

ifm electronic



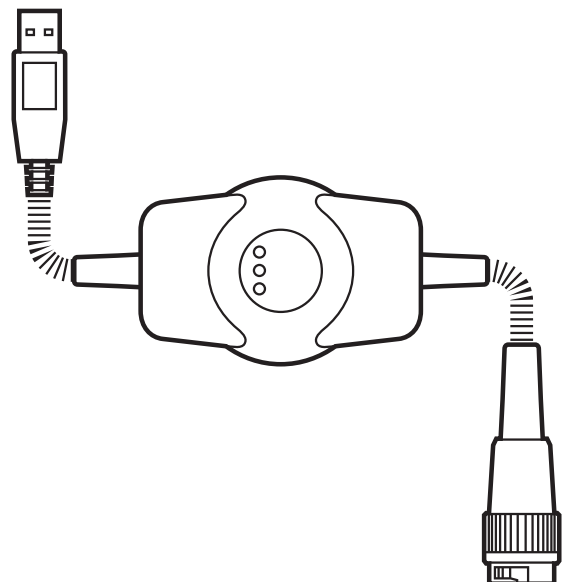
Installation instructions  
CAN/RS232-USB interface  
CANfox

UK

**ecomat100<sup>®</sup>**

**EC2112**

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This document is the original instructions.

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# 1 Preliminary note



This document applies to devices of the type "CANfox" (art. no.: EC2112). It is deemed as a part of the unit.

This document is intended for specialists. These specialists are people who are qualified by their appropriate training and their experience to see risks and to avoid possible hazards that may be caused during operation or maintenance of the device. The document contains information about the correct handling of the device.

Read this document before use to familiarise yourself with operating conditions, installation and operation. Keep this document during the entire duration of use of the device.

Adhere to the safety instructions.

## 1.1 Symbols used

- ▶ Instructions
- > Reaction, result
- [...] Designation of pushbuttons, buttons or indications
- Cross-reference
-  Important note  
Non-compliance can result in malfunction or interference.
-  Information  
Supplementary note

## 1.2 Warning signs used

### WARNING

Warning of serious personal injury.  
Death or serious irreversible injuries may result.

### CAUTION

Warning of personal injury.  
Slight reversible injuries may result.

### NOTE

Warning of damage to property.

## **2 Safety instructions**

### **2.1 General**

These instructions contain texts and figures concerning the correct handling of the device and must be read before installation or use.

Observe the operating instructions. Non-observance of the instructions, operation which is not in accordance with use as prescribed below, wrong installation or incorrect handling can seriously affect the safety of operators and machinery.

### **2.2 Target group**

These instructions are intended for authorised persons according to the EMC and low-voltage directives. The device must only be installed, connected and put into operation by a qualified electrician.

### **2.3 Electrical connection**

The connections may only be supplied with the signals indicated in the technical data and/or on the device label and only the approved accessories of ifm electronic may be connected.

### **2.4 Tampering with the device**

In case of malfunctions or uncertainties please contact the manufacturer. Tampering with the device can seriously affect the safety of operators and machinery. It is not permitted and leads to the exclusion of any liability and warranty claims.

### 3 Functions and features

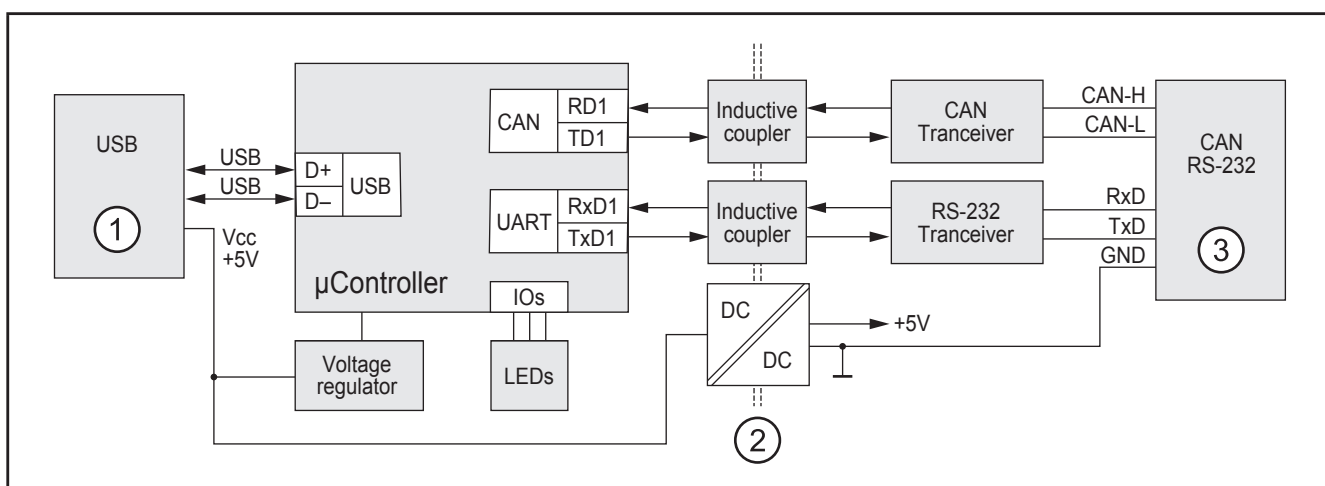
CANfox is a CAN/RS232 interface for the connection of a CAN fieldbus system to a USB interface. The main applications for the device are to enable the user to do program downloads, online diagnostics and system performance monitoring from the user PC interface via the CAN network.

