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1 General Information

This introductory chapter provides you with information on basic safety instructions, returning the product and recycling, how to use this manual, and provides you with an overview of the system requirements for operating the ES581.3 CAN Bus Interface USB Module, the delivery scope and other details.

1.1 Basic Safety Instructions

Please adhere to the Product Liability Disclaimer (ETAS Disclaimer) and to the following safety instructions to avoid injury to yourself and others as well as damage to the device.

1.1.1 Labeling of Safety Instructions

The safety instructions contained in this manual are shown with the standard danger symbol shown below:

⚠️

The following safety instructions are used. They provide extremely important information. Please read this information carefully.

WARNING!

indicates a possible medium-risk danger which could lead to serious or even fatal injuries if not avoided.

CAUTION!

indicates a low-risk danger which could result in minor or less serious injury or damage if not avoided.

1.1.2 Demands made re the Technical State of the Product

The following requirements are made to ensure safe operation of the module:

- Ensure you observe the notes on environmental conditions (see section 5.1.2 on page 25).
- Ensure you adhere to the port values (see section 5.3.1 on page 28).
1.2 Taking the Product Back and Recycling

The European Union has passed a directive called Waste Electrical and Electronic Equipment, or WEEE for short, to ensure that systems are setup throughout the EU for the collection, treating and recycling of electronic waste.

This ensures that the devices are recycled in a resource-saving way representing no danger to health or the environment.

![WEEE-Symbol](image)

Fig. 1-1  WEEE-Symbol

The WEEE symbol (see Fig. 1-1 on page 6) on the product or its packaging shows that the product must not be disposed of as residual garbage.

The user is obliged to collect the old devices separately and return them to the WEEE take-back system for recycling.

The WEEE directive concerns all ETAS devices but not external cables or batteries.

For more information on the ETAS GmbH Recycling Program, contact the ETAS sales and service locations (see chapter 8 on page 37).

1.3 About This Manual

This manual describes the startup and technical data of the ES581.3 CAN Bus Interface USB Module.

1.3.1 Structure

This manual consists of eight chapters and one index.

- **Chapter 1: “Introduction”**
  This introductory chapter provides you with information on basic safety instructions, returning the product and recycling, how to use this manual, and provides you with an overview of the system requirements for operating the ES581.3 CAN Bus Interface USB Module, and other details.

- **Chapter 2: “Hardware Description”**
  The “Hardware Description” chapter describes the features, functions, areas of application, interfaces and indicators, and the block diagram of the ES581.3 CAN Bus Interface USB Module.

- **Chapter 3: “Getting Started”**
  The “Getting Started” chapter describes general preparatory steps for installation and how to install the ES581.3 drivers under Windows XP. This chapter describes also the USB and the CAN connection of the ES581.3.

- **Chapter 4: “Troubleshooting”**
  The “Troubleshooting” chapter contains suggestions on how to rectify any faults the ES581.3 may have.

- **Chapter 5: “Technical Data”**
  The “Technical Data” chapter contains a summary of the pin assignments and all technical data of the ES581.3 CAN Bus Interface USB Module.
• Chapter 6: “Cables and Accessories”
The “Cables and Accessories” chapter contains an overview of the available cables and accessories.

• Chapter 7: “Ordering Information”
The “Ordering Information” chapter contains the ordering information on the available cables and accessories.

• Chapter 8: “ETAS Contacts”
The final chapter, “ETAS Contacts”, gives you information on ETAS’ international sales and service locations.

1.3.2 Using this Manual

Representation of Information

All activities to be executed by the user are presented in what is referred to as a “Use-Case” format. I.e. the aim is defined in brief as a title and the relevant steps necessary to achieve this aim are then listed. The information is displayed as follows:

Target definition:

Any introductory information...

• Step 1
  Possibly an explanation of step 1...

• Step 2
  Possibly an explanation of step 2...

• Step 3
  Possibly an explanation of step 3...

Any concluding remarks...

Typographic Conventions

The following typographic conventions are used:

Click OK. Buttons are shown in boldface.

Press <ENTER>. Keyboard commands are shown in angled brackets in block capitals.

