# ETAS

DRIVING EMBEDDED EXCELLENCE

**CBEB100.1-1m0**

**CBEB100.1-1m0 - Slave**

**CBEB105.1-1m0**

**CBEB105.1-1m0 - Slave**

**Media Converter**

User's Guide

# Contents

# 1      About this Document

## 1.1      Classification of Safety Messages

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

⚠ **DANGER**

indicates a hazardous situation with a high risk of death or serious injury if not avoided

⚠ **WARNING**

indicates a hazardous situation of medium risk which could result in death or serious injury if not avoided.

⚠ **CAUTION**

indicates a hazardous situation of low risk which may result in minor or moder-ate injury if not avoided.

*NOTICE*

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

## 1.2      Presentation of Instructions

The target to be achieved is defined in the heading. The necessary steps for his are in a step-by-step guide:

Target definition

1. Step 1
2. Step 2
3. Step 3
> Result

## 1.3        Typographical Conventions

### Hardware

**Bold**                    Menu commands, buttons, labels of the product

*Italic*                    Emphasis on content and newly introduced terms

## 1.4        Presentation of Supporting Information

> **ⓘ NOTE**
>
> Contains additional supporting information.

## 1.5        Scope of Supply

Prior to the initial commissioning of the module, please check whether the module was delivered with all required components and cables (see chapter"Ordering Information" on page 29).

Additional cables and adapters can be obtained separately from ETAS. A list of available accessories and their order designation is located in chapter "Ordering Information" on page 29 of this manual or in the ETAS product catalog.

## 2          Basic Safety Notices

This chapter contains information about the following topics:

## 2.1       General Safety Information

Please observe the Product Safety Notices ("ETAS Safety Notice") and the following safety notices to avoid health issues or damage to the device.

> **ⓘ NOTE**
>
> Carefully read the documentation (Product Safety Advice and this User's Guide) that belongs to the product prior to the startup.

ETAS GmbH does not assume any liability for damages resulting from improper handling, unintended use or non-observance of the safety precautions.

## 2.2       Requirements for Users and Duties for Operators

The product may be assembled, operated and maintained only if you have the necessary qualification and experience for this product. Improper use or use by users without sufficient qualification can lead to damages or injuries to one's health or damages to property.
The safety of systems that are using the product is the responsibility of the system integrator.

### General safety at work

The existing regulations about safety at work and accident prevention must be followed. All applicable regulations and statutes regarding operation must be strictly followed when using this product.

## 2.3       Intended Use

### Application area of the product

This product was developed and approved for applications in the automotive sector. The product is designed for use in the interior, in the passenger cells or in the trunk of vehicles.
For use in other application areas, please contact your ETAS contact partner.

## Requirements for the technical state of the product

The product is designed in accordance with state-of-the-art technology and recognized safety rules. The product may be operated only in a technically flawless condition and according to the intended purpose and with regard to safety and dangers as stated in the respective product documentation. If the product is not used according to its intended purpose, the protection of the product may be impaired.

## Requirements for operation

- Use the product only according to the specifications in the corresponding User's Guide. In case of any deviating use, the product safety is not ensured.
- Observe the requirements on the ambient conditions.
- Do not use the product in potentially explosive atmospheres.

## Electrical safety and power supply

- Observe the applicable regulations as well as the statutes and regulations on safety at work at the location site!
- Connect only current circuits with safety extra-low voltage in accordance with EN 61140 (degree of protection III) to the connections of the product.
- Ensure that the connection and setting values are being followed (see the information in the chapter "Technical Data" on page 22).
- Do not apply any voltages to the connections of the product that do not correspond to the specifications of the respective connection.

## Power supply

- The power supply for the product must be safely disconnected from the supply voltage. For example, use a car battery or a suitable lab power supply.
- Use only lab power supplies with double protection to the supply network (with double / reinforced insulation (DI / RI)).
- The lab power supply must be designed for an operating altitude of 5,000 m and for an ambient temperature of up to 70 °C.
- For regular operation of the products as well as for very long standby operation, it is possible that the vehicle battery will be depleted.

## Connection to the power supply

- Use the media converter only in vehicles with central load dump protection.
- The power supply cable may not be connected directly to the vehicle battery or the lab power supply but, instead, via a suitable fuse.
- Ensure that the connectors of the lab power supply, the power supply at the product and the vehicle battery are easily accessible!

- Route the power cord in such a way that it is protected against abrasion, damages, deformation and kinking.
- Do not place any objects on the power cord!

> ⚠️ **DANGER**
>
> **Dangerous electrical voltage!**
> Connect the power cable only with a suitable vehicle battery or with a suitable lab power supply! The connection to power outlets is not allowed!
> To prevent an inadvertent insertion in power outlets, ETAS recommends to equip the power cables with safety banana plugs in areas with power outlets.

### De-energizing CBEB100.1-1m0 / CBEB100.1-1m0 - Slave

The CBEB100.1-1m0 does not feature an operating voltage switch. The product can be de-energized as follows:

- Switching off the lab power supply

*or*

- Disconnecting the product from the lab power supply (disconnect device is the lab plug of the power cord)

*or*

- Disconnecting the product from the vehicle battery (disconnect device is the lab plug of the power cord)

*or*

- Disconnecting the vehicle battery.

