

# ETAS ES582.2

## CAN FD Bus Interface USB Module



### User Guide

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# 1 Safety Notices

This chapter contains information about the following topics:

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Refer to the following safety instructions and the technical documentation available to download from the ETAS website [www.etas.com](http://www.etas.com). Keep the information provided in a safe place.

Failure to comply with the safety instructions may lead to the risk of damage to life and limb or property. The ETAS Group and its representatives shall not be liable for any damage or injury caused by improper operation or use of the product.

Only use the product if you have read and understood the information concerning safe operation and have the required qualifications and training for this product. If you have questions about safe operation, contact ETAS:

- Technical Support: [www.etas.com/hotlines](http://www.etas.com/hotlines)
- Regional ETAS Contact Partner: [www.etas.com/contact](http://www.etas.com/contact)

The product is only approved for the applications described in the technical documentation. When using and operating this product, all applicable regulations and laws must be observed.

ETAS products, made available as beta versions or prototypes of firmware, hardware and/or software, are to be used exclusively for testing and evaluation purposes. These products may not have sufficient technical documentation and not fulfill all requirements regarding quality and accuracy for market-released series products. The product performance may therefore differ from the product description. Only use the product under controlled testing and evaluation conditions. Do not use data and results from beta versions without prior and separate verification and validation and do not share them with third parties.

Before commissioning, check whether a Known Issue Report (KIR) is available for the current product version: [www.etas.com/kir](http://www.etas.com/kir) (Password: KETASIR). Note the information given in the report.

Program codes or program control sequences that are created or changed via ETAS products, as well as all types of data obtained through the use of ETAS products, must be checked for their reliability and suitability prior to use or distribution.

Only use these codes or sequences in public areas (e.g. in road traffic) if you have ensured that the application and product settings are safe through testing in self-contained and designated testing environments and circuits.

This ETAS product allows you to influence safety-relevant systems or data (e.g. in motor vehicles, vehicle components and test benches). In the event of a malfunction or a hazardous situation, it must be possible to put the system into a safe state (e.g. emergency stop or emergency operation).

## 1.1 Intended Use

The product was developed and approved for applications in the automotive sector. Only operate the product as per its specifications. If the product is used in any other way, product safety is no longer ensured.

The interface modules are designed for the following applications:

- Detecting signals from ETK and ECU interfaces, as well as from vehicle buses
- Flash programming of ECUs

### Application Areas


- The product is approved for use in the following areas:
  - Interior
  - Passenger cell
  - Trunk
- Do not operate the product in a wet or damp environment.
- Do not operate the product in potentially explosive atmospheres.


### Technical Condition

The product is designed in accordance with state-of-the-art technology. Only operate the product and its accessories if they are in perfect working order. Shut down a damaged product immediately. Do not open or alter the product. Only ETAS may make changes to the product.

## 1.2 Classification of Safety Messages

The safety messages warn of dangers that can lead to personal injury or damage to property:

 <b>DANGER</b>
DANGER indicates a hazardous situation with a high risk of death or serious injury if not avoided.

 <b>WARNING</b>
WARNING indicates a hazardous situation of medium risk, which could result in death or serious injury if not avoided.



### **CAUTION**

CAUTION indicates a hazardous situation of low risk, which may result in minor or moderate injury if not avoided.

### ***NOTICE***

NOTICE indicates a situation, which may result in damage to property if not avoided.

## 1.3

### Assembly

Only install, connect, disconnect and cable ETAS products and components when they are de-energized.

### Installation location

Install the product on a smooth, level and firm surface.



### **WARNING**

The following product is a Class A piece of equipment: ES582.2

This piece of equipment may cause radio interference in living areas. In this case, the user may be required to take appropriate measures.

### ***NOTICE***

#### Damage to the electronics due to potential equalization

The cables' shield may be connected to the housing, the ground or the ground for the product's power supply. If there are different ground potentials in the test setup, equalizing currents can flow between the products via the cables' shield.

Take account of different electric potentials in your test setup and take appropriate measures to prevent equalizing currents.

### Securing the Product

The housing must not be damaged while securing the product.



### **WARNING**

#### Risk of injury due to inadequate fastening

- Secure the product so that it does not move uncontrollably.
- Only use carrier systems and fastening materials that can accommodate the static and dynamic forces of the product and are suitable for the ambient conditions.

### Ventilation

- Protect the product against direct solar radiation and other sources of heat.
- Ensure that there is sufficient air circulation for efficient heat exchange.

## 1.4 Operation

Only operate the product with the latest firmware. You can find information about updating the firmware in the user manual.

If the firmware update is not completed successfully, try it again. If a new firmware update is not possible and the product is not functional, send the product to ETAS.



### WARNING

Risk due to undefined vehicle behavior during an ECU reset

If you operate the product in combination with ETKs, the ECU must not be reset in an uncontrolled manner.

- Only make changes when the vehicle is stationary (e.g., changes to the test setup, changes to the ETK configuration, software updates).