The “Open File” dialog box appears. Names of program windows, dialog boxes, fields etc. are shown in quotation marks.

Bold

Device labels

Italics

Crucial text

Important notes for the user are shown as follows:

Note

Important note for the user.
1.4 Package Contents

Before using your ES581.3 for the first time, check that the module has been delivered with all required parts (see section 7.1 on page 35).

Additional cables and adapters can be ordered separately from ETAS. A list of available accessories and ordering information can be found in the section "Accessories" on page 35 of this manual or in the ETAS product catalog.

1.5 Additional Information

Take a look at the relevant software documentation for details of how to configure the ES581.3 under INCA.
2 **Hardware Description**

The “Hardware Description” chapter describes the features, functions, areas of application, interfaces and indicators, and the block diagram of the ES581.3 CAN Bus Interface USB Module.

2.1 **Overview**

The ES581.3 is a dual channel, compact and cost-effective solution for connecting the PC to a vehicle CAN (Controller Area Network) bus or the CAN port of an individual electronic control unit (ECU). It is an easy-to-handle solution for CAN access for PC measurement, calibration and diagnostics.

Used in conjunction with ETAS’ INCA and ODX-LINK applications, the ES581.3 provides a single solution, eliminating the need to deploy several different tools for ECU calibration and diagnostics applications.

![Fig. 2-1 ES581.3](image)

The ES581.3 connects with a PC over USB and establishes a direct CAN connection. The included Y cable (see chapter 6.2 on page 32) enables the access of both CAN interfaces to the CAN bus.

There is only minimum installation and configuration effort and no external power supply is needed.

2.2 **Features**

The ES581.3 is part of the family of compact ETAS bus interface modules and is involved in the process of continuous firmware and software upgrades.

2.2.1 **General Features**

General features of the ES581.3 are:

- Processes high bus loads
- No external supply voltage necessary
- Part of the ETAS tool suite – supported by INCA
- Runs under Windows XP, Windows Vista and Windows 7 (Plug & Play installation)
2.2.2 CAN Features

Important CAN functions of the ES581.3 are:

- **ES581.3 CAN concept for different CAN buses**
  - CAN transceiver integrated into the ES581.3
  - Galvanically isolated connection to the CAN network
- **DSUB connector in accordance with “CAN in Automation” (CiA)**
- **Protocols (supported by INCA)**
  - CCP,
  - XCP,
  - KWP-on-CAN (ISO14230/ISO15765),
  - UDS (ISO14229/ISO15765),
  - CAN Monitoring
- **Protocols (supported by ODX-LINK)**
  - OBD-on-CAN (ISO15765-4)
- **SAE J2534-1 Pass Thru Interface**
  - CAN,
  - SWCAN,
  - ISO15765,
  - ISO15765 SWCAN
- **Monitoring without CAN bus influence**
- **Time synchronization**
- **Exact time stamp**
  - 500 ns timing resolution for one channel usage
  - 5 μs timing resolution for two channel usage

For more technical data on the ES581.3 consult chapter 5 on page 25.
2.3 Applications

The ES581.3 can be used for the following tasks:

- Connection of external devices to INCA PC using the CAN interface
- ECU calibration with CAN bus interface
- ECU diagnostics with CAN bus interface and J2534 Pass Thru Interface
- Flash programming of ECUs
- Recording and acquisition of communication data with application software

For example, the ES581.3 can be connected to a vehicle CAN via the diagnostics service port. So it’s fully capable for powertrain as well as body electronics, driver assistance, and chassis ECU calibration projects.

For vehicle validation, either before or after start-of production, ODX-LINK, the INCA add-on for ECU diagnostics, can use the ES581.3 to access OBD-on-CAN functionality as well as to read and clear Diagnostic Trouble Codes (DTCs), effectively eliminating the need for the use of a separate diagnostic service tool.

ES581.3 also provides a J2534 Pass Thru Interface for vehicle diagnostics and reprogramming with third party applications.

2.4 Interfaces

The front of the ES581.3 CAN Bus Interface USB Module features a DSUB connector to integrate CAN interfaces. The back of the module features a cable to connected at the USB port of a PC.

