OPERATING INSTRUCTIONS

QUICK START GUIDE

OPERATING INSTRUCTIONS
EASYSCAN DIAGNOSTICS AND SERVICE TOOL



FOR EBERSPÄCHER AIR AND WATER HEATERS

Designation	**Order No.**
EasyScan diagnostics and service tool (CAN only)	22.1560.89.0100
EasyScan diagnostics and service tool (CAN / LIN) (no longer available to order)	22.1550.89.0000

A WORLD OF COMFORT

Eberspächer

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1 INTRODUCTION

1.1 SPECIAL TEXT FORMATS AND PRESENTATIONS

Special text formats and picture symbols are used in these instructions to emphasise different situations and subjects.
The meaning and corresponding actions are shown in the following examples.
Examples

- Text preceded by a dot (■) indicates a list, which is introduced by a heading.
  - – Text preceded by a dash (–) is positioned under the list with a dot.
  - → Indented text preceded by an arrow (→) denotes a protective measure.

Underlined blue text denotes a cross-reference, which can be clicked in the PDF document. The part of the document named in the text is then displayed.

1.2 PICTURE SYMBOLS

CAUTION

This information points out a dangerous situation for a person and / or the product. Failure to comply with this information can result in personal injuries and / or damage to the unit.

→ This arrow indicates the appropriate precaution to take to avert the danger.

NOTE

These remarks contain recommendations for use and useful tips for operation of the VCI.

1.3 GENERAL INFORMATION

1.3.1 Please read first

Before beginning the diagnosis always read carefully through the quick start guide and the complete operating instructions. Both documents contain important information, which is necessary for the installation and for performing the diagnosis. The complete operating instructions are stored on the enclosed CD and are also available on the Eberspächer Partner Portal to view and to download.

1.3.2 Designation

In the following the diagnostics adapter is named the VCI (Vehicle Communication Interface).

1.3.3 Screen display

All displays of screen pages shown in this document are given as examples. The actual screen page displays depend on the software version and may differ.

1.3.4 Repair

Repairs are not permitted.

1.3.5 Disposal

NOTE

This product does not belong in household waste.
Dispose of the product only according to the relevant legal regulations.

1.4 IMPORTANT INFORMATION

1.4.1 Intended use

The EasyScan diagnostics and service tool can be used to read out and log the fault memory, general data and measured values from the control box of Eberspächer heaters with diagnostics capability. Furthermore, functions of individual heater components can be tested and logged.

NOTE

- Use of the VCI for any purpose other than that given by the manufacturer is not permitted.
- The VCI is intended for commercial purposes only.
  - → Use the VCI only for the specified purpose for heaters, for example:
    - – Hydronic 1, from heaters with the “automatic altitude adjustment” function*
    - – Hydronic 2
    - – Hydronic 2 Commercial
    - – Hydronic S3
    - – Hydronic L3
    - – Hydronic M II
    - – Airtronic L, from heaters with the “automatic altitude adjustment” function *
    - – Airtronic 1
    - – Airtronic 2
    - – Airtronic 3

* Heaters with the “automatic altitude adjustment” function are identifiable from production in summer 2008 by “H-Kit” marked on the nameplate.

1 INTRODUCTION

1.5 OPERATION

CAUTION

- Do not use the VCI in an environment in which flammable gases, fumes, liquids or dust are or could be present.
- To reduce the risk of an electrical short-circuit or damage, do not expose the VCI to moisture.
- Do not start up the VCI if a malfunction could cause a hazard and/or damage to property.
- Shut down the VCI immediately if it can be assumed that safe operation is no longer guaranteed.
  → Take all measures to prevent accidental putting back into service.

1.6 LIABILITY AND GUARANTEE

The manufacturer is not liable for damage caused by improper use or incorrect operation.
Failure to comply with the safety instructions makes the guarantee null and void and excludes any liability of Eberspächer Climate Control Systems International GmbH.

1.7 ACCIDENT PREVENTION

Always follow all accident prevention regulations and shop and operating safety instructions.