## 1.5 Electrical Connection

### Electrical Safety and Power Supply

- Only connect the product to electric circuits with safety extra-low voltage in accordance with IEC 61140 (devices of class III) within the voltage limits for accessible parts as per IEC 61010-1.
- Comply with the connection and setting values (see chapter Technical Data).
- The power supply for the product must be safely disconnected from the mains power. For example, use a car battery or a suitable lab power supply.
- Only use lab power supplies with dual protection for the supply network (with double/reinforced insulation (DI/RI)).
- The power supply must be suitable for use according to the ambient conditions for the product.
- It is possible to discharge the vehicle battery in regular operation and long standby operation.
- Central load-dump protection is required for operation.

### Connection to the Power Supply

The product is powered via the USB. Connect the product directly to a computer's USB interface, ETAS drive recorders or active hubs that meet the USB 2.0 specifications, as a minimum.

### De-energizing the product

1. Remove the USB cable.
2. Remove all cables from the product.



## 1.6 Cables and Accessories

### Cables

- Only use ETAS cables, cables recommended by ETAS or other cables certified for the application.
- Route the cables such that they are protected against abrasion, damage, deformation and kinking.
- Do not place any objects on the cables.
- Do not use any damaged cables.
- The connector and connection must not be dirty.
- The connector and connection must be compatible.
- Correctly align the connector with the connection.
- Do not connect the connector and connection by force.

### Accessories

Use ETAS accessories, accessories recommended by ETAS or other accessories certified for the application. For detailed information about accessories, see the product's user manual.

## 1.7 Transport

- Only transport the product individually.
- Remove all connected cables before transportation.
- Do not transport the product by the connected cables.

## 1.8 Maintenance

The product is maintenance-free.

### Cleaning

- Only clean the product when it is de-energized.
- Do not use cleaning agents that could harm the product.
- Do not apply cleaning agents directly onto the product.
- Use a dry or slightly dampened, soft, lint-free cloth.
- Make sure that no moisture enters the product.

## 1.9 Repairs

If repairs are required, send the product to ETAS.

## 1.10 Shipment and Packaging

You can find the return form and information about this process on the ETAS website: [www.etas.com/en/support/hw\\_return\\_form.php](http://www.etas.com/en/support/hw_return_form.php).

## 2 Hardware Description

This chapter contains information about the following topics:

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- Application Areas ..... 11
- Properties ..... 11
- Interfaces ..... 12
- Power Supply ..... 14
- Display of Operating State ..... 14
- Update of the Firmware ..... 15

### 2.1 Overview

The ES582.2 CAN FD Bus Interface USB Module is part of the family of compact ETAS bus interface modules. It is equipped with two CAN/CAN FD interfaces for connection to the CAN bus of a vehicle or an ECU as well as with a USB port for the connection with a PC or a drive recorder.



**Fig. 2-1** ES582.2

The ES582.2 module supports CAN FD (CAN Flexible Data Rate) and is suitable for numerous applications in the classic CAN as well as in the CAN FD environment.

In conjunction with the application software INCA and ODX LINK from ETAS, the ES582.2 enables access to the CAN bus for measurement, calibration and diagnostics.

With the diagnostics service interface, the ES582.2 can be connected with the CAN bus of a vehicle.

When validating the vehicle diagnostics, the module can be used together with ODX LINK, the INCA add-on for ECU diagnostics, as interface for OBD-on-CAN as well as for reading and deleting diagnostics error codes (DTCs). A separate diagnostics service tool is not required in these cases.

The ES582.2 module offers an open SAE J2534-compliant pass-thru interface for the vehicle diagnostics and flash programming.

The module supports all protocols used by INCA, such as CCP, XCP, KWP-on-CAN and UDS. The protocols CCP and KWP-on-CAN (ISO14230/ISO15765) are supported only in the classic CAN mode.

The effort for installing and configuring the cost-efficient module is minimal, an external voltage supply is not needed.

## 2.2 Application Areas

The ES582.2 can be used for the following tasks:

- Recording and acquiring calibration communication data from ECUs via the CAN bus interface
- Diagnostics of ECUs via the CAN bus interface and J2534 pass-thru interface
- Vehicle diagnostics and reprogramming via a J2534 pass-thru interface using application software from third parties
- Flash programming of ECUs
- Connection of third-party modules to the INCA PC via their CAN interface (e.g. Ipetronik or csm modules)
- Integration of the module in the BUSMASTER open source software or via EBI-IP in application software from third-party manufacturers

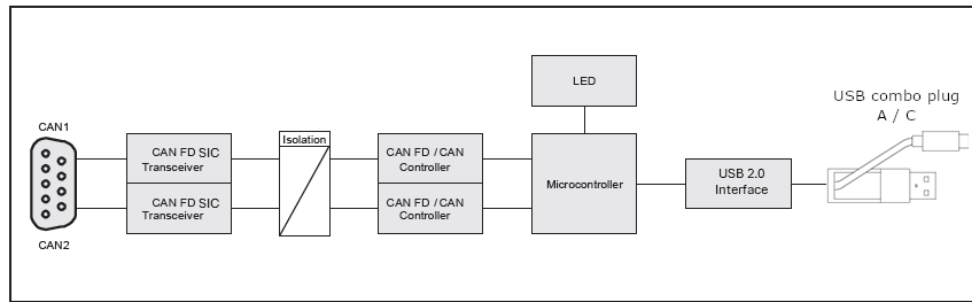
## 2.3 Properties

The most important properties of the ES582.2 CAN FD Bus Interface USB Module at a glance:

- 2 independent CAN/CAN FD interfaces:
  - CAN High-Speed operating mode CAN FD operating mode CAN FD SIC
  - CAN protocols CAN V2.0a (standard identifier with 11 bit) and CAN V2.0b (extended identifier with 29 bit)
  - Support of ISO-compliant CAN FD and ISO non-compliant CAN FD
  - CAN channels isolated from the USB port
  - Multi-client access to the same CAN channel (max. four clients can access the device; two clients per channel)
- Synchronization of measuring channels with INCA
- DSUB connector according to "CAN in Automation" (CiA)
- Simple and direct connection to a USB port
- No external voltage supply required
- Completely integrated in INCA, part of the ETAS tool suite
- Immune to ambient conditions (temperature, EMC)
- Automotive-qualified module, suitable for use in the development environment and in the passenger compartment of motor vehicles
- High level of mechanical stability and robustness

Additional technical data of ES582.2 is located in chapter 5 on page 25.

## 2.4 Interfaces



**Fig. 2-2** ES582.2 Block Diagram

### 2.4.1 CAN Interfaces (CAN1/CAN2)

CAN FD (CAN Flexible Data Rate) is an improved, downward-compatible CAN protocol. The main differences to CAN are in the extension of the user data per message from 8 to 64 bytes, higher transmission rates of up to 8 Mbit/s and longer checksums, which increase the reliability of the transmission. CAN FD covers the demand for higher bandwidth for networks in the automotive industry. At the same time, CAN FD nodes can easily be integrated into the existing CAN infrastructure.

The ES582.2 CAN FD Bus Interface USB Module features the CAN interfaces CAN1 and CAN2 at the 9-pin socket. The two CAN interfaces are independent CAN channels with separate CAN controllers. They are isolated from the USB port of the ES582.2.

#### Operating modes

Each CAN interface can optionally be operated in the CAN high-speed operating mode or in the CAN FD (CAN Flexible Data Rate) operating mode. The ES582.2 module supports ISO-compliant CAN FD as well as non-ISO-compliant CAN FD.

The interfaces CAN1 and CAN2 can be configured independently of each other in the application software for the following operating modes:

- CAN
- ISO-compliant CAN FD
- Non-ISO-compliant CAN FD



#### NOTE

The two interfaces CAN1 and CAN2 can be used independently of each other in different operating modes.

#### Multi-client support

Each of the CAN channels of the module ES582.2 can support two clients (application tools) at the same time. On each of the CAN channels, simultaneous access, e.g. by an application tool (e.g. INCA) and a diagnostics tool (e.g. DiagRa) is possible.

Overall, each individual ES582.2 module connected to the PC can operate four (different) clients or application tools.

## Timestamp

The ES582.2 assigns a timestamp to the CAN messages. The measured data acquired by the ES582.2 module is synchronized by the INCA application software with signals of other ECUs and measuring modules at high speed.

## Feature

The CAN applications supported by the ES582.2 are located in an overview in chapter 5.9.2 on page 30.

## Bus terminating resistor

The CAN interface requires the use of bus terminating resistors in both operating modes. According to the CAN specification, one bus terminating resistor each of 120 ohm is required at the two open ends of the bus. It must be connected to the cable or the plug. ETAS offers cables and terminating resistors of 120 ohm to set up CAN networks.

Some CAN networks are already terminated (e.g. inside a vehicle), so that no additional termination is required.

## Minimum requirements for the CAN connections

At least the following connections are required for a connection to the CAN network:

- Pin 2 CAN Low
- Pin 7 CAN High
- Pin 6 or Pin 3 GND (one of the pins can optionally be connected)

The ground connection (GND) must be identical with the ground connection of the other CAN nodes on the bus.

## Y-cable

A Y-cable (CBCF100, see also 6.1 on page 34) allows access of both CAN interfaces to the CAN bus.

### 2.4.2 USB Port

The module can be connected to a PC or drive recorder via a permanently connected cable with a USB combo plug.



#### NOTE

The module must be operated directly on the USB connection of a PC, a drive recorder or an active hub whose USB interface meets the requirements listed in the table in chapter 5.9.1 on page 29.

The use of USB cables for extending the connection between ES582.2 and PC or drive recorder is not allowed.

## 2.5 Power Supply

The power supply of the ES582.2 module is connected via the USB port of a PC or a drive recorder. An external power supply is not required for the module. Notes about the requirements for the USB port of the PC are located in chapter 5.9.1 on page 29.