### De-energizing CBEB105.1-1m0 / CBEB105.1-1m0 - Slave

The CBEB105.1-1m0 does not feature an operating voltage switch. The product can be de-energized as follows:

- Disconnect the LEMO plug of the media converter from the module

*or*

- De-energize the module connected to the LEMO plug.

### Cabling

Approved cables:

- Use exclusively ETAS cables at the connections of the product!
- Adhere to the maximum permissible cable lengths!
- Do not use any damaged cables! Cables may be repaired only by ETAS!

> ⚠️ **CAUTION**
>
> Never apply force to insert a plug into a socket.
> Ensure that there is no contamination in and on the connection, that the plug fits the socket, and that you correctly aligned the plugs with the connection.

For detailed information about cabling, see the User's Guide of the module.

> ⚠️ **CAUTION**
>
> **Potential equalization in the vehicle is possible via the shield of the connecting cables of the modules!**
> Install the products only at locations with the same electrical potential or isolate the products from the installation location.

### Requirements for the place of installation
- Place the product on a smooth, even and solid ground.
- Securely fasten the product.

### Requirements on the ventilation
- Keep the product away from heat sources and protect it against direct exposure to the sun.
- The free space above and behind the product must be selected so that sufficient air circulation is ensured.

### Damage of the product and loss of properties in accordance with IP40

> ⚠️ **CAUTION**
>
> **Loss of Properties in accordance with IP40!**
> Do not open or modify the product housing!
> Work on the product housing may be performed only by qualified technical personnel.

### Transport
- Do not transport the product using the cable of the product or any other cable.
- Prior to the transport, disconnect the cables from the product.

### Maintenance
The product is maintenance-free.

### Repair
If an ETAS hardware product should require a repair, return the product to ETAS.

### Cleaning the module housing
- Use a dry or lightly moistened, soft, lint-free cloth for cleaning the module housing.
- Do not use any sprays, solvents or abrasive cleaners which could damage the housing.
- Ensure that no moisture enters the housing. Never spray cleaning agents directly onto the product.

# 3        Hardware description

This chapter contains information about the following topics:

- "Overview" on page 11
- "Design" on page 12
- "Functions" on page 15

## 3.1        Overview

### 3.1.1        Description



**Fig. 3-1**        Media Converter CBEB100.1-1m0 (left) and CBEB105.1-1m0 (right)

Media Converter CBEB100.1-1m0 and CBEB105.1-1m0 are set up as masters by default. Media Converter CBEB100.1-1m0 - Slave and CBEB105.1-1m0 - Slave are set up as slaves by default.

The Media Converters CBEB100.1-1m0 and CBEB105.1-1m0 are functionally identical. They are referred to as CBEB10x in the following. Differences between the two devices are marked accordingly in the manual.

The Media Converter CBEB10x converts Automotive Ethernet to Standard Ethernet (IEEE 802.3). It connects ETKs with Automotive Ethernet interface (BR_XETK) and modules with integrated Standard Ethernet interface.

### 3.1.2        Properties

The most important properties of the CBEB10x Media Converter:

- Converting Automotive Ethernet (100BASE-T1) to Standard Ethernet (IEEE 802.3)
- Automotive-capable product that is suitable for use in the development environment and in the vehicle on test courses.
    - Immune to ambient conditions (temperature, EMC)
    - Wide supply voltage range
    - High level of mechanical stability and robustness
- Display of operating status and error states
- CBEB100.1-1m0 / CBEB100.1-1m0 - Slave: RJ45 plug for connecting the product with the PC
- CBEB105.1-1m0 / CBEB105.1-1m0 - Slave: LEMO plug for connecting the product with ETAS modules
- Standby operation

- Master operation
- Configurable for Master / Slave operation
- No additional drivers required
- Together with BR_XETKs, the product supports measurement, application and flash programming.No additional drivers required

Complete technical data for the Media Converter can be found in the chapter "Technical Data" on page 22.

## 3.2 Design

### 3.2.1 Housing

The housing consists of a colored thermoplastic elastomer with rubber design.

The housing, plugs and plug connectors of the cables meet degree of protection IP40.

> ⚠️ **CAUTION**
>
> **Loss of Properties in accordance with IP40!**
> Do not open or modify the product housing!
> Work on the product housing may be performed only by qualified technical personnel.