1.8 EU DECLARATION OF CONFORMITY

We herewith declare that the version of the EasyScan diagnostics and service tool placed on the market by us conforms to the following EU Directives.

EU Directive 2014/30/EU
EU Directive 2011/65/EU

CE

The full Declaration of Conformity can be viewed and downloaded from the download centre at www.eberspaecher.com.

1.9 UKCA DECLARATION OF CONFORMITY

We herewith declare that the version of the EasyScan diagnostics and service tool placed on the market by us conforms to the following UK Directives.

Electromagnetic Compatibility, Statutory Instrument 2016, No. 1091
Restriction of hazardous substances, Statutory Instrument 2016, No. 1107

UK CA

The full Declaration of Conformity can be viewed and downloaded from the download centre at www.eberspaecher.com.

2 PRODUCT INFORMATION

EasyScan diagnostics and service tool
Order No.: 22.1560.89.0100 (CAN only)
Order No.: 22.1550.89.0000 (CAN / LIN) – no longer orderable

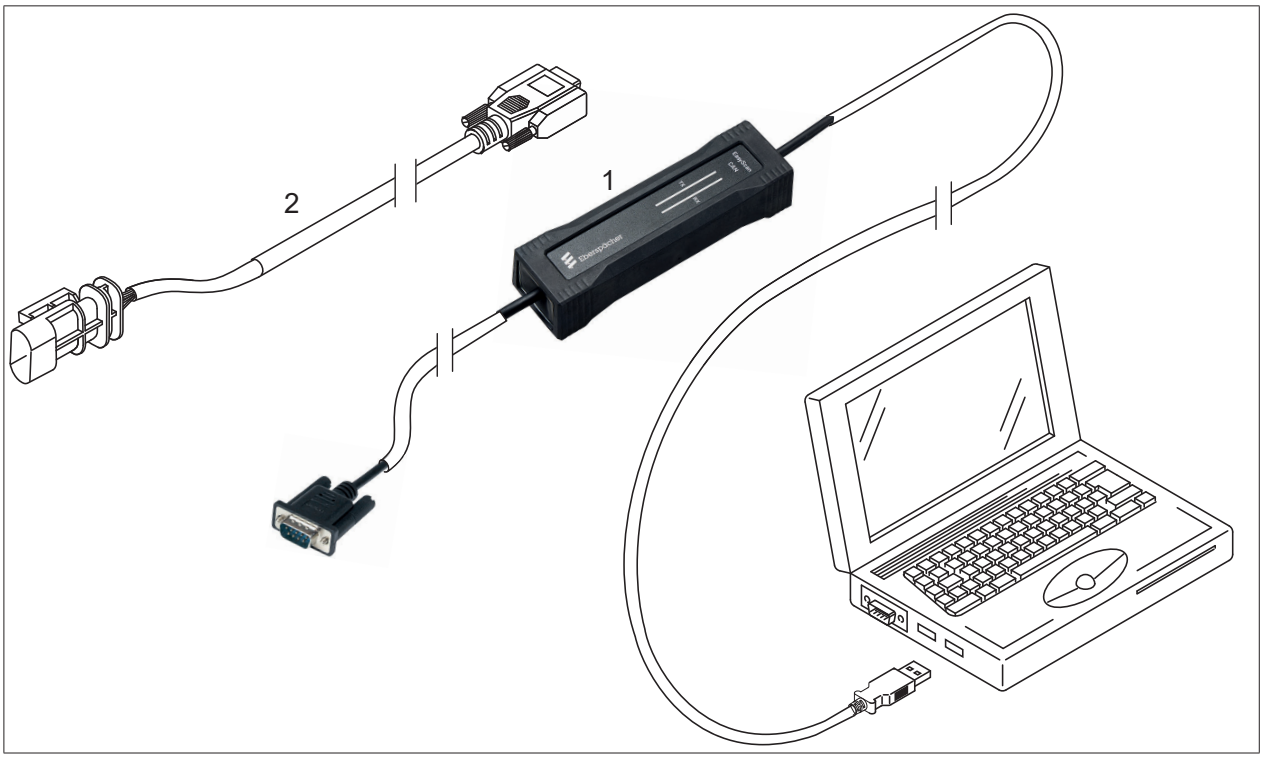
2.1 SCOPE OF SUPPLY

NOTE

The EasyScan diagnostics and service tool may require an adapter cable for diagnostics. The table in Chapter 2.3 “Adapter cable” describes which adapter cable is required for which heater. The adapter cables are not included in the scope of supply of the Easy-Scan diagnostics and service tool.