## 2.6 Display of Operating State



**Fig. 2-3** ES582.2 LEDs

The ES582.2 is equipped with five LEDs to display the operating state of the module as well as the function of both CAN interfaces CAN1 and CAN2 (see Fig. 2-3 on page 14):

LED	Display	Description
<b>CAN1</b>	Yellow	Communication at the CAN1 interface
	Off	Communication at the CAN1 interface interrupted
	Red	Communication error at the CAN1 interface
<b>BUSY</b>	Blue	Module is in the boot phase or a firmware update is being performed. Do not disconnect the module from the PC!
	Off	Normal operation
<b>ON</b>	Green	Module is switched on
	Off	Module is switched off
<b>ER</b>	Red	Bootling was not successful or software error of module. Restart the module.
	Off	No error
<b>CAN2</b>	Yellow	Communication at the CAN2 interface
	Off	Communication at the CAN2 interface interrupted
	Red	Communication error at the CAN2 interface

## 2.7 Update of the Firmware

The firmware of the ES582.2 can be updated by the user so that future versions of the module can also be used. The update of the firmware is done with the help of the ETAS service software "Hardware Service Pack" (HSP) from the connected PC.



### NOTE

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During an update of the firmware, the USB connection to the PC must not be disconnected!

While the module is being used by HSP, other clients cannot access the module.

### 3 Commissioning

This chapter contains information about the following topics:


- Assembly ..... 16
- Preparing to Install ..... 16
- Verifying the Installation of the USB Driver ..... 18
- Establishing the USB Connection ..... 19
- Updating the USB Driver ..... 19
- Application ..... 19

#### 3.1 Assembly

***NOTICE***

**Damage to the electronics due to potential equalization**


The cables' shield may be connected to the housing, the ground or the ground for the product's power supply. If there are different ground potentials in the test setup, equalizing currents can flow between the products via the cables' shield. Take account of different electric potentials in your test setup and take appropriate measures to prevent equalizing currents.

 **WARNING**

**Risk of injury due to inadequate fastening**

- Secure the product so that it does not move uncontrollably.
- Only use carrier systems and fastening materials that can accommodate the static and dynamic forces of the product and are suitable for the ambient conditions.

#### 3.2 Preparing to Install

 **NOTE**

The latest USB driver must be installed on the PC in order to operate the ES582.2 module.

The ES582.2 can be installed under plug & play-compatible operating systems (min. Windows 10). After installing the drivers, the ES582.2 module can be inserted/removed at any time.

##### 3.2.1 Checking System Requirements

Check whether your PC meets the system requirements (see also 5.9 on page 29). Administrator rights are required for the installation of the USB driver on the PC. If necessary, contact your system administrator.

##### 3.2.2 DVD

The supplied DVD includes:

- USB driver for the ES582.2 with installation wizard



- Hardware Service Pack (HSP) for updating the firmware
- OSS attributions
- Documentation: ES582.2 User's Guide
- ETAS Safety Advice ES52x\_ES59x

The application for installing the USB drivers is located on the DVD as the executable file **autostart.exe**.

As an alternative, you can install the driver for the ETAS service software "Hardware Service Pack" (HSP).

### 3.2.3 Installation Procedure

Commissioning the ES582.2 must be done in the following order:

1. Installing the USB drivers (ES582.2 not connected to the PC)
2. Establishing the USB connection
3. Establishing the CAN connection

### 3.3 Verifying the Installation of the USB Driver

In the Device Manager of Windows, you can check which hardware drivers are installed and which status they have.

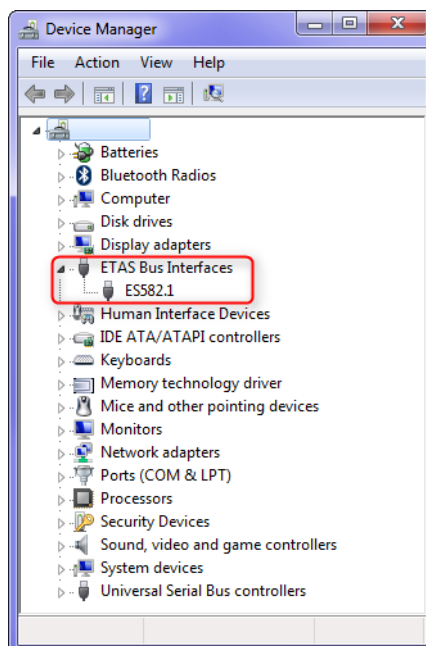


#### NOTE

For compatibility reasons, the ES582.2 is displayed in the device manager as "ES582.1".

#### Verifying the installation of the USB driver:

1. Connect the ES582.2 module with the USB port of the PC or the drive recorder.
2. Select **Start** → **Control Panel** → **Device Manager**.  
The **Device Manager** window opens.
3. Select **ETAS Bus Interfaces**.
4. Check whether the ES582.2 module not shows the new entry **ES582.2 CAN-USB**.



**Fig. 3-1** Device Manager of Windows

If the ES582.2 USB driver was not correctly installed/uninstalled, and Windows recognizes the module as connected, a symbol with an exclamation mark is shown next to the device. Execute the installation program for the driver again to correct this problem.

### 3.4 Establishing the USB Connection

After successful driver installation, the ES582.2 module can be connected to the PC. Windows should recognize the device and install the corresponding driver. Windows displays an information note in the start bar. Fig. 3-2 on page 19 shows a representation of the information notes that are displayed.