### 3.2.2 Connections CBEB100.1-1m0 / CBEB100.1-1m0 - Slave



**Fig. 3-2**    Connections CBEB100.1-1m0 / CBEB100.1-1m0 - Slave

| No. in Fig. 3-2 | Connection | Protocol |
| --- | --- | --- |
| 1 | D-SUB9 | Automotive Ethernet |
| 2 | RJ45 | Standard Ethernet |

### 3.2.3 Connections CBEB105.1-1m0 / CBEB105.1-1m0 - Slave



**Fig. 3-3**    Connections CBEB105.1-1m0 / CBEB105.1-1m0 - Slave

| No. in Fig. 3-2 | Connection | Protocol |
|---|---|---|
| 1 | D-SUB9 | Automotive Ethernet |
| 2 | LEMO 1B | Standard Ethernet |

### 3.2.4    LEDs

The CBEB10x Media Converter features 3 LEDs. They indicate the following states:

### 3.2.4.1    ON ER - power supply / operating status

| LED code | Display | State |
|---|---|---|
| ON / OFF (flat line) | Off | No power supply |
| ON / OFF (green solid) | Green illuminated | Operational, Master |
| ON / OFF (green flashing) | Flashing green (0.5 s on / 0.5 s reduced) | Operational, Slave |
| ON / OFF (green pulse) | Flashing green (0.1 s on / 1.9 s off) | Standby |
| ON / OFF (red flashing) | Flashing red | Boot error - restart required:

CBEB100.1-1m0 / CBEB100.1-1m0 - Slave: Disconnect the cable from the DSUB9 plug for 5 s.

CBEB105.1-1m0 / CBEB105.1-1m0 - Slave: Disconnect the LEMO plug from the module for 5 s.

Hardware error: If the LED continues to permanently flash even after a reboot, send the product to ETAS. |

### 3.2.4.2    HOST - Standard Ethernet

| LED code | Display | State |
|---|---|---|
| ON / OFF | Off | Link inactive |
| ON / OFF | Yellow illuminated | Link active |
| ON / OFF | Flashing yellow acc. to network activity | Network activity |

### 3.2.4.3    ECU - Automotive Ethernet

| LED code | Display | State |
|---|---|---|
| ON / OFF | Off | Link inactive |
| ON / OFF | Yellow illuminated | Link active |
| ON / OFF | Flashing yellow acc. to network activity | Network activity |

## 3.3    Functions

### 3.3.1    Block Diagram CBEB100.1-1m0 / CBEB100.1-1m0 - Slave



**Fig. 3-4**     Block Diagram CBEB100.1-1m0 / CBEB100.1-1m0 - Slave

The CBEB100.1-1m0 / CBEB100.1-1m0 - Slave Media Converter features an Automotive Ethernet interface at the D-SUB9 plug as well as a Standard Ethernet interface (IEEE 802.3) at the RJ45 plug.

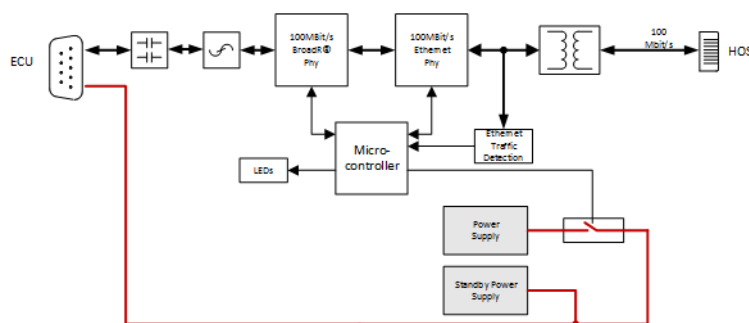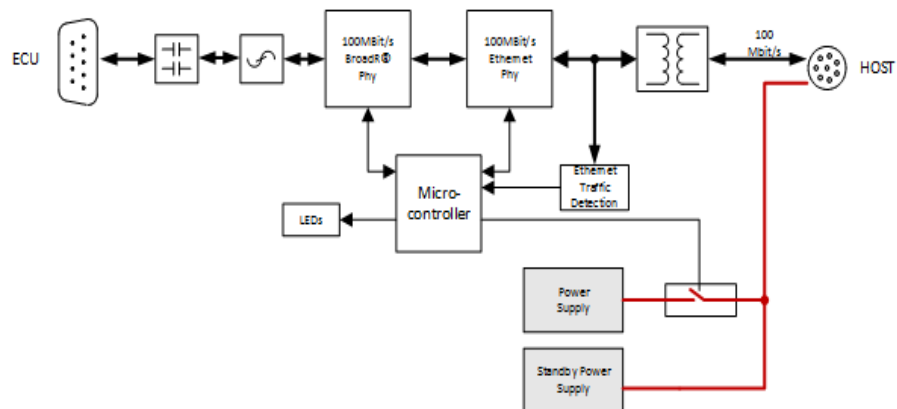### 3.3.2     Block Diagram CBEB105.1-1m0 / CBEB105.1-1m0 - Slave



**Fig. 3-5**     Block Diagram CBEB105.1-1m0 / CBEB105.1-1m0 - Slave

The CBEB105.1-1m0 / CBEB105.1-1m0 - Slave Media Converter features an Automotive Ethernet interface at the D-SUB9 plug as well as a Standard Ethernet interface (IEEE 802.3) at the LEMO plug.

### 3.3.3     Standby

If a BR_XETK is connected to the Media Converter, the product checks a connection on the HOST side. If the product does not detect a connection within 5 minutes, it switches to standby mode.