#### 3.1 Features at a glance

- Operating voltage via USB (5 V DC)
- Interfaces electrically isolated
- CAN baud rate freely selectable
- 11 and 29-bit identifiers
- Can be used with CoDeSys (as of 2.3.9.21), Maintenance Tool or CANexplorer

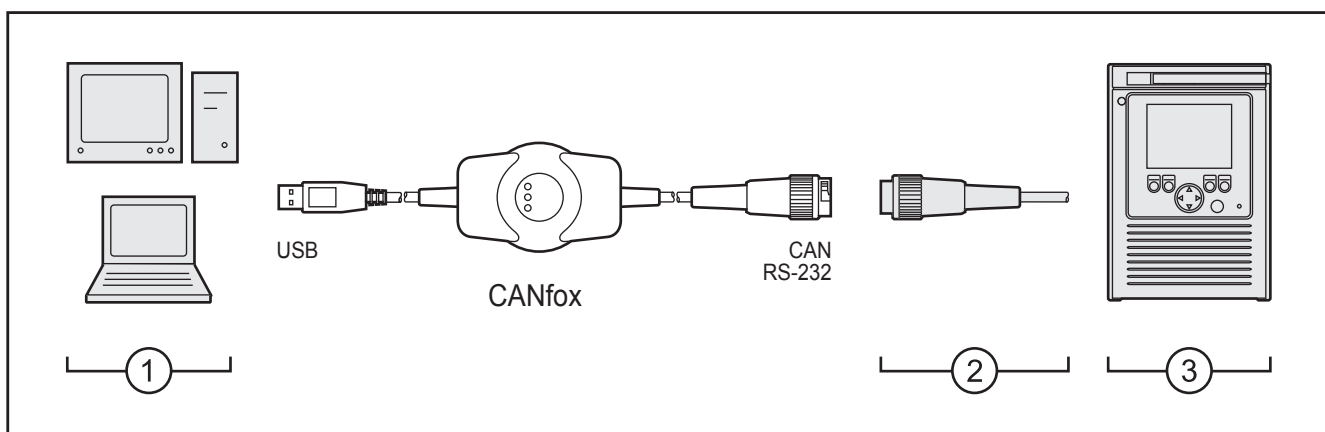
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#### 3.2 Block diagram



- 1: USB plug of type A
- 2: Electrical separation
- 3: 6-pole DIN socket

#### 3.3 Application example



- 1: PC or notebook
- 2: Adapter cables
- 3: CAN system (here e.g. BasicController with BasicRelay)

## 4 Installation

The device is operated without installation.

## 5 Electrical connection

### 5.1 General electrical connection

Wiring (→ 8 Technical data)



The connection of the device to the CAN system is made via a 6-pole DIN socket. This socket is not compliant with the CiA specification "Cabling and Connector Pin Assignment – CiA Draft Recommendation Proposal 303-1". This type of socket was selected to exclude a confusion with the CiA-compliant pure CAN connections.