2.1.1 CAN-VCI 22.1560.89.0100

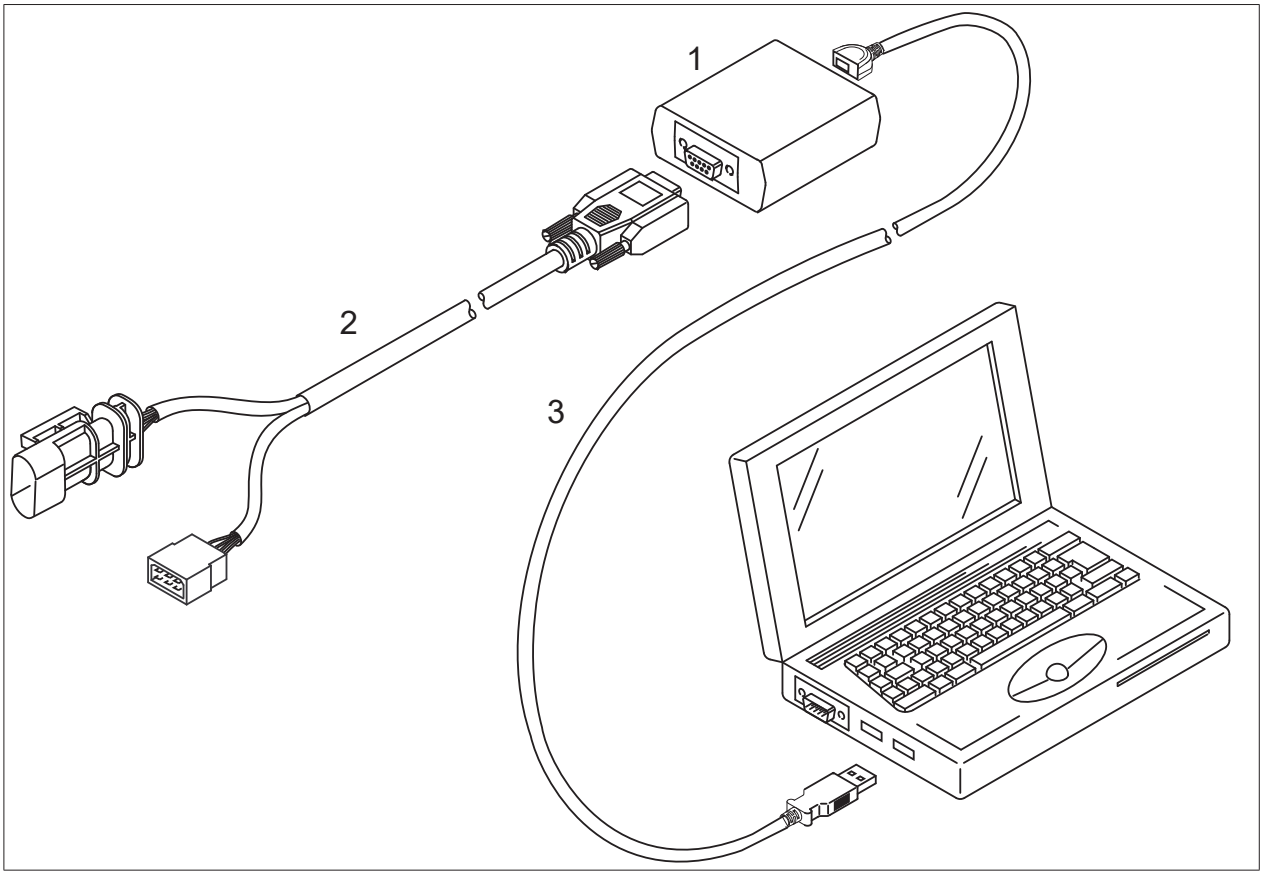
No. in sketch	Quantity	Designation
1	1	VCI
2	1	“Diagnostics interface” connection cable