### 3.3.4     Master-Slave Configuration

To configure the media converters CBEB100.1-1m0 and CBEB105.1-1m0 as slave or CBEB100.1-1m0 - Slave and CBEB105.1-1m0 - Slave as master, please contact your ETAS contact partner.

# 4       Startup

This chapter contains information about the following topics:

- "Cabling Example" on page 17
- "Cabling" on page 19

## 4.1     Cabling Example

### CBEB100.1-1m0 / CBEB100.1-1m0 - Slave

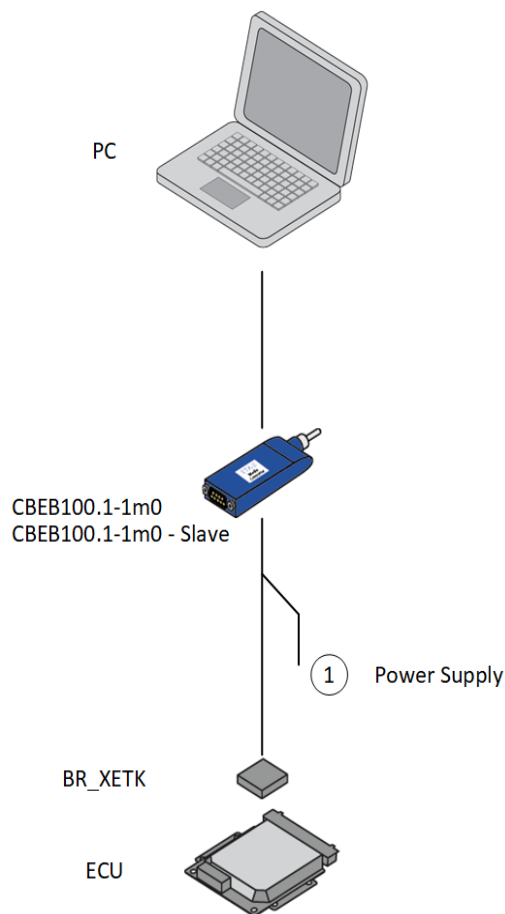Connection of CBEB100.1-1m0 / CBEB100.1-1m0 - Slave to BR_XETK and directly to a PC.

**Fig. 4-1**     Connection of CBEB100.1-1m0 / CBEB100.1-1m0 - Slave to BR_XETK and directly to a PC

| Cables in Fig. 4-2 | Function | Short name |
|---|---|---|
| 1 | Cable for the "ECU to BR_XETK" connection | CBEB121 |
| | Cable for the "ECU to BR_XETK" connection (customer-specific - Please contact your ETAS contact partner.) | |

### CBEB105.1-1m0 / CBEB105.1-1m0 - Slave

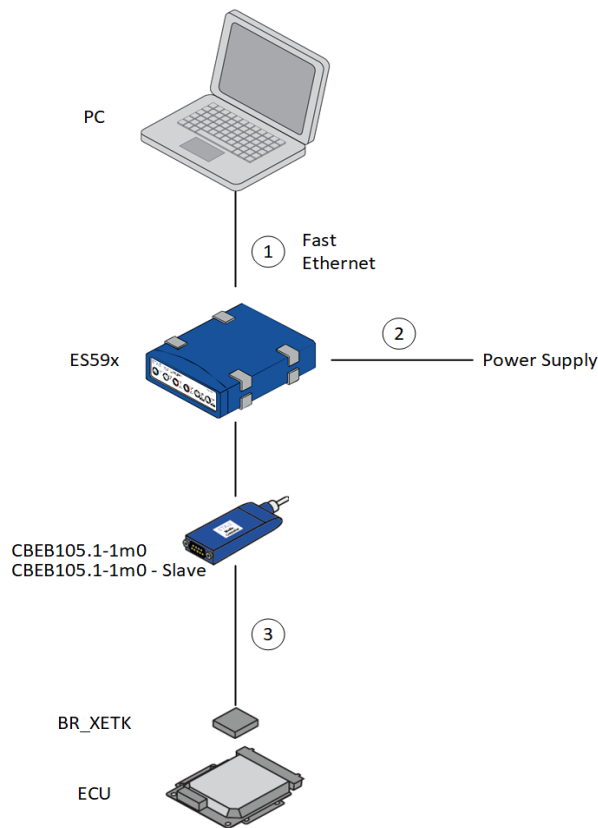Connection of CBEB105.1-1m0 / CBEB105.1-1m0 - Slave to BR_XETK via ES59x



**Fig. 4-2**    Connection of CBEB105.1-1m0 / CBEB105.1-1m0 - Slave to BR_XETK via ES59x

| Cables in Fig. 4-2 | Function | Short name |
|---|---|---|
| 1 | Cable for the "FE-HOST" connection | CBE100 |
| 2 | Cable for the "7-29 V DC" connection | CBP120, CBP1205 |
| 3 | Cable for the connection "ECU with BR_XETK" | CBEB120 |
|  | Cable for the connection "ECU with BR_XETK" (customer-specific - Please contact your ETAS contact partner.) |  |

## 4.2      Cabling

The CBEB10x can be integrated into the measuring setup without any problems and without first having to de-energize other modules. Chapter 4.2.1 and chapter 4.2.2 describe the startup in an energized cabling system.