2.5 Serial Number

The serial number is on the bottom side of the ES581.3.
2.6 Block Diagram

The block diagram of the ES581.3 CAN Bus Interface USB Module is shown in Fig. 2-2.

The ES581.3 is a compact USB module which fits into a standard USB2.0 or USB1.1 slot. The two independent CAN interfaces of the ES581.3 establish an easy and direct connection between the PC and the CAN network. Data is exchanged with the PC via the USB interface.

Fig. 2-2  ES581.3 Block Diagram

CAN signals are transferred to a microcontroller by the CAN transceiver inside the ES581.3. Upon receipt of a CAN message, the CAN microcontroller timestamps and sends the message to the PC across USB. The reverse steps are taken when the PC application is sending messages to the CAN bus. The microcontroller is capable of accommodating the highest bus loads. The ES581.3 electrically isolates the CAN connection from the PC to protect the connected devices from damages that may occur due to potential differences and to avoid any communication drop outs.

Compared to low-cost diagnostic J2534 devices, the ES581.3 is superior in terms of supported baud rates J2534 devices are limited by their specifications to 500 K baud and a driver which is optimized for measurement and calibration purposes.
3 Getting Started

The “Getting Started” chapter describes general preparatory steps for installation and how to install the ES581.3 drivers under Windows XP. This chapter describes also the USB and the CAN connection of the ES581.3.

3.1 Preparation

3.1.1 CD-ROM

The ES581.3 is shipped with a CD-ROM, which contains wizards to install the USB drivers and the J2534 drivers.

The driver install application can be found in three locations:

- In the root of the INCA Add-on CD-ROM that shipped with the ES581.3. The filename of the executable is "autostart.exe".
- If the CD-ROM that shipped with the ES581.3 is missing, drivers can be installed from a supplement shipped by HSP (HSP V8.0.4 and higher).

3.1.2 Installing Sequence

**CAUTION!**

Before connecting the ES581.3 to the USB port of your computer, the driver install application must be run first.

Using the ES581.3 you have to work in this sequence:

1. USB driver installation (ES581.3 not connected on PC)
2. J2534 driver (ES581.3 not connected on PC)
3. USB connection
4. CAN connection

**Note**

If the ES581.3 is connected to a non-powered USB hub, apply a external power supply (see chapter 3.7 on page 22).

3.1.3 Plug & Play

The ES581.3 can be installed on Plug & Play compatible operating systems (Windows XP, Windows Vista and Windows 7). After installing the drivers you can remove and re-insert your ES581.3 whenever you like.

3.2 ES581.3 USB Drivers

3.2.1 Installing the ES581.3 USB Drivers

There is no difference in procedure between ES581.3 installation from a CD-ROM and from a network drive.

**To start the ES581.3 USB drivers installation:**

- From the Main window, select Drivers.
  The Drivers window opens.
• Select **Install ES581.3 - USB Drivers**.
  The ETAS ES581.3 USB Driver Installer starts.

• Follow the ETAS ES581.3 USB Driver Installer instructions.
• Click **Next**.

• Read the General Condition of the Software License Contract.
• Select the radio button *I do not accept the EULA* and
  – Click **Cancel** to cancel the USB driver installation process.

  or

• Select the radio button *I accept the EULA*.
  – Click **Next**.
• Wait while installing the USB drivers
  or
• click Cancel to cancel the USB driver installation process.

• Click Finish.
  The ES581.3 USB drivers are installed.
3.2.2 Uninstalling the ES581.3 USB Drivers

There is no difference in procedure between ES581.3 installation from a CD-ROM and from a network drive.

To start the ES581.3 USB drivers uninstallation:

- Select Start → Settings → Control Panel.
  The Control Panel window opens.
- Select the Software entry.
  The Software window opens.
- Select the Windows Driver Package - FTDI CDM Driver Package entry.
- Click the Change/Remove tab.
  The system uninstalls the ES581.3 USB drivers.
3.3 ES581.3 J2534 Drivers

3.3.1 Installing the ES581.3 J2534 Drivers

There is no difference in procedure between ES581.3 installation from a CD-ROM and from a network drive.