2 PRODUCT INFORMATION

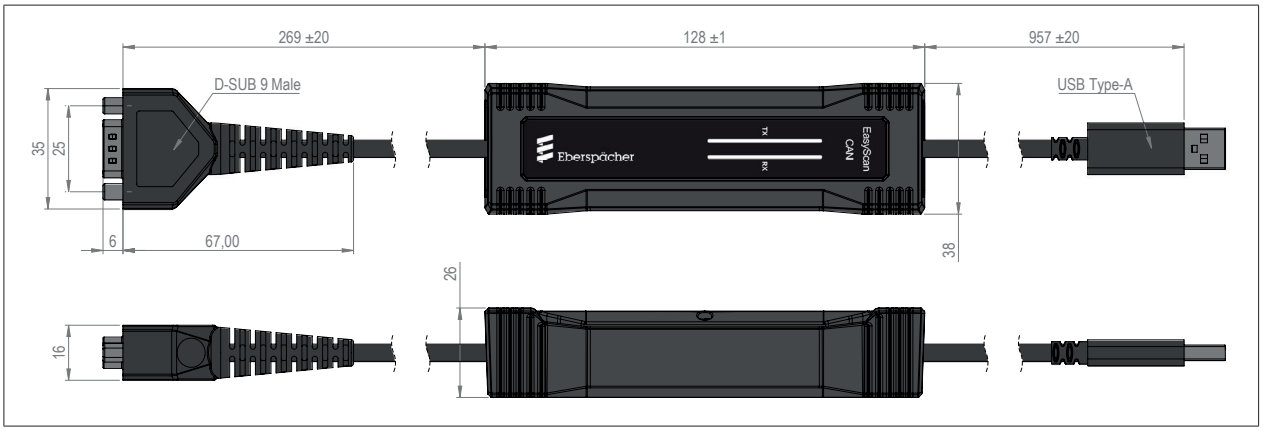
2.1.2 CAN / LIN-VCI 22.1550.89.0000

No. in sketch	Quantity	Designation
1	1	VCI
2	1	“Diagnostics interface” connection cable
3	1	“PC” connection cable