### 4.2.1      Cabling of CBEB100.1-1m0 / CBEB100.1-1m0 - Slave

You can startup the CBEB100.1-1m0 with ETAS cables or with customized cables:

<u>Startup of CBEB100.1-1m0 / CBEB100.1-1m0 - Slavewith ETAS cables</u>

1. Connect the D-SUB9 plug of the Media Converter with the cable CBEB121.
2. Connect the CBEB121 with the power supply.

   The **ON ER** LED lights green.
3. Connect the LEMO plug of the cable CBEB121 via the cable CBAM290 with the ECU with integrated BR_XETK.

   The **ECU** LED lights yellow.
4. Connect the RJ45 plug of the Media Converter with the PC.

   The **HOST** LED lights yellow.

<u>Startup of CBEB100.1-1m0 / CBEB100.1-1m0 - Slave with customized cables</u>

1. Connect the D-SUB9 plug of the Media Converter with your customized cable.
2. Connect your customized cable with the power supply.

   The **ON ER** LED lights green.
3. Connect your customized cable with the ECU with integrated BR_XETK.

   The **ECU** LED lights yellow.
4. Connect the RJ45 plug of the Media Converter with the PC.

   The **HOST** LED lights yellow.

### 4.2.2      Cabling of CBEB105.1-1m0 / CBEB105.1-1m0 - Slave

You can startup the CBEB105.1-1m0 / CBEB105.1-1m0 - Slave with ETAS cables or with customized cables:

The following steps describe the startup in a an energized cabling system:

<u>Startup of CBEB105.1-1m0 / CBEB105.1-1m0 - Slave with ETAS cables</u>

1. Connect the LEMO plug of the Media Converter with an ETAS Bus Interface Module oder with a Network Module.

   The **ON ER** LED lights green.

   The **HOST** LED lights yellow.
2. Connect the D-SUB9 plug of the Media Converter with the cable CBEB120.
3. Connect the LEMO plug of the cable CBE120 via the cable CBAM290 with the ECU with integrated BR_XETK.

   The **ECU** LED lights yellow.

### Startup of CBEB105.1-1m0 / CBEB105.1-1m0 - Slave with customized cables

1. Connect the LEMO plug of the Media Converter with an ETAS Bus Interface Module oder with a Network Module.

   The **ON ER** LED lights green.

   The **HOST** LED lights yellow.

2. Connect the D-SUB9 plug of the Media Converter with your customized cable.

3. Connect your customized cable with the ECU with integrated BR_XETK.

   The **ECU** LED lights yellow.

# 5      Troubleshooting

The following table lists possible problems with a remedy.

If you have any further questions, please contact our Customer Support (see chapter 9 on page 32).

| Problem | Diagnostic Question | Possible Solution |
|---|---|---|
| The network is not responding. | Is the Media Converter connected to a switch? | Use a switch with a configurable fixed transfer rate of 100 MBit/s. |
| The LED *ON ER* flashes red. | You have not yet restarted the Media Converter? | Boot error - restart required:<br><br>CBEB100.1-1m0 / CBEB100.1-1m0 - Slave:<br>Disconnect the cable from the DSUB9 plug for 5 s.<br><br>CBEB105.1-1m0 / CBEB105.1-1m0 - Slave:<br>Disconnect the LEMO plug from the module for 5 s. |
| | You have just restarted the Media Converter? | Hardware error:<br>If the LED continues to permanently flash even after a reboot, send the product to ETAS. |

# 6    Technical Data

This chapter contains information on the following topics:

- "General Data" on page 22
- "RoHS Conformity" on page 23
- "CE Marking" on page 24
- "Product Return and Recycling" on page 24
- "System Requirements" on page 25
- "Pin Assignment" on page 25.
- "Electrical Data" on page 26

## 6.1    General Data

### 6.1.1    Product Labeling

The following symbols are used for product labeling:

| Symbol | Description |
|---|---|
| ⚠ | Prior to operating the product, be sure to read the user's guide! |
| SN: 123456 | Serial number (seven-digit) |
| F 00K 123 456 | Ordering number of the product, see chapter "Ordering Information" on page 29 |
| 6-32 V DC | Operating voltage |
| 200 mA | Power consumption |
| CE | Labeling for CE conformity, see chapter "CE Marking" on page 24 |
| ♻ | Labeling for WEEE, see chapter "Product Return and Recycling" on page 24 |

### 6.1.2    Standards and Norms

The Media Converter adheres to the following standards and norms:

| Norm | Test |
|---|---|
| IEC 61010-1 | Electrical equipment for measurement, control, and laboratory use - safety requirements |
| IEC 61326-1 | Electrical equipment for measurement, control, and laboratory use -EMC requirements |