To start the ES581.3 J2534 drivers installation:

- From the Main window, select Drivers. The Drivers window opens.
- Select Install ES581.3 - J2534 Drivers (International)
  or
- Select Install ES581.3 - J2534 Drivers (Japanese)
  The ETAS ES581.3 J2534 Driver installation wizard starts.

- Follow the ETAS ES581.3 J2534 Driver installation wizard instructions.
- Click Cancel.
  or
- Click Next.
The program is ready for installation.

- Click **Next** to start the J2534 driver installation process.
  or
- Click **Cancel** to cancel the J2534 driver installation process.

- Wait while installing the J2534 drivers
  or
- click **Cancel** to cancel the J2534 driver installation process.
Getting Started

3.3.2 Uninstalling the ES581.3 J2534 Drivers

There is no difference in procedure between ES581.3 installation from a CD-ROM and from a network drive.

To start the ES581.3 J2534 drivers uninstallation:

- Select **Start → Settings → Control Panel**. The Control Panel window opens.
- Select the **Software** entry. The Software window opens.
- Select the **ES581.3 J2534 Drivers - 1.0** entry.
- Click the **Change/Remove** tab. The system uninstalls the ES581.3 J2534 drivers.

- Click **Finish**. The ES581.3 J2534 drivers are installed.
3.4 Checking the Driver Installation

Hardware drivers and their status can be checked in Windows Device Manager.

3.4.1 Checking under Windows XP

Starting the Device Manager

**Note**

*Depending on the chosen view, the Windows XP Device Manager can be started as follows:*

**To start the Device Manager in the Category View**

- Select **Start** → **Settings** → **Control Panel** → **Performance and Maintenance** → **System** → **Hardware** → **Device Manager** to start the Windows Device Manager.

**To start the Device Manager in the Classic View**

- Select **Start** → **Settings** → **Control Panel** → **System** → **Hardware** → **Device Manager** to start the Windows Device Manager.

Verifying the ES581.3 Driver Installation

**To verify the ES581.3 driver installation**

- Start the **Device Manager**.
  - The **Device Manager** window opens.
- Select **Ports (COM & LPT)**.
- Check whether the ES581.3 device has been entered as a subgroup of the entry **USB Serial Port (COMx)**.
  - COMx is the port number assigned by Windows.
- Select **Universal Serial Bus controllers**.
- Check whether the ES581.3 device has been entered as the entry **USB High Speed Serial Converter**.
  - Both of these entries can be seen in the picture below and are indicated with a red arrow.
If ES581.3 does not have all the drivers installed and Windows detects the device as plugged in, an exclamatory icon (❗️) will appear next to the device. Run the Driver Install application again to try and fix this problem.

3.5 USB Connection

After the drivers have been installed, the ES581.3 can be plugged into the PC. Windows should recognize the device and install the proper drivers for the unit. Windows informational balloons should appear in the Start bar. Fig. 3-2 on page 21 shows the balloons that appear.

Fig. 3-2  Windows informational balloon

3.6 CAN Connection

The next thing to setup is the connection on the CAN side of the unit.

The ES581.3 connects to the CAN network with standard pinout of the DSUB connector. The pinout for the 9 pin DSUB connector can be found on the front label of the unit and in chapter 5.4 on page 29.

3.6.1 Minimum CAN Connections

The minimum connections needed for connecting to a CAN network are:

- Pin 2 CAN Low
- Pin 7 CAN High
• Pin 6 or Pin 3 GND (either pin will work)

The ground (GND) connection needs to be the same ground as the other CAN nodes on the bus.

3.6.2 CAN Network Termination

The next thing to connect, if needed, is termination to the CAN network. Normally a 120 ohm resistor is added to each end of the network. Fig. 3-3 on page 22 shows a simple diagram. Some CAN networks are already terminated, for example in a vehicle, and extra termination is not needed.