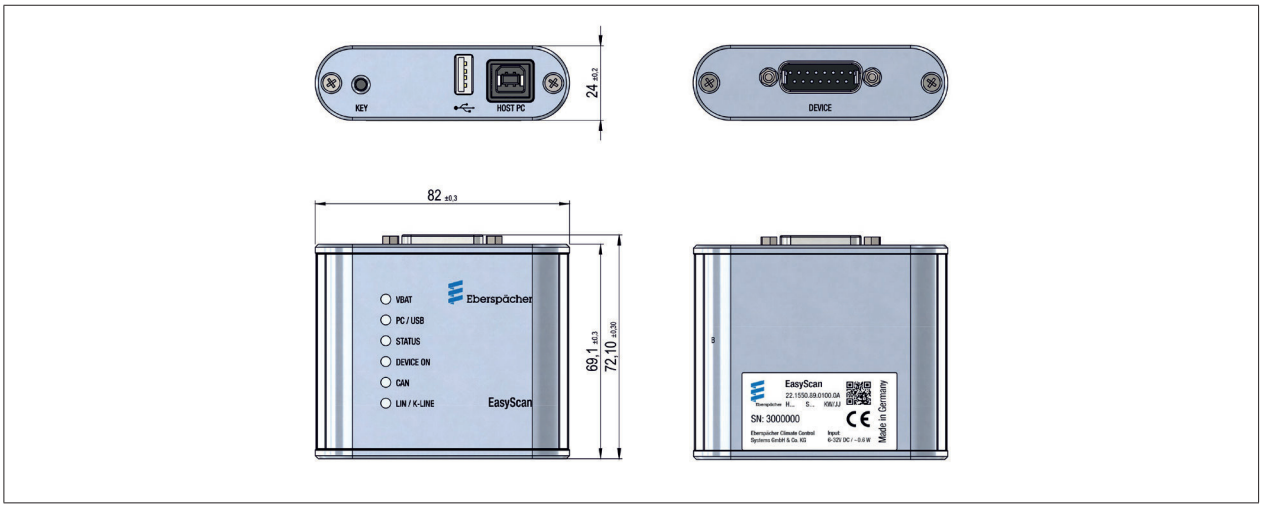
2.2 DIMENSIONS

2.2.1 CAN-VCI 22.1560.89.0100



2 PRODUCT INFORMATION

2.2.2 CAN / LIN-VCI 22.1550.89.0000



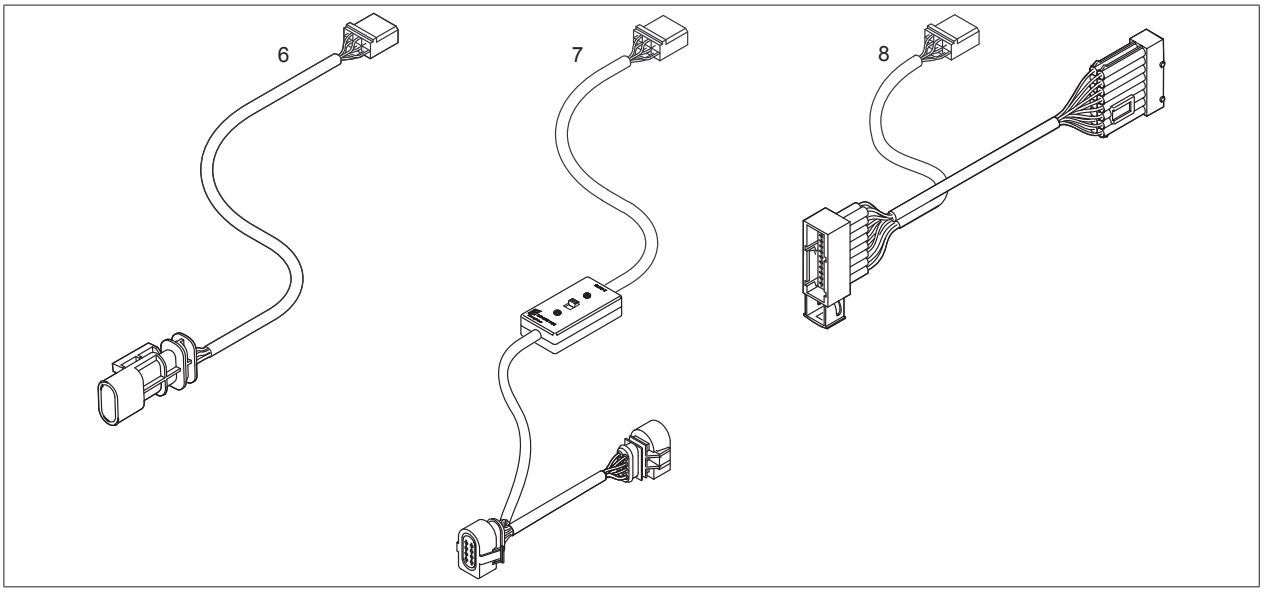
2.3 ADAPTER CABLE

The following adapter cables are absolutely necessary to connect the VCI.

NOTE

Heaters with the “automatic altitude adjustment” function are identifiable from production in summer 2008 by “H-Kit” marked on the nameplate.

No. in sketch	Quantity	Designation	Order No.
6	1	Adapter cable – Hydronic 2 / Hydronic 2 Commercial / Hydronic M II	22.1000.33.7800
7	1	Adapter cable – Hydronic 1 from heaters with the “automatic altitude adjustment” function	22.1000.31.6300
8	1	Adapter cable – Airtronic / Airtronic M / Airtronic L from heaters with the “automatic altitude adjustment” function	22.1000.31.8600