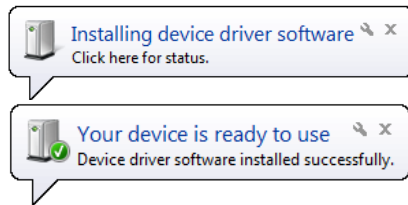



Fig. 3-2 Windows Information Note

### 3.5 Updating the USB Driver

Updating the ES582.2 must be done in the following order:

1. Ensure that the client software applications are closed.
2. Start the installation program and uninstall the old driver.
3. Install the new driver.

### 3.6 Application

 **WARNING**

Risk due to undefined vehicle behavior during an ECU reset

If you operate the product in combination with ETKs, the ECU must not be reset in an uncontrolled manner.

- Only make changes when the vehicle is stationary (e.g., changes to the test setup, changes to the ETK configuration, software updates).

## 4 Troubleshooting Problems

This chapter gives some information of what you can do when problems arise with the ES582.2 and when general problems arise that are not specific to a certain software or hardware product.

### 4.1 Displays of the LEDs

For assessing the operating states and for removing errors of the ES582.2, observe the display of the LEDs which provide information about the function of the interfaces and the ES582.2 (see chapter 2.6 on page 14).

### 4.2 Problems with the ES582.2

The following table lists several possible problems and their corresponding solution attempts. In case of further questions, please contact our technical service (see chapter 8 on page 38).

Problem	Diagnostics questions	Possible solution
Device is detected but cannot be initialized.		Update the firmware.
The computer does not install the drivers when the module is connected for the first time.	Has the USB driver already been installed?	Check whether the module is listed in the Windows Device Manager. It may already be installed, or it was installed by the operating system. Additional information concerning the Device Manager settings is located in chapter 3.4 on page 19.
	Is the USB port of the PC defective?	Try using a different USB port of the computer. Restart the PC.
The USB driver is not being installed.		Ensure that you are logged in with the required authorizations for installing the driver (administrator rights).
The ES582.2 module is not being recognized with the "Find hardware" function.	Did you install INCA with the required version?	Check whether the INCA version installed on your PC meets the requirements in chapter 5.8.2 on page 30.
	Did you install the INCA ODX add-on with the required version?	Check whether the INCA ODX add-on version installed on your PC meets the requirements in chapter 5.8.2 on page 30.
	Did you install the required firmware on the module?	Check with HSP whether the required firmware is installed on the module.
	Is the hardware connected to the PC?	Check whether the cabling is intact.

Problem	Diagnostics questions	Possible solution
The measurements are not being started.	Does the INCA monitor log ask you to perform an update?	Update the firmware of the module with HSP.
	Does the module provide no data?	Check whether your measurement setup meets the requirements.
		Check whether the cabling of the hardware to the PC is correct and intact.
		Check whether the LED " <b>ER</b> " flashes: The baud rate may not be supported by the module. Information about the supported baud rates is located in chapter 5.9.2 on page 31.

## 5 Technical Data






This chapter contains information about the following topics:




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- CE Conformity ..... 27
- UKCA Conformity ..... 27
- KCC Conformity ..... 27
- CMIM conformity ..... 27
- Return and Recycling of the Product ..... 27
- Mechanical Data ..... 28
- System Requirements ..... 29
- Electrical Data ..... 31
- Terminal Assignment ..... 32

### 5.1 General Data

#### 5.1.1 Identifications on the Product

The following symbols are used for identifications of the product:

Symbol	Description
	The User's Guide must be read prior to the startup of the product!
SN: 1234567	Serial number (7-digit)
F 00K 107 731	Order number of the product (example), see chapter 7.1 on page 37
	Operating voltage (DC voltage)
350 mA	Current consumption, max.
ES582.2	Product designation
	Manufacturer's address
	Marking for China RoHS, see also on page 27
	Marking for RoHS, see chapter on page 27
	Marking for CE conformity (Chapter 5.3 on page 27)

Symbol	Description
	Marking for UKCA conformity (Chapter 5.4 on page 27)
	Marking for KCC conformity (Chapter 5.5 on page 27)
	Marking for CMIM conformity (Chapter 5.5 on page 27)

### 5.1.2 Standards

The module corresponds to the following Standards:

Standard	Test
EN 61326-1	Electrical equipment for measurement, control and laboratory use - EMC requirements
EN 61010-1	Safety requirements for electrical equipment for measurement, control and laboratory use
EN 60529	Degree of protection through housing (IP code)
EN 60068-2-32	Environmental testing - Part 2: Tests; Test ed: free falling

### 5.1.3 Ambient Conditions

Operating temperature range	-40 °C to +70 °C -40 °F to +158 °F
Storage temperature range (without packaging)	-40 °C to +85 °C -40 °F to +185 °F
Max. relative humidity (non-condensing)	95%
Max. altitude	5000 m / 16400 ft
Degree of contamination (IEC 60664-1, IEC 61010-1)	2
Protection rating (when closed)	IP52

## 5.2 RoHS Conformity

### European Union

The EU Directive 2011/65/EU limits the use of certain dangerous materials for electric and electronic devices (RoHS conformity).

ETAS confirms that the product meets this directive applicable in the European Union.