### 6.1.3 Environmental Conditions

| | |
|---|---|
| Operating temperature range | -40 °C to +70 °C<br>-40 °F to +158 °F |
| Storage temperature range<br>(module without packaging) | -40 °C to +85 °C<br>-40 °F to +285 °F |
| Altitude | max. 5000 m / 16400 ft |
| Protection class | IP40 |
| Humidity | 15 % to 95 %, noncondensing |

### 6.1.4 Cleaning the Product

Use a dry or slightly damp, soft, lint-free cloth to clean the product housing. Sprays, solvents or scouring agents that could damage the housing should be avoided. Do not spray cleaning agent directly onto the product to clean it. Make sure that no moisture gets into the housing.
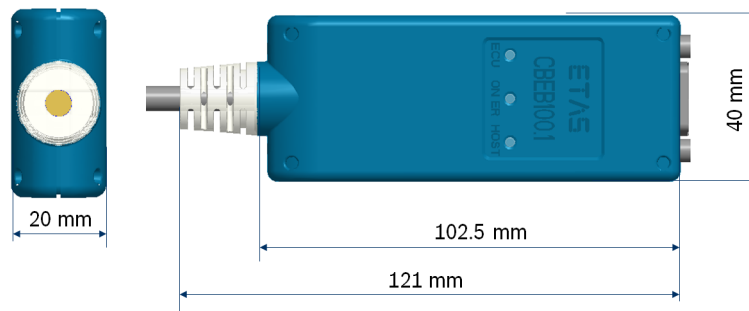
### 6.1.5 Mechanical Data



**Fig. 6-1**    Dimensions

| | |
|---|---|
| Dimensions (H x W x D) | 40 mm x 20 mm x 102.5 mm |
| | 1.57 in x 0.79 in x 4.04 in |
| Length (Housing with cable) | 1102.5 mm / 4.04 in |
| Weight (Housing with cable) | 115 g / 0.25lb |

## 6.2 RoHS Conformity

### 6.2.1 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.

### 6.2.2 China

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

## 6.3 CE Marking

With the CE mark attached to the product or its packaging, ETAS confirms that the product corresponds to the product-specific, applicable European Directives. The CE Declaration of Conformity for the product is available upon request.

## 6.4 Product Return and Recycling

The European Union (EU) has issued the guideline on waste electric and electronic equipment (Waste Electrical and Electronic Equipment - WEEE) in order to ensure the institution of systems for collection, handling, and disposal of all electronic scrap.

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. 6-2**     WEEE Symbol

The WEEE symbol (see Fig. 6-2 on page 24) on the product or its packaging identifies that the product may not be disposed of together with the remaining trash.

The user is obligated to separate the waste equipment and to provide it to the WEEE return system for reuse.

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 9 on page 32).

## 6.5 Use of Open Source Software

The product uses Open Source Software (OSS). This software is installed in the product at the time of delivery and does not have to be installed or updated by the user. Reference shall be made to the use of the software in order to fulfill OSS licensing terms. Additional information is available in the document "OSS Attributions List" at the ETAS website www.etas.com.

## 6.6    System Requirements

### CBEB100.1-1m0

The Media Converter CBEB100.1-1m0 can be connected directly to the PC or to modules with a Fast-Ethernet-interface, e.g.

- ES510
- ES511
- ES512

### CBEB105.1-1m0

The Media Converter CBEB105.1-1m0 can be connected to modules with a Fast-Ethernet-interface, e.g.:

- ES523
- ES592, ES593, ES595
- ES600
- ES88x
- ES89x

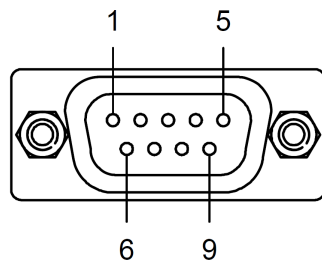## 6.7    Pin Assignment

### 6.7.1    D-SUB9 Plug



**Fig. 6-3**    Pin Assignment D-SUB9 Plug

| | CBEB100.1-1m0 | | CBEB105.1-1m0 | |
|---|---|---|---|---|
| Pin | Signal | Meaning | Signal | Meaning |
| 1 | NC | not connected | NC | not connected |
| 2 | NC | not connected | NC | not connected |
| 3 | Shielding | Shielding | Shielding | Shielding |
| 4 | AE+ | Automotive Ethernet (100BASE-T1), positive | AE+ | Automotive Ethernet (100BASE-T1), positive |
| 5 | AE- | Automotive Ethernet (100BASE-T1), negative | AE- | Automotive Ethernet (100BASE-T1), negative |
| 6 | UBATT_P | Battery, positive | NC | not connected |
| 7 | reserved | reserved | reserved | reserved |
| 8 | reserved | reserved | reserved | reserved |
| 9 | UBATT_N | Battery, negative | NC | not connected |