2 PRODUCT INFORMATION

2.4 DEVICE CONNECTIONS

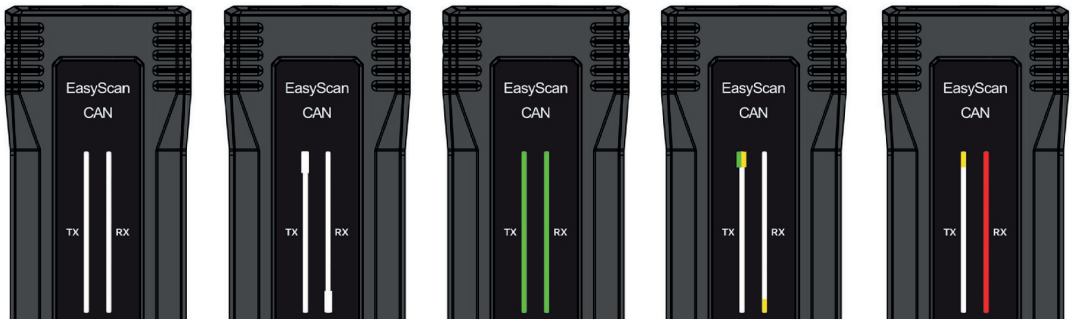
2.4.1 CAN-VCI 22.1560.89.0100

Host PC	Connector USB A
Heater	Connector D-SUB 9

2.4.2 CAN / LIN-VCI 22.1550.89.0000

KEY	Key function: Restore the software
USB	Not used
Host PC	“PC” connection cable connection
DEVICE	“Diagnostics interface” connection cable connection

2.4.3 LED description 22.1560.89.0100



Signalling	No Signal	White	Green	Green/Yellow flashing	Red
Operating state	VCI Off	VCI On	VCI is initialising	Data exchange aktive	VCI Error

2.4.4 LED description 22.1550.89.0000

Designation	Colour	Signalling	Operating state
VBAT	GREEN	dark	Power supply not connected or is outside the allowable range (VBA T < 6V or VBAT > 32 V)
		illuminated	Power supply connected and is within the allowable range (VBAT > 6V up to VBAT < 32V)
PC / USB	YELLOW	dark	No PC connection (USB not connected)
		Illuminated	VCI is connected with the PC (USB connected)
		Flashing	Data is being transferred between the PC and the VCI
STATUS	GREEN	dark	Software in the VCI is not ready for use (fault condition)
		slow flashing (1 Hz)	Software in the VCI is ready for use (normal condition)
		fast flashing (2 Hz)	The devices is in bootloader mode, the software in the VCI is faulty or has not been installed (fault condition)
DEVICE ON	RED	dark	On-cable for heating inactive
		Illuminated	On-cable for heating active
CAN	BLUE	dark	Communication via CAN bus not in operation
		flashing	CAN communication in operation. The flash frequency indicates the CAN bus load
LIN / K-LINE	BLUE	dark	Communication via LIN / K-LINE not in operation
		flashing	LIN / K-LINE communication in operation. The flash frequency indicates the bus load

2 PRODUCT INFORMATION

2.5 TECHNICAL DATA

2.5.1 CAN-VCI 22.1560.89.0100

Compatibility		**Water heaters** ▪ Hydronic S3 (12 / 24 V) ▪ Hydronic L3 (24 V)
		Air heaters ▪ Airtronic 2 (12 / 24 V) ▪ Airtronic 3 (12 / 24 V)
		all future heaters
		Control units ▪ EasyStart Pro ▪ EasyStart Web ▪ EasyStart Duty
Cable length [mm]	USB	1000
	CAN	300
Temperature range [°C]		– 40 °C to +85 °C
rel. humidity – not condensated		0% – 85%
Dimensions L×W×H [mm]		128×38×26 (w/o cable)
Weight [g]		170 (incl. connectos and Eberspächer adaptor)
Class of protection		IP 64 (w/o cable)

2.5.2 CAN / LIN-VCI 22.1550.89.0000

Compatibility	**Water heaters** ▪ Hydronic 1 (12 V), Hydronic 2 (12 V) ▪ Hydronic 2 Commercial (12 / 24 V) ▪ Hydronic M II (12 / 24 V) ▪ Hydronic S3 (12 / 24 V) ▪ Hydronic L3 (24 V)
	Air heaters ▪ Airtronic 1 ▪ Airtronic 2 (12 / 24 V) ▪ Airtronic 3 (12 / 24 V)
	all future heaters
Temperature range [°C]	– 40 °C to +70 °C
Dimensions L×W×H [mm]	82×72×24
Class of protection	IP 20

2.6 SYSTEM REQUIREMENTS

Check before installing the software

- Is an operating system, which supports the software, installed on the PC or notebook?
- Are the minimum hardware requirements for the supporting operating system met?