### 5.2 Adapter cables

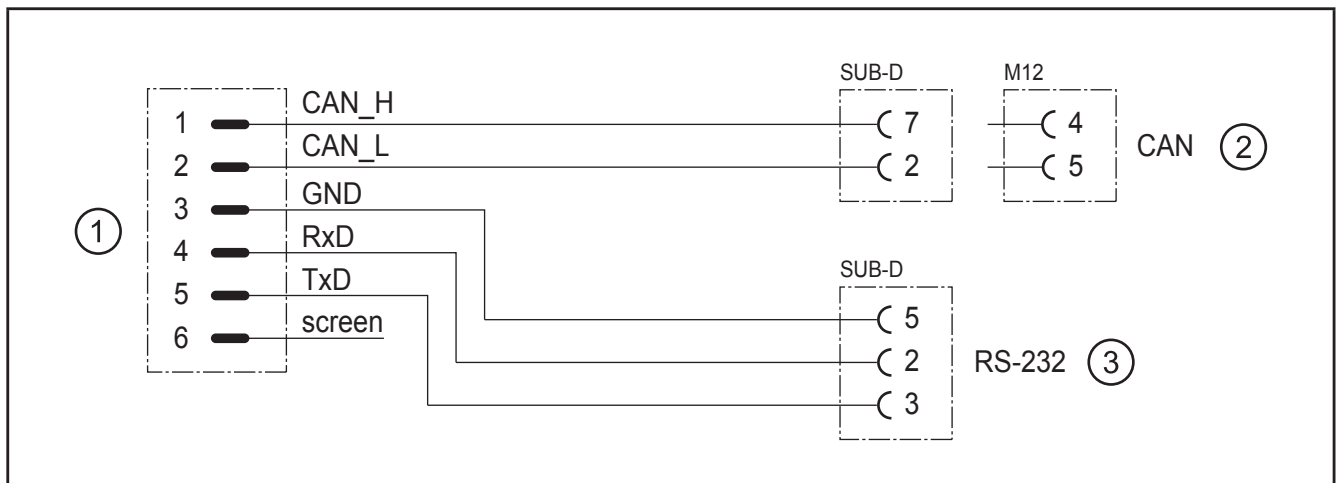
Information about available wirable adapter cables at:  
[www.ifm.com](http://www.ifm.com) → data sheet search → EC2112 → Accessories

### 5.3 Wirable adapter cables

A 6-pole DIN connector is required for wiring.

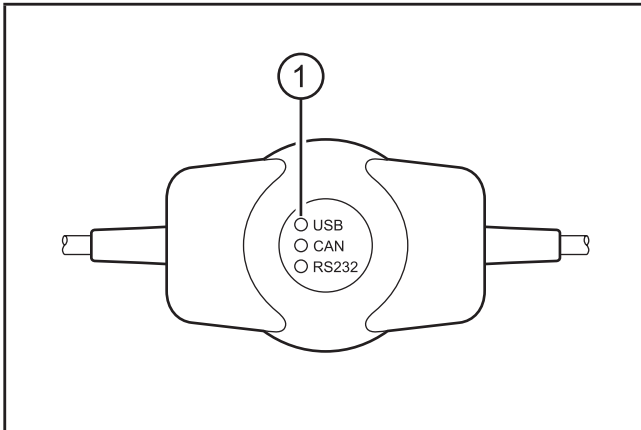
Example: Binder cable plug, 6 DIN, plug series 678, order no.: 99-0617-00-06

#### 5.3.1 Wiring of an adapter cable



- 1: DIN socket, 6 poles
- 2: SUB-D socket, 9 poles and/or M12 socket, 5 poles
- 3: SUB-D socket, 9 poles

## 6 Display elements



1: Status LEDs

Operating states (→ 8 Technical data)

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## 7 Set-up

### 7.1 General notes

The software required for set-up and use of the device is on the ecomat *mobile* DVD.

As an alternative, the software is also available on the internet.

www.ifm.com → Service → Download → Control systems



▶ Adhere to the following sequence for the installation of the software.