### 6.7.2    CBEB100.1-1m0 / CBEB100.1-1m0 - Slave: RJ45 Plug



**Fig. 6-4**    Pin Assignment RJ45 Plug

| Pin | Signal | Meaning |
|-----|--------|---------|
| 1 | RX+ | receive, positive |
| 2 | RX- | receive, negative |
| 3 | TX+ | send data, positive |
| 4 | NC | not connected |
| 5 | NC | not connected |
| 6 | TX- | send data, negative |
| 7 | NC | not connected |
| 8 | NC | not connected |

### 6.7.3    CBEB105.1-1m0 / CBEB105.1-1m0 - Slave: LEMO Plug
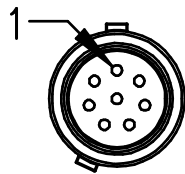


**Fig. 6-5**    Pin Assignment LEMO Plug

| Pin | Signal | Meaning |
|-----|--------|---------|
| 1 | UBATT + | Supply voltage, positive |
| 2 | UBATT + | Supply voltage, positive |
| 3 | UBATT - | Supply voltage, negative |
| 4 | TX+ | send data, positive |
| 5 | RX- | receive, negative |
| 6 | TX- | send data, negative |
| 7 | NC | not connected |
| 8 | RX+ | receive data, positive |

## 6.8    Electrical Data

| | |
|---|---|
| Operating voltage | 6 V to 32 V DC |
| Valid cranking voltage | <3 sec. to min. 3 V DC |
| Overvoltage 60 minutes | 36 V DC |
| Current consumption | max. 200 mA |
| Current consumption (operation) | typ. 85 mA at 12 V DC |
| Current consumption (standby) | typ. 5.5 mA at 12 V DC |
| Protection | against reverse polarity |

# 7 Cables and Accessories

This chapter contains information about the following topics:

- "Ethernet Adapter Cable" on page 27
- "Automotive Ethernet Cable" on page 27

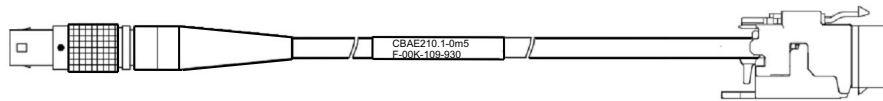## 7.1 Ethernet Adapter Cable

### 7.1.1 CBAE210.1



**Fig. 7-1**    Ethernet Adapter Cable CBAE210.1

CBAE210.1 is an Ethernet adapter cable to connect the CBEB100.1-1m0 with an ES59x or ES600 Switch Modules, without propagation of the ETAS hardware synchronization.

| Product | Length | Order Number |
|---|---|---|
| CBAE210.1-0m5 | 0,5 m | F-00K-109-930 |

## 7.2 Automotive Ethernet Cable
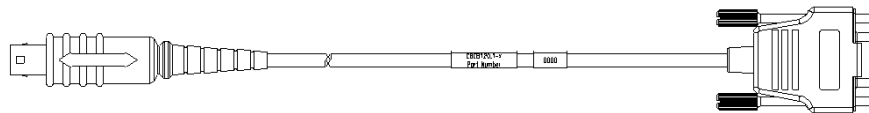
### 7.2.1 CBEB120.1



**Fig. 7-2**    Automotive Ethernet Cable CBEB120.1

The CBEB120.1 cable is a 100 Mbit/s Automotive Ethernet cable to connect a CBEB105.1-1m0 Media Converter with a BR_XETK cable adapter (e.g. CBAM290.1).

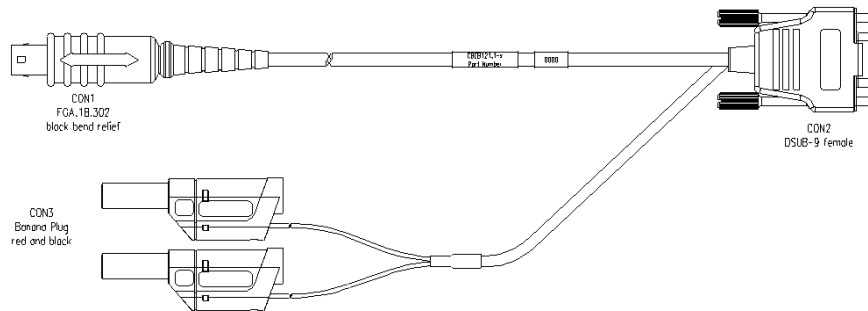| Product | Length | Order Number |
|---|---|---|
| CBEB120.1-3 | 3 m | F 00K 111 111 |
| CBEB120.1-5 | 5 m | F 00K 111 112 |

## 7.2.2        CBEB121.1



**Fig. 7-3**        Automotive Ethernet Cable CBEB121.1

The CBEB121.1 cable is a Automotive Ethernet cable to connect a CBEB100.1-1m0 / CBEB100.1-1m0 - Slave Media Converter with a BR_XETK cable adapter (e.g. CBAM290.1) plus safety banana plugs to supply the media converter.

| Connector | Target |
|-----------|--------|
| CON1 | BR_XETK cable adapter |
| CON2 | CBEB100.1-1m0  / CBEB100.1-1m0 - Slave |
| CON3 | Power supply |