![Fig. 3-3 CAN Network](image)

3.7 External Power Supply

If the USB port the ES581.3 is connected to cannot provide enough power to power the device, applying power (6 to 40 volts DC) to Pin 9 of the ES581.3 will energize the unit. An example of needing to provide external power would be if the ES581.3 were connected to a non-powered USB hub. Power is shared among all the ports and may be insufficient to power the ES581.3. The other connections are not used or not needed for connecting to a CAN bus.
## Troubleshooting

The “Troubleshooting” chapter contains suggestions on how to rectify any faults the ES581.3 may have.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution to try</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer does not install drivers when device is initially connected.</td>
<td>See if device is shown in Device Manager. It may already be installed or was installed by the Operating System. See chapter 3.4 on page 20 to Device Manager Settings. Try using a different USB port on the computer. Try rebooting the PC.</td>
</tr>
<tr>
<td>Can’t connect to INCA (or other applications accessing the hardware).</td>
<td>Make sure USB cable is connected. Make sure no other software applications are connected to the device. Try closing any Palm or Windows CE software running in the task bar. Sometimes these applications block access to the Virtual COM port the hardware uses. Try applying external power to the unit. Non-powered USB hubs and a few older computers may not output the needed power to power the ES581.3.</td>
</tr>
<tr>
<td>Drivers will not install.</td>
<td>Make sure you are logged in with permissions to install hardware.</td>
</tr>
</tbody>
</table>
5 **Technical Data**

The “Technical Data” chapter contains a summary of the pin assignments and all technical data of the ES581.3 CAN Bus Interface USB Module.

5.1 **General Technical Data**

5.1.1 **Fulfilled Standards and Norms**

The module adheres to the following standards and norms:

<table>
<thead>
<tr>
<th>Norm</th>
<th>Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN 61326-1</td>
<td>Electrical equipment for measurement, control and laboratory use - EMC requirements</td>
</tr>
</tbody>
</table>

The module is designed only for use in industrial environments in accordance with EN 61000-6-4. When using the module outside of industrial environments avoid possible radio disturbances by additional shielding measures!

**WARNING!**

*This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.*

5.1.2 **Environmental Conditions**

- **Operation temperature**
  - -40 °C to +70 °C
  - -40 °F to +158 °F

- **Transport and storage temperature**
  - -40 °C to +85 °C
  - -40 °F to +185 °F

- **Relative humidity**
  - 15% to 95%, non-condensing

5.1.3 **Mechanical Data**

<table>
<thead>
<tr>
<th>Dimensions Housing (H x W x D)</th>
<th>20 mm x 40 mm x 64 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.8 in x 1.6 in x 2.52 in</td>
</tr>
<tr>
<td>Integrated USB cable length</td>
<td>1 m / 3.3 ft</td>
</tr>
<tr>
<td>Weight</td>
<td>Approx. 87 g / 3.125 oz.</td>
</tr>
<tr>
<td>Housing</td>
<td>Plastic, ABS</td>
</tr>
<tr>
<td>Connection PC-side</td>
<td>USB plug type A</td>
</tr>
<tr>
<td>Connection bus-side</td>
<td>9-pin DSUB plug (DIN 41652)</td>
</tr>
</tbody>
</table>
5.2 System Requirements

5.2.1 Hardware

PC with USB Interface

<table>
<thead>
<tr>
<th>PC</th>
<th>IBM-compatible PC</th>
</tr>
</thead>
<tbody>
<tr>
<td>USB interface</td>
<td>12 Mbit/s USB 1.1</td>
</tr>
<tr>
<td></td>
<td>(USB 2.0 compliant)</td>
</tr>
<tr>
<td>Operating system</td>
<td>Windows XP (Service Pack 2 or higher), Windows Vista, Windows 7</td>
</tr>
<tr>
<td>Configuration</td>
<td>Plug &amp; Play</td>
</tr>
</tbody>
</table>

The PC must satisfy the minimum requirements of the used calibration program (e.g. INCA). Take a look at the relevant software documentation for details of the minimum requirements of INCA.

Power Managers

Almost all notebook computers and many desktop PCs have power managers. Power managers disable the CPU for a certain amount of time. This impairs time management accuracy in your application.

**Note**

*If you have stringent requirements for your application time management (time-driven transmission of messages, time-driven evaluations), you must deactivate these power managers.*

Options for power management may be included in:
- the BIOS setup
- the Windows Control Panel (e.g. Power object).