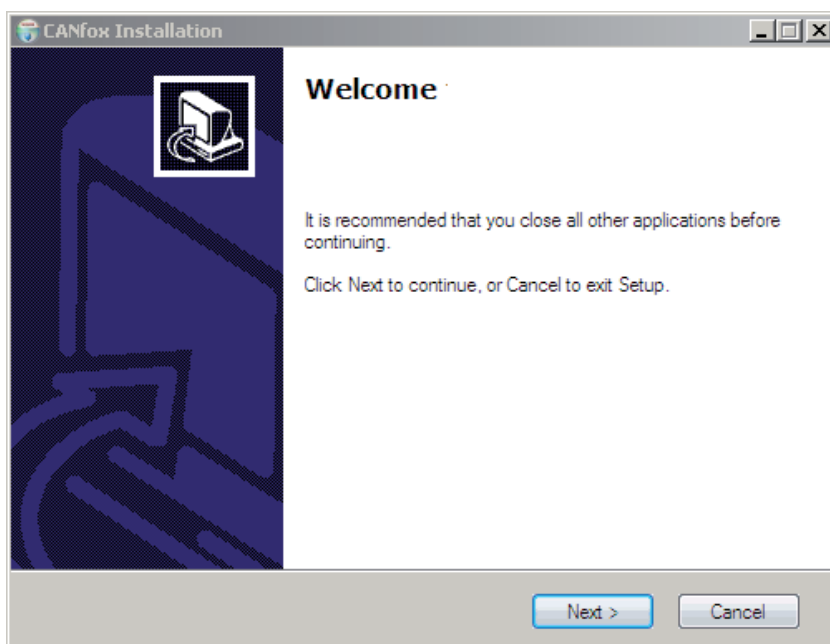
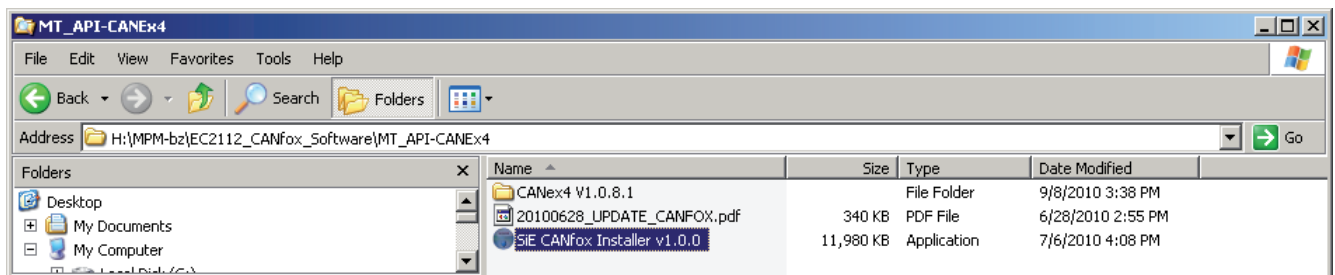
1. Install the CANfox MTAPI driver.
2. Then connect the USB plug of the device to the PC or notebook.
3. Install the interface drivers.

### 7.2 Install the CANfox MTAPI driver



The USB plug of the device must not be connected to the PC or notebook when the CANfox MTAPI driver is installed.

- ▶ Start the "SIE CANfox Installer v.n.n.n.exe" installation program with a double click.
- > The installation wizard for CANfox opens

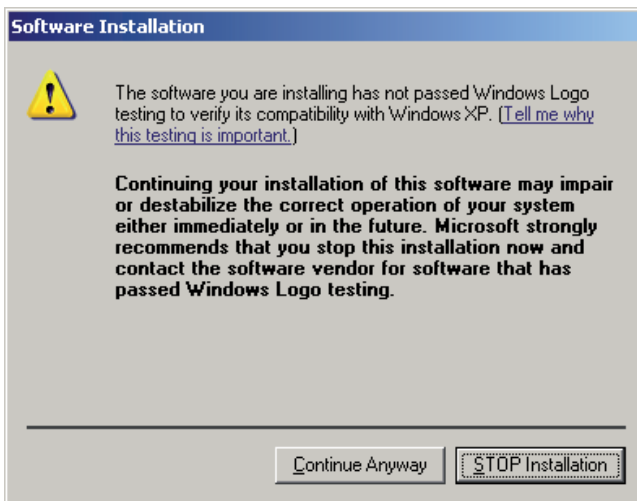


- ▶ Continue the installation process with [Next].