### China

With the China RoHS identification attached to the product or its packaging, ETAS confirms that the product meets the guidelines of the "China RoHS" (Management Methods for Controlling Pollution Caused by Electronic Information Products Regulation) applicable in the People's Republic of China.

## 5.3 CE Conformity

With the CE mark attached to the product or its packaging, ETAS confirms that the product corresponds to the product-specific, applicable directives of the European Union.

The CE Declaration of Conformity for the product is available upon request.

## 5.4 UKCA Conformity

With the UKCA mark attached to the product or its packaging, ETAS confirms that the product corresponds to the product-specific, applicable standards and directives of Great Britain.

The UKCA declaration of conformity for the product is available on request.

## 5.5 KCC Conformity

With the KC mark attached to the product and its packaging, ETAS confirms that the product has been registered in accordance with the product-specific KCC guidelines of the Republic of Korea.

## 5.6 CMIM conformity

With the CMIM mark attached to the product or its packaging, ETAS confirms that the product corresponds to the product-specific, applicable directives of the Kingdom of Morocco.

The CMIM Declaration of Conformity for the product is available upon request.

## 5.7 Return and Recycling of the Product

The European Union (EU) released the Directive for (Waste Electrical and Electronic Equipment - WEEE) to ensure the creation of systems for the collection, treatment and utilization of electronic waste in all states of the EU.



This ensures that the devices are recycled in a resource-friendly way that does not represent any risk to personal health and the environment.



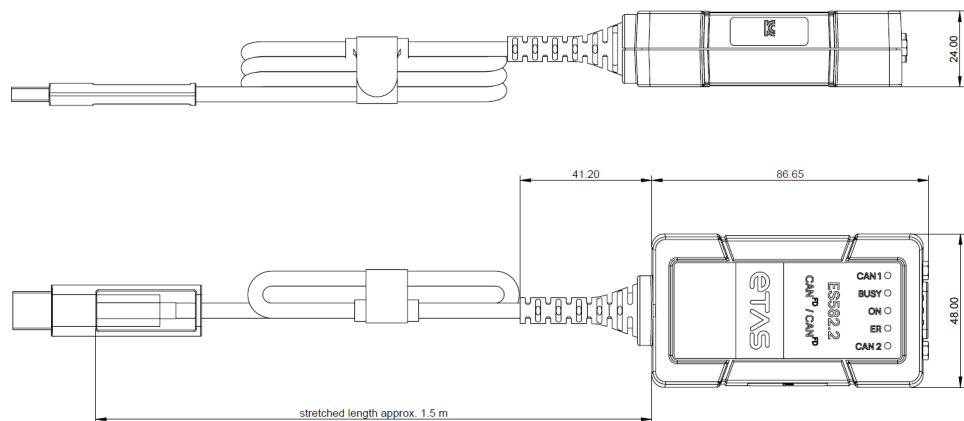
**Fig. 5-1** WEEE Symbol

The WEEE symbol (see Fig. 5-1 on page 28) on the product or its packaging indicates that the product may not be disposed of together with the remaining trash. The user is obligated to separately collect old devices and provide them to the WEEE return system for recycling.

The WEEE Directive applies to all ETAS devices, but not to external cables or batteries.

Additional information about the recycling program of ETAS GmbH is available from the ETAS sales and service locations (see chapter “Contact Information” on page 38).

## 5.8 Mechanical Data



**Fig. 5-2** Dimensions

Dimensions (H x W x D)	24 x 48 x 87 mm 0.95 x 1.89 x 3.42 in
Weight	0.14 kg / 0.33 lb

## 5.9 System Requirements

### 5.9.1 Hardware

#### PC with USB port

USB port	min. USB 2.0 USB socket type A / type C
Operating system	min. Windows 10
Driver	ES582.2 USB driver

#### Power supply

The power supply of the product is connected via the USB port of a PC or a drive recorder. An external power supply is not required for the module.



#### NOTE

The module must be operated directly on the USB connection of a PC, a drive recorder or an active hub whose USB interface meets the requirements listed in the table.

The use of USB cables for extending the connection between ES582.2 and PC or drive recorder is not allowed.

#### Prerequisite for the successful initialization of the module



#### NOTE

A specific USB driver must be installed on the PC for operating the ES582.2 module (see chapter 3.3 on page 18).

#### Windows user rights

Ensure that you have the required Windows user rights for the installation of the USB driver (administrator rights).

#### Additional requirements

The PC must meet the minimum requirements of the application program used (e.g. INCA). Information about the minimum requirements for INCA is located in the corresponding software documentation.

## 5.9.2 Software

### Supported applications and software prerequisites

To operate the ES582.2, you need the following versions or higher:

Software requirements	INCA	HSP	Driver-Version
5 MBaud	from 7.2.3 - 7.5.0	14.1.0	from 2.0.0
8 MBaud	from 7.5.1	14.1.0	from 2.0.0

### Supported software interfaces

For the integration of the ES582.2 module and the J2534 interface in application software from third-party manufacturers, ETAS provides the software development kit "ECU and Bus Interfaces - Integration Package" (EBI-IP).

The software development kit can be downloaded free of charge on the ETAS website.

