overcurrent protection 175 °C overtemperature protection
Maximum voltage	42 V on load
Galvanic isolation	None

Microcontroller	
CPU	NXP LPC4078 (based on Arm® Cortex® M4)
Clock frequency	120 MHz
RAM	96 kByte SRAM
Memory	492 kByte MCU Flash 4 kByte On-Chip-EEPROM 8 MByte SPI Flash
Firmware upload	via CAN (PCAN interface required)

Measures	
Size	IPEH-002214: 80 x 58.7 x 27.7 mm (W x H x D) IPEH-002215: 84.4 x 58.7 x 27.7 mm (W x H x D) Casing: 73 x 58.7 x 27.7 mm (W x H x D) Circuit board: 51 x 65 mm (W x H x D)
Weight	IPEH-002214: 105 g IPEH-002215: 94 g

Environment	
Operating temperature	-40 to +85 °C (-40 to +185 °F)
Temperature for storage and transport	-40 to +100 °C (-40 to +212 °F)
Relative humidity	15 to 90 %, not condensing
Ingress protection (IEC 60529)	IP20

Conformity	
RoHS 2	EU directive 2011/65/EU (RoHS 2) + 2015/863/EU DIN EN IEC 63000:2019-05
EMC	EU directive 2014/30/EU DIN EN 61326-1:2022-11

Appendix A CE-Certificate

EU Declaration of Conformity

This declaration applies to the following product:

Product name:	**PCAN-Router FD**
Item number(s):	**IPEH-002214, IPEH-002215**
Manufacturer:	PEAK-System Technik GmbH Otto-Röhm-Straße 69 64293 Darmstadt Germany

CE We declare under our sole responsibility that the mentioned product is in conformity with the following directives and the affiliated harmonized standards:

EU Directive 2011/65/EU (RoHS 2) + 2015/863/EU (amended list of restricted substances)

DIN EN IEC 63000:2019-05
Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances (IEC 63000:2016);
German version of EN IEC 63000:2018

EU Directive 2014/30/EU (Electromagnetic Compatibility)

DIN EN 61326-1:2022-11
Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements (IEC 61326-1:2020);
German version of EN IEC 61326-1:2021

Darmstadt, 19 January 2023

Uwe Wilhelm, Managing Director

Appendix B UKCA-Certificate

UK Declaration of Conformity

This declaration applies to the following product:

Product name: **PCAN-Router FD**

Item number(s): **IPEH-002214, IPEH-002215**

Manufacturer:

PEAK-System Technik GmbH
Otto-Röhm-Straße 69
64293 Darmstadt
Germany

UK authorized representative:

Control Technologies UK Ltd
Unit 1, Stoke Mill,
Mill Road, Sharnbrook,
Bedfordshire, MK44 1NN, UK

We declare under our sole responsibility that the mentioned product is in conformity with the following UK legislations and the affiliated harmonized standards:

The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

DIN EN IEC 63000:2019-05
Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances (IEC 63000:2016);
German version of EN IEC 63000:2018

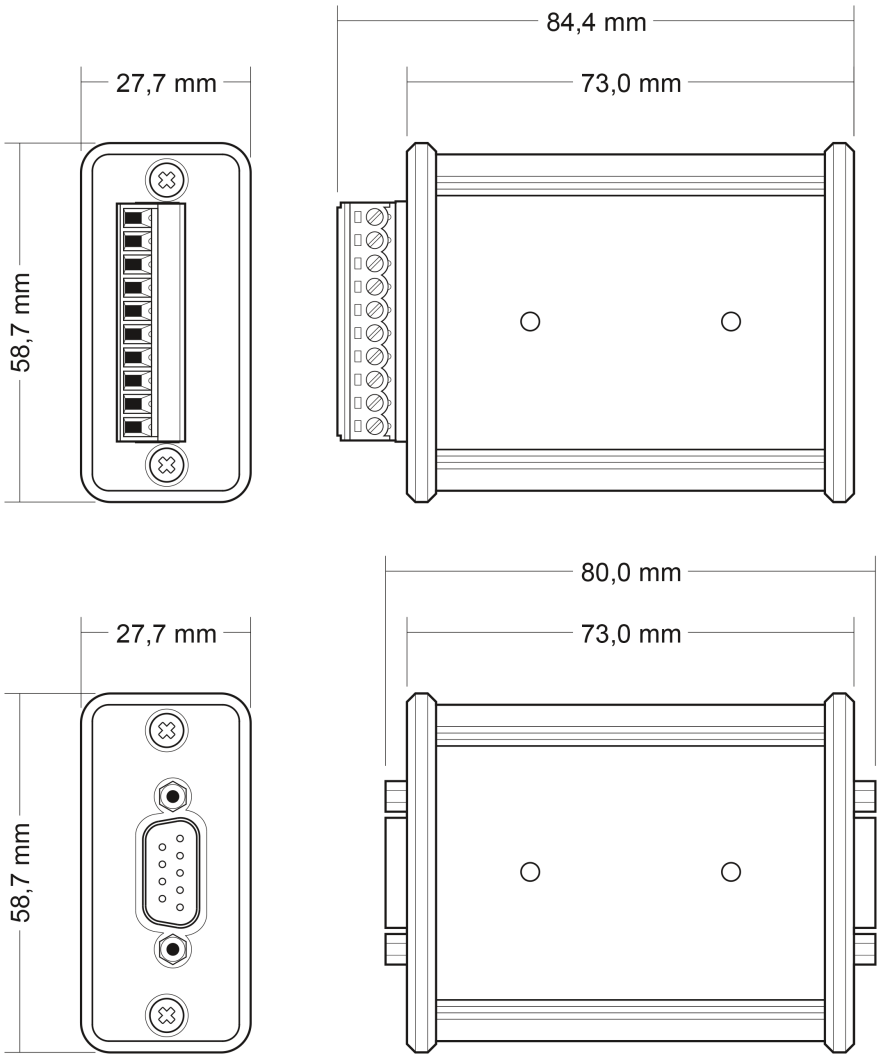
Electromagnetic Compatibility Regulations 2016

DIN EN 61326-1:2022-11
Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements (IEC 61326-1:2020);
German version of EN IEC 61326-1:2021

Darmstadt, 19 January 2023

Uwe Wilhelm, Managing Director

Appendix C Dimension Drawings



Appendix D Disposal

The PCAN-Router FD must not be disposed of in household waste. Dispose of the PCAN-Router FD properly in accordance with local regulations.