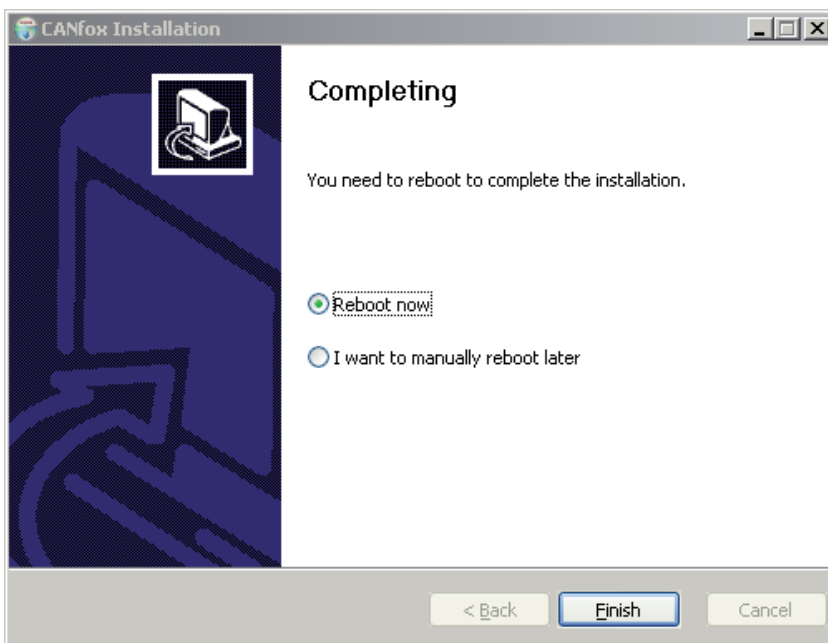


The results of the system-internal Windows logo test do not have any effect on the functionality of the software.



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- ▶ Acknowledge the messages "has not passed Windows logo testing" with [Continue anyway].



- ▶ Complete the installation with [Reboot now] and [Finish].
- > The PC/notebook is restarted.

## 7.3 Interface drivers

The installation starts automatically when the device is connected to the USB interface of the PC or notebook for the first time.

Since the device is a multi-interface, 3 drivers are required and automatically installed one after the other.

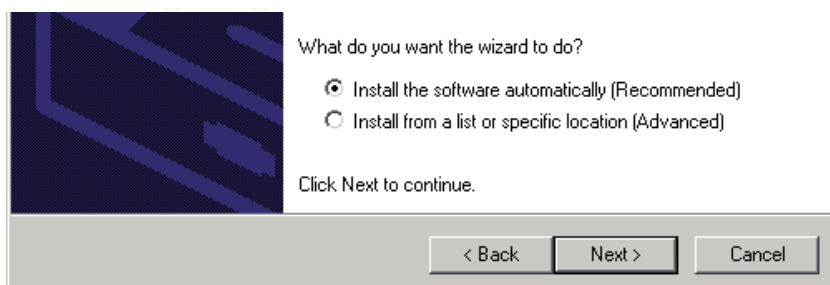
- CANfox multi-interface driver  
Enables communication with 2 gateways (CAN and RS-232) via the USB interface
- CANfox232 (COMx)  
Setting of the RS-232 communication parameters in CoDeSys
- CANfox  
CAN interface driver

### 7.3.1 Installation with the Windows wizard

- ▶ Connect the USB plug of the device to the PC or notebook.
- > Windows recognises the new USB device and shows the first dialogue box of the installation wizard.

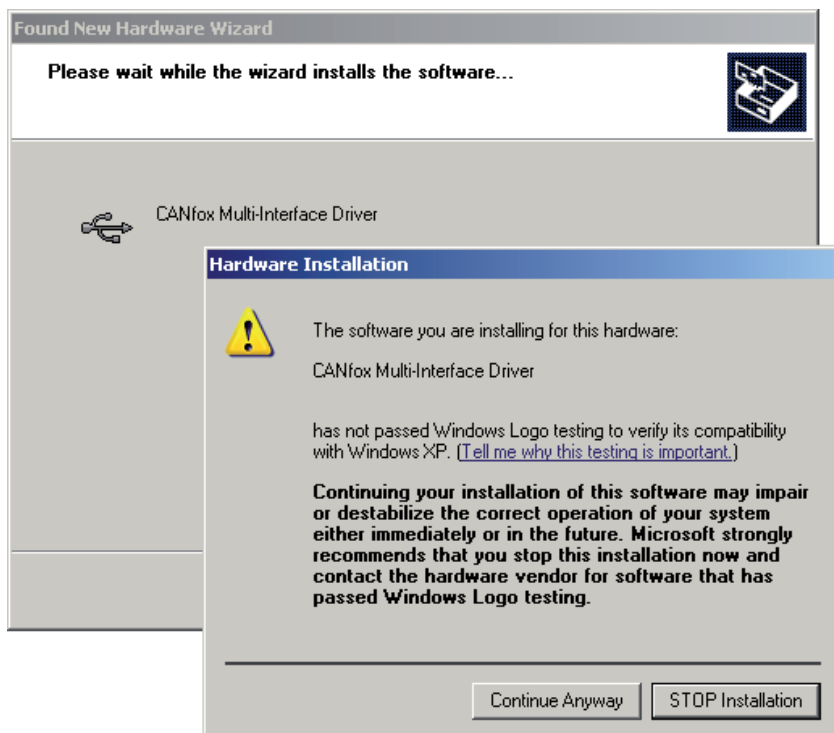


- ▶ Start the installation with [Next].
- ▶ In the following dialogue box select [Install the software automatically (Recommended)] and continue the installation with [Next].