## 5.10 Electrical Data

### 5.10.1 Voltage Supply

Operating voltage range	4.75 to 5.25 V DC
Max. current consumption	0.35 A
Overvoltage category (mains supply, IEC 60664-1)	II

### 5.10.2 CAN Interface (CAN1 and CAN2)

CAN1 and CAN2	2 independent interfaces, isolated from the USB port, each channel can be configured separately.
Standard	ISO 11898-1, ISO 15765-4, ISO 11898-2:2015
Protocols	CAN V2.0a (standard identifier), CAN V2.0b (extended identifier)  CAN FD (ISO/CD 11898-1:2015; Bosch CAN FD SIC Specification V1.0 [Non-ISO])
Transmission speed	High-speed CAN/ CAN FD SIC header: max. 1 Mbaud at 20 m bus length  CAN FD SIC (data): max. 5 Mbit/s (operating temperature range)  CAN FD SIC (data): max. 8 Mbit/s (room temperature)
Controller	ARM Cortex MCU
Transceiver (physical layer)	TJA1462BT

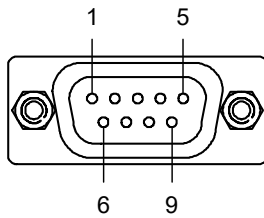
## 5.11 Terminal Assignment



### NOTE

All connections are represented with view onto the interfaces of the module.

The connection of the CAN bus to the ES582.2 CAN FD Bus Interface USB Module is carried out via the 9-pin DSUB connector (see Fig. 5-3).



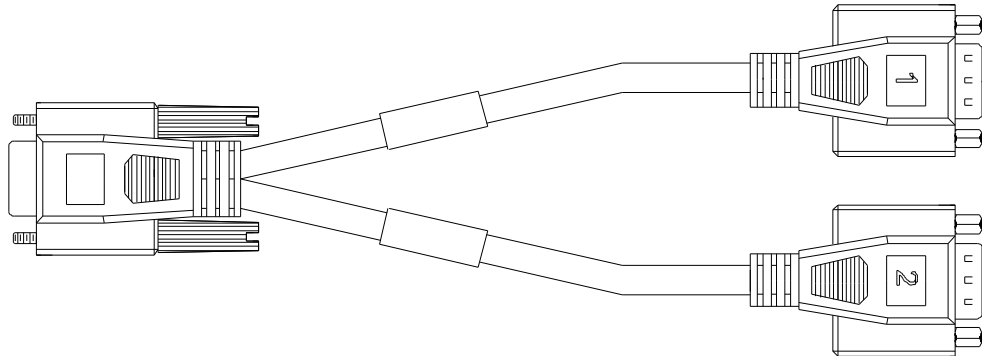
**Fig. 5-3** ES582.2 DSUB Connector

Pin	Signal	Meaning
1	-	Not connected
2	CAN 1 Low	CAN 1 Low
3	GND	Ground
4	CAN 2 Low	CAN 2 Low
5	-	Not connected
6	GND	Ground
7	CAN 1 High	CAN 1 High
8	CAN 2 High	CAN 2 High
9	-	Not connected

A 9-pin DSUB connector is plugged into the "CAN1/CAN2" socket.

## 6 Cables and Accessories

### 6.1 Cable CBCF100



**Fig. 6-1** Cable CBCF100

Y-cable for connecting the second CAN or FlexRay channel.

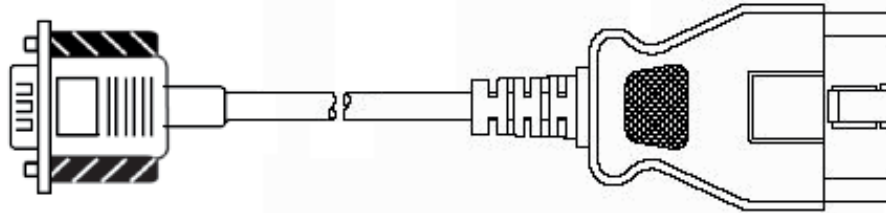


**Fig. 6-2** Cable CBCF100: DSUB Connection "1" and "2"

DSUB connection "1"		DSUB connection "2"	
Pin	Signal (CAN 1)	Pin	Signal (CAN 2)
1	Not connected	1	Not connected
2	CAN 1, low	2	CAN 2, low
3	Ground	3	Ground
4	Not connected	4	Not connected
5	Shield	5	Shield
6	Ground	6	Ground
7	CAN 1, high	7	CAN 2, high
8	Not connected	8	Not connected
9	Not Used	9	Not Used

Order designation	Short name	Order number
CAN and FlexRay Interface Y-Cable, DSUB - 2 x DSUB (9fc-9mc+9mc), 0m3	CBCF100.1-0m3	F 00K 107 939

6.2 Cable CBAC180



**Fig. 6-3** Cable CBAC180-2

OBDII (J1962) adapter cable for the CAN Interfaces of ES582.2

DSUB connection	OBD2 connection	Signal	Note
Pin	Pin		
7	6	CAN1 High	CAN1 High and CAN1 Low in a shielded twisted pair
2	14	CAN1 Low	CAN1 High and CAN1 Low in a shielded twisted pair
8	3	CAN2 High	CAN2 High and CAN2 Low in a shielded twisted pair
4	11	CAN2 Low	CAN2 High and CAN2 Low in a shielded twisted pair
9	16	Power V+	
3	5	GND	