**Note**

*This document does not look at the deactivation of power managers in any further detail.*
### 5.2.2 Software

To operate the ES581.3 and for data acquisition purposes software in the following versions or higher is required:

<table>
<thead>
<tr>
<th>Application / Protocol</th>
<th>Classification</th>
<th>Support in Application Software</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>INCA 4)</td>
</tr>
<tr>
<td>CAN Monitoring</td>
<td>MC 1)</td>
<td>V6.1.0</td>
</tr>
<tr>
<td>CAN Output</td>
<td></td>
<td>V6.1.0</td>
</tr>
<tr>
<td>CCP</td>
<td></td>
<td>V6.1.0</td>
</tr>
<tr>
<td>KWP on CAN</td>
<td></td>
<td>V6.1.0</td>
</tr>
<tr>
<td>UDS</td>
<td></td>
<td>V6.1.0</td>
</tr>
<tr>
<td>XCP on CAN</td>
<td></td>
<td>V6.1.0</td>
</tr>
<tr>
<td>OBD-on-CAN</td>
<td>MC, DS 2)</td>
<td>V6.1.0</td>
</tr>
<tr>
<td>CAN</td>
<td>MC, PTI 3)</td>
<td>V6.1.0</td>
</tr>
<tr>
<td>SWCAN</td>
<td></td>
<td>V6.1.0</td>
</tr>
<tr>
<td>ISO15765</td>
<td></td>
<td>V6.1.0</td>
</tr>
<tr>
<td>ISO15765 SWCAN</td>
<td></td>
<td>V6.1.0</td>
</tr>
</tbody>
</table>

1): MC: Measurement and Calibration
2): MC, DS: ECU Diagnose
4): Supports 1 CAN channel of the ES581.3
5): Supports 2 CAN channels of the ES581.3 with additional INCA Add-On ES581 Second CAN V6.2.1 and higher
6): Supports 2 CAN channels of the ES581.3
7): INCA V6.1.0 and higher and additional INCA Add-On ODX-LINK V1.3.0 and higher
## 5.3 Electrical Data

### 5.3.1 Power Supply

| Power supply (extern) | 6 V to 40 V DC  
|                       | (ES581.3 connected to a USB hub without power supply) |
| Current consumption   | Typ. 15 mA (at 14.4 V)  
|                       | Max. 100 mA (at 14.4 V) |

### 5.3.2 CAN Interface (CAN1 and CAN2)

| CAN port               | 2 channels, software-configurable, with DSUB 9 connector (according to CiA standard) |
| CAN transceiver        | High-speed transceiver (TJA1040)  
|                        | Standard (V2.0a) or Extended Format (V2.0b), ISO High-speed mode |
| Microcontroller        | 40 MIPS DSP |
| Baud rate              | 1 Mbit/s max. |
| Electrical isolation   | Interface is magnetically decoupled |
5.4 Pin Assignment

The CAN bus is connected to the ES581.3 CAN Bus Interface USB Module by the 9-pin DSUB connector (see Fig. 5-1).

**Fig. 5-1** ES581.3 DSUB Connector

<table>
<thead>
<tr>
<th>Pin</th>
<th>Signal</th>
<th>Beschreibung</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Trigger Pin</td>
<td>Trigger ¹⁾</td>
</tr>
<tr>
<td>2</td>
<td>CAN 1 Low</td>
<td>CAN 1 Low</td>
</tr>
<tr>
<td>3</td>
<td>GND</td>
<td>Ground</td>
</tr>
<tr>
<td>4</td>
<td>CAN 2 Low</td>
<td>CAN 2 Low</td>
</tr>
<tr>
<td>5</td>
<td>GND (Shield)</td>
<td>Ground (Shield)</td>
</tr>
<tr>
<td>6</td>
<td>GND</td>
<td>Ground</td>
</tr>
<tr>
<td>7</td>
<td>CAN 1 High</td>
<td>CAN 1 High</td>
</tr>
<tr>
<td>8</td>
<td>CAN 2 High</td>
<td>CAN 2 High</td>
</tr>
<tr>
<td>9</td>
<td>V+</td>
<td>External power supply ²⁾</td>
</tr>
</tbody>
</table>

¹⁾: reserved; do not connect
²⁾: see chapter 3.7 on page 22
6 Cables and Accessories

The “Cables and Accessories” chapter contains an overview of the available cables and accessories.