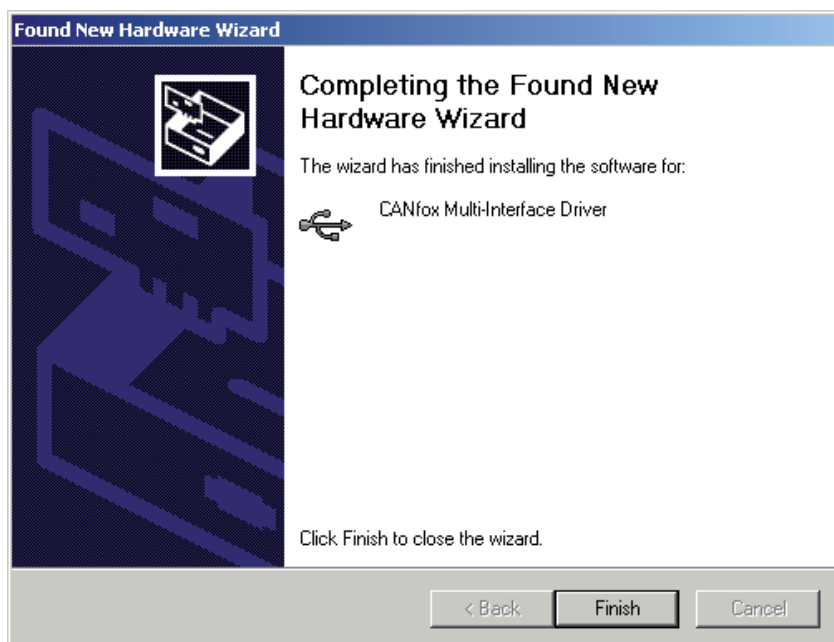


The results of the system-internal Windows logo test do not have any effect on the functionality of the software.



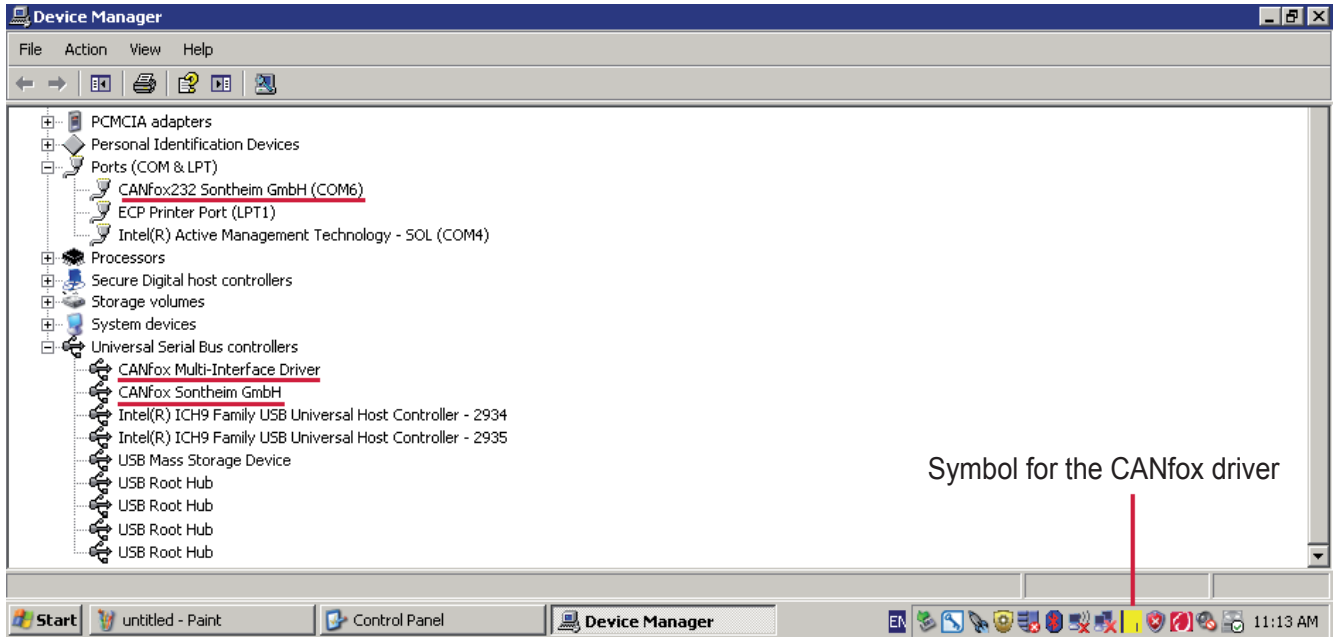
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- ▶ Acknowledge the possible message "has not passed Windows logo testing" with [Continue Anyway].