Minimum cable bending radius: 16 mm

| Product | Length | Order Number |
|---------|--------|--------------|
| CBEB121.1-3 | 3 m | F 00K 111 113 |
| CBEB121.1-5 | 5 m | F 00K 111 114 |

# 8 Ordering Information

## 8.1 CBEB100.1-1m0

| Order Name | Short Name | Order Number |
|---|---|---|
| CBEB100.1-1m0 Media Converter, D-SUB - RJ45 (9mc-8mc), 1m | CBEB100.1-1m0 | F-00K-110-094 |
| **Package Contents** | | |
| - CBEB100.1-1m0 Media Converter<br>- List "Content of this Package"<br>- ETAS Safety Advice CBEB10x<br>- China_RoHS-leaflet_Compact_green_cn | | |

> ℹ **NOTE**
>
> Cables are not part of the scope of supplies of the Media Converter and must be ordered separately (see chapter 8.5 on page 30).

## 8.2 CBEB100.1-1m0 - Slave

| Order Name | Short Name | Order Number |
|---|---|---|
| CBEB100.1-1m0 - Slave Media Converter, D-SUB - RJ45 (9mc-8mc), 1m | CBEB100.1-1m0 - Slave | F-00K-112-451 |
| **Package Contents** | | |
| - CBEB100.1-1m0 Media Converter<br>- List "Content of this Package"<br>- ETAS Safety Advice CBEB10x<br>- China_RoHS-leaflet_Compact_green_cn | | |

> ℹ **NOTE**
>
> Cables are not part of the scope of supplies of the Media Converter and must be ordered separately (see chapter 8.5 on page 30).

## 8.3        CBEB105.1-1m0

| Order Name | Short Name | Order Number |
| --- | --- | --- |
| CBEB105.1-1m0 Media Converter, D-SUB - LEMO (9mc-8mc), 1m | CBEB105.1-1m0 | F-00K-110-321 |
| **Package Contents** | | |
| - CBEB105.1-1m0 Media Converter<br>- List "Content of this Package"<br>- ETAS Safety Advice CBEB10x<br>- China_RoHS-leaflet_Compact_green_cn | | |

> **ⓘ NOTE**
>
> Cables are not part of the scope of supplies of the Media Converter and must be ordered separately (see chapter 8.5 on page 30).

## 8.4        CBEB105.1-1m0 - Slave

| Order Name | Short Name | Order Number |
| --- | --- | --- |
| CBEB105.1-1m0 - Slave Media Converter, D-SUB - RJ45 (9mc-8mc), 1m | CBEB105.1-1m0 - Slave | F-00K-112-452 |
| **Package Contents** | | |
| - CBEB105.1-1m0 - Slave Media Converter<br>- List "Content of this Package"<br>- ETAS Safety Advice CBEB10x<br>- China_RoHS-leaflet_Compact_green_cn | | |

> **ⓘ NOTE**
>
> Cables are not part of the scope of supplies of the Media Converter and must be ordered separately (see chapter 8.5 on page 30).

## 8.5        Accessories

> **ⓘ NOTE**
>
> We recommend to use ETAS cables or any other cables certified by the standards for the application. Adhere to the maximum permissible cable lenghts!

### 8.5.1    Cables

| Order name | Short Name | Order Number |
|---|---|---|
| Ethernet Connection Adapter Cable 100MBit/s, RJ45 - Lemo 1B FGF (8fc-8mc), 0m5 | CBAE210.1-0m5 | F-00K-109-930 |
| 100 Mbit/s Automotive Ethernet Interface Cable for CBEB105, Lemo 1B FGA - DSUB (2mc-9fc), 3 m | CBEB120.1-3 | F-00K-111-111 |
| 100 Mbit/s Automotive Ethernet Interface Cable for CBEB105, Lemo 1B FGA - DSUB (2mc-9fc), 5 m | CBEB120.1-5 | F-00K-111-112 |
| 100 Mbit/s Automotive Ethernet Interface Cable plus Power for CBEB100, Lemo 1B FGA - DSUB plus banana connector (2mc-9fc), 3 m | CBEB121.1-3 | F-00K-111-113 |
| 100 Mbit/s Automotive Ethernet Interface Cable plus Power for CBEB100, Lemo 1B FGA - DSUB plus banana connector (2mc-9fc), 5 m | CBEB121.1-5 | F-00K-111-114 |

### 8.5.2    Services

| Order name | Short Name | Order Number |
|---|---|---|
| Change of Modus: Master to Slave or vice versa | CBEB10x_Master-Slave | F-00K-110-602 |
| Firmware update for CBEB10x products | CBEB10x_FW_Update | F-00K-110-601 |

# 9    ETAS Contact Addresses

## ETAS HQ

ETAS GmbH

| | | |
|---|---|---|
| Borsigstraße 24 | Phone: | +49 711 3423-0 |
| 70469 Stuttgart | Fax: | +49 711 3423-2106 |
| Germany | Internet: | 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 | Internet: | www.etas.com/en/contact.php |
| ETAS technical support | Internet: | www.etas.com/en/hotlines.php |

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