6.1 Y Cable

Note

The Y cable is included in delivery.

<table>
<thead>
<tr>
<th>DSUB Connector “1”</th>
<th>DSUB Connector “2”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin</td>
<td>Signal (CAN 1)</td>
</tr>
<tr>
<td>-----</td>
<td>----------------</td>
</tr>
<tr>
<td>1</td>
<td>n.c.</td>
</tr>
<tr>
<td>2</td>
<td>CAN 1 Low</td>
</tr>
<tr>
<td>3</td>
<td>Ground</td>
</tr>
<tr>
<td>4</td>
<td>n.c.</td>
</tr>
<tr>
<td>5</td>
<td>Ground (Shield)</td>
</tr>
<tr>
<td>6</td>
<td>Ground</td>
</tr>
<tr>
<td>7</td>
<td>CAN 1 High</td>
</tr>
<tr>
<td>8</td>
<td>n.c.</td>
</tr>
<tr>
<td>9</td>
<td>V+</td>
</tr>
</tbody>
</table>
6.2 Cable CBAC180

Adapter cable to connect OBDII J1962 to ES581.3.

Fig. 6-3 CBAC180-2 Cable

<table>
<thead>
<tr>
<th>Signal</th>
<th>9 Pin DSub</th>
<th>OBD2</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAN1 High</td>
<td>7</td>
<td>6</td>
<td>CAN1 High and CAN1 Low are in a shielded Twist Pair</td>
</tr>
<tr>
<td>CAN1 Low</td>
<td>2</td>
<td>14</td>
<td>CAN1 High and CAN1 Low are in a shielded Twist Pair</td>
</tr>
<tr>
<td>CAN2 High</td>
<td>8</td>
<td>3</td>
<td>CAN2 High and CAN2 Low are in a shielded Twist Pair</td>
</tr>
<tr>
<td>CAN2 Low</td>
<td>4</td>
<td>11</td>
<td>CAN2 High and CAN2 Low are in a shielded Twist Pair</td>
</tr>
<tr>
<td>Power V+</td>
<td>9</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>GND</td>
<td>3</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Order Name</th>
<th>Short Name</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAN Interface Cable, OBDII J1962 - DSUB (16mc-9fc), 2m</td>
<td>CBAC180.0-2</td>
<td>F-00K-107-300</td>
</tr>
</tbody>
</table>
### 6.3 Cable CBCX131.1-0

**Fig. 6-4** CBCX131.1-0 Termination Resistor

<table>
<thead>
<tr>
<th>Order Name</th>
<th>Short Name</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAN 120 Ohm Termination Resistor, 2xDSUB (9fc+9mc)</td>
<td>CBCX131-0</td>
<td>F-00K-103-786</td>
</tr>
</tbody>
</table>
7 Ordering Information

7.1 ES581.3 CAN Bus Interface USB Module

<table>
<thead>
<tr>
<th>Order Name</th>
<th>Short Name</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES581.3 CAN Bus Interface USB Module, Y-cable, CD-ROM with drivers and manuals for ES581.3</td>
<td>ES581.3</td>
<td>F-00K-107-033</td>
</tr>
</tbody>
</table>

7.2 Accessories

<table>
<thead>
<tr>
<th>Order Name</th>
<th>Short Name</th>
<th>Order Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAN Interface Cable, OBDII J1962 - DSUB (16mc-9fc), 2m</td>
<td>CBAC180.0-2</td>
<td>F-00K-107-300</td>
</tr>
<tr>
<td>CAN 120 Ohm Termination Resistor, 2xDSUB (9fc+9mc)</td>
<td>CBCX131-0</td>
<td>F-00K-103-786</td>
</tr>
</tbody>
</table>
ETAS Contact Addresses

ETAS HQ
ETAS GmbH
Borsigstraße 14
70469 Stuttgart
Germany

Phone: +49 711 89661-0
Fax: +49 711 89661-106
WWW: www.etas.com

ETAS Subsidiaries and 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:

ETAS subsidiaries
WWW: www.etas.com/en/contact.php

ETAS technical support
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