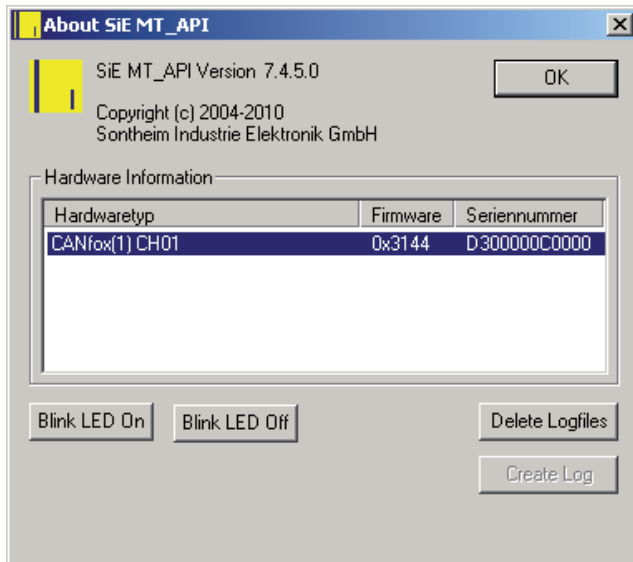
- ▶ Complete the installation of the first driver with [Finish].
- > Then the installation wizard for the 2nd driver starts automatically.
- ▶ Repeat the whole procedure for the 2nd and 3rd drivers.
- > After the installation the USB status LED (green) is lit.

### 7.3.2 New entries in the system control and task bar.



### 7.4 Function test

- ▶ Click with the right mouse button on the yellow symbol in the task bar and select [About].
- > The info window for the CANfox driver opens.



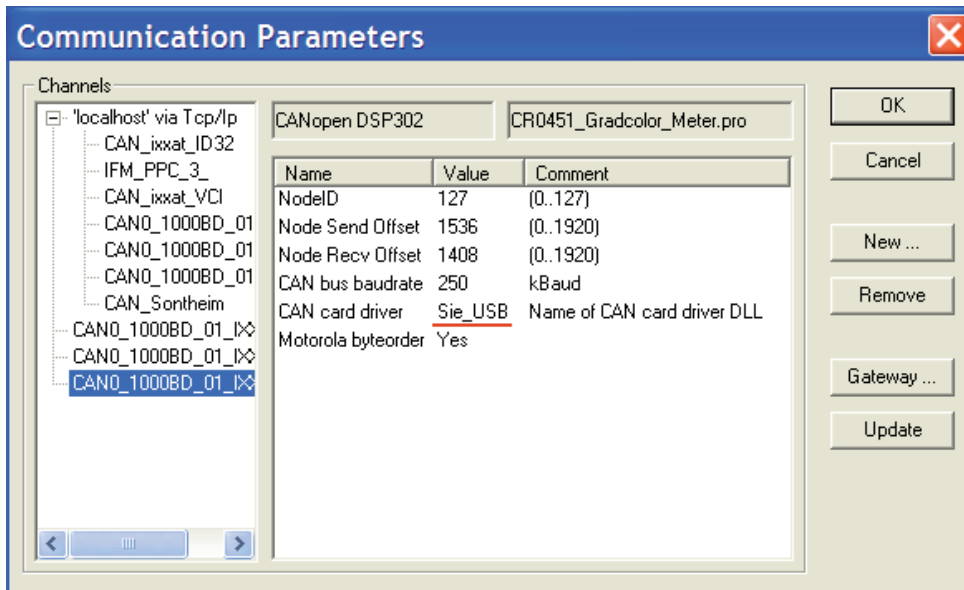
- ▶ Click on the entry and select [Blink LED On].
- > The status LEDs are flashing.
- > The unit is ready for operation.
- ▶ End the function test with [Blink LED Off] and [OK].



If the status LEDs do not flash, make a Windows restart.