Order designation	Short name	Order number
CAN Interface Cable, OBDII J1962 - DSUB (16mc-9fc), 2 m	CBAC180.0-2	F 00K 107 300

### 6.3 Cable CBH500

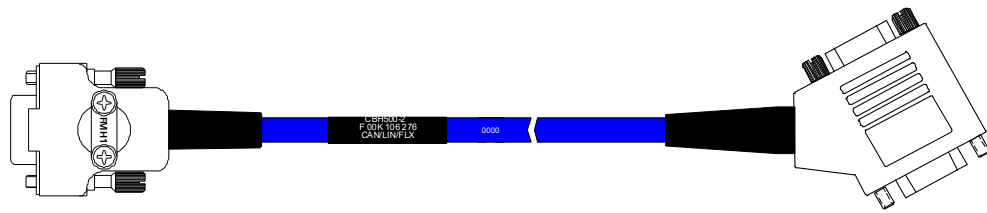


Fig. 6-4 Cable CBH500

**NOTE**  
The cable CBH500 supports only one CAN channel.

Order designation	Short name	Order number
CAN, LIN, and FlexRay Interface Cable, DSUB-DSUB (9fc - 9mc + 9fc), 2 m	CBH500-2	F 00K 106 276

### 6.4 Cable CBCX130

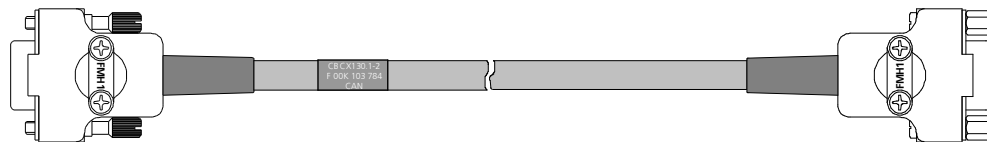


Fig. 6-5 Cable CBCX130

Order designation	Short name	Order number
CAN Interface Cable, DSUB - DSUB (9fc-9mc), 2 m	CBCX130-2	F 00K 103 784

### 6.5 Adapter CBCX131.1-0

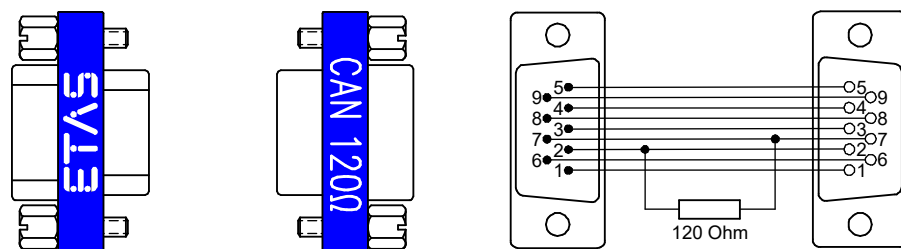


Fig. 6-6 Terminating Resistor CBCX131.1-0

CAN 120 ohm terminating resistor, 2xDSUB (9fc+9mc)

Order designation	Short name	Order number
CAN 120 ohm terminating resistor, 2xDSUB (9fc+9mc)	CBCX131-0	F 00K 103 786



## 7 Ordering Information

### 7.1 ES582.2 CAN FD Bus Interface USB Module

Order name	Short name	Order number
ES582.2 CAN FD Bus Interface USB Module	ES582.2	F 00K 115 625
<b>Scope of supplies</b>		
<ul style="list-style-type: none"> <li>- ES582.2 CAN FD Bus Interface USB Module,</li> <li>- Cable CBCF100.1,</li> <li>- ES582.2_DVD,</li> <li>- List "Content of this Package",</li> <li>- ES58x_ETAS_Safety_Advice</li> </ul>		

### 7.2 Accessories

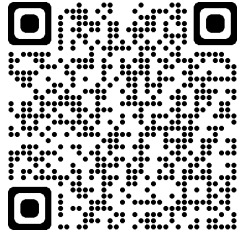
Order name	Short name	Order number
CAN and FlexRay Interface Y-Cable, DSUB – 2 x DSUB (9fc-9mc+9mc), 0m3	CBCF100.1-0m3	F 00K 107 939
CAN, LIN, and FlexRay Interface Cable, DSUB-DSUB (9fc - 9mc + 9fc), 2m	CBH500-2	F 00K 106 276
CAN Interface Cable, OBDII J1962 - DSUB (16mc-9fc), 2m	CBAC180.0-2	F 00K 107 300
CAN Interface Cable, DSUB – DSUB (9fc-9mc), 2 m	CBCX130-2	F 00K 103 784
CAN 120 Ohm Termination Resistor, 2xDSUB (9fc+9mc)	CBCX131-0	F 00K 103 786

## 8 Contact Information

### Technical Support

For details of your local sales office as well as your local technical support team and product hotlines, take a look at the ETAS website:

[www.etas.com/en/hotlines.php](http://www.etas.com/en/hotlines.php)



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