## 7.5 CoDeSys communication parameters

- ▶ Enter the value "Sie\_USB" in "CAN card driver" in the communication parameters to use CoDeSys.



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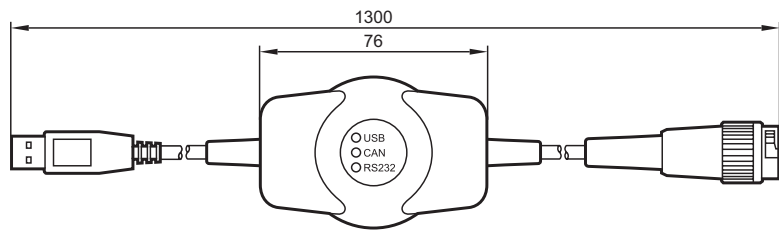
## 8 Technical data

### EC2112

CANfox

CAN/RS232-USB interface for programming and diagnosing CAN systems

Operating voltage  
5 V DC  
(via USB)



#### Technical data

##### Mechanical data

Housing

Dimensions (W x H x D)

Connection

Protection rating

Operating temperature

Storage temperature

Weight

##### Electrical data

Operating voltage

Current consumption

Processor

USB interface

RS-232 interface

CAN interface

System requirements

Software support

##### Test standards and regulations

CE marking

Accessories

#### CAN interface for the connection to the USB interface of a PC or notebook

plastics (ABS, black)

76 x 51 x 25 mm

USB plug, type A, cable length approx. 0.75 m  
DIN socket, 6 poles, cable length approx. 0.5 m  
overall length approx. 1.3 m

IP 50

-20...60° C

-40...85° C

0.20 kg

5 V DC (via USB)

≤ 300 mA

32-bit microcontroller with USB 2.0, CAN, UART, SPI, GPIOs

USB 2.0, full speed, 12 Mbits/s

baud rate up to 115200 bits/s

CAN interface 2.0 A/B, ISO 11898  
electrically isolated  
without terminating resistors  
baud rate 50 Kbits/s...1 Mbit/s  
incl. 800 Kbits/s and free configuration of the baud rate

Microsoft Windows® 2000, XP, Vista or Windows 7

CoDeSys 2.3, Maintenance Tool, CANexplorer

EN 61000-6-2 Electromagnetic compatibility (EMC)  
Noise immunity (10 V/m)

EN 61000-6-4 Electromagnetic compatibility (EMC)  
Emission standard

EN 61000-4-2 Noise immunity to static discharge (ESD)

Adapter cable for DIN socket, 6 poles  
[www.ifm.com](http://www.ifm.com) → data sheet search → EC2112 → Accessories

## EC2112

Status LEDs

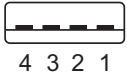
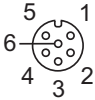
Operating states

## Technical data

USB, CAN, RS-232

LED	Colour	Status	Description
USB	green	on	USB communication active
		off	USB communication inactive
CAN	yellow	on	CAN communication active
		off	CAN communication inactive
		flashing	CAN data transmission running
RS-232	yellow	on	serial interface active
		off	serial interface has not been active since the start
		flashing	serial data transmission running

Wiring

USB Plug type A	Pin	Potential
	1	+ 5 V DC
	2	Data -
	3	Data +
	4	GND
CAN/RS-232 DIN socket, 6 poles	Pin	Potential
	1	CAN_H
	2	CAN_L
	3	GND
	4	RS-232 RxD
	5	RS-232 TxD
	6	screen

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## 9 Maintenance, repair and disposal

### 9.1 Maintenance

The device does not contain any components that need to be maintained by the user.

### 9.2 Cleaning the housing surface

- ▶ Disconnect the device.
- ▶ Clean the device from dust and light dirt using a soft, chemically untreated, dry cloth.
- ▶ In case of heavy dirt use a damp soft clean cloth.



The following agents are not suited for cleaning the device: chemicals dissolving plastics such as methylated spirit, benzine, thinner, alcohol, acetone or ammonia.



Micro-fibre cloths without chemical additives are recommended.

### 9.3 Repair

- ▶ The device must only be repaired by the manufacturer.  
Observe the safety instructions (→ 2.4 Tampering with the device)

### 9.4 Disposal

- ▶ Dispose of the device in accordance with the national environmental regulations.

## 10 Approvals/standards

Test standards and regulations (→ 8 Technical data)

The EC declaration of conformity and approvals can be found at:  
[www.ifm.com](http://www.ifm.com) → data sheet search → EC2112 → Approvals