NOTE

If the minimum requirements are **not** fulfilled, the EasyScan 1.0 software **cannot** be installed.

Operating system:

Microsoft Windows 10, Windows 11, 64 Bit.

Minimum hardware requirements:

- Intel Core i3/i5 / AMD Ryzen 3/5
- Working memory (RAM): 8 Gbyte
- Hard drive: 128 Gbyte
- Graphics: integrated
- Screen: resolution Full HD (1920x1080)
- USB 2.0 interface (port)

3 INSTALLING THE SOFTWARE

3.1 PREPARING FOR THE INSTALLATION

CAUTION

Eberspächer Climate Control Systems International GmbH does not accept any liability whatsoever for any data loss on your PC. We recommend that you back up the data on an external hard drive before installing the software.

NOTE

- For the initial installation of the software the user who carries out the installation must be logged into the PC / notebook with administrator rights.
- Administrator rights are not required for all other actions.
- EasyScan software can be downloaded from the Eberspächer Partner Portal at partner.eberspaecher.com.
- The software contains all the drivers required for the VCI.
- The names of the English installation of Windows 7 are used in this user manual. Depending on the operating system and set language, the names of the system directories may differ from those used in this user manual.

3.2 INSTALLING THE SOFTWARE – BOTH VCI VERSIONS

NOTE

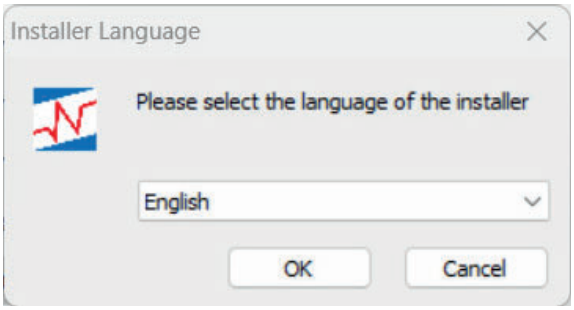
- Depending on the performance of the PC / notebook, several minutes may be required for the installation.
- **TIP:** For faster installation, copy the program data from the CD onto the hard drive and start the installation from there.
- During the installation, follow the instructions on the screen, accept all default paths and do **not** change them.

The installation process may take several minutes.

3.2.1 Start the installation

Start the program by clicking EasyScan.exe.

Select language

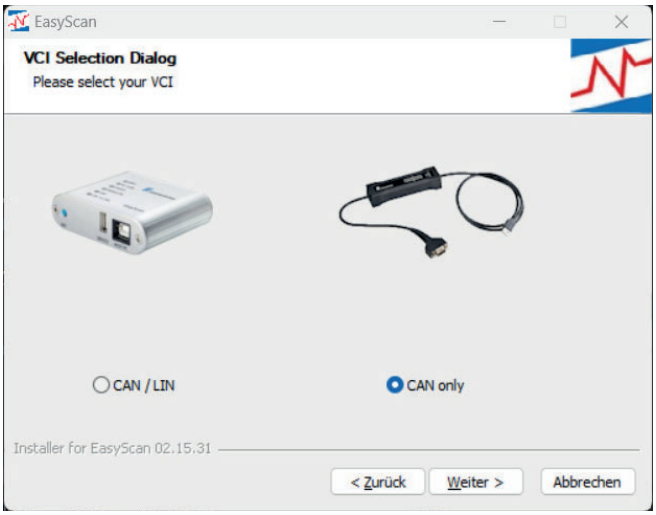


Select “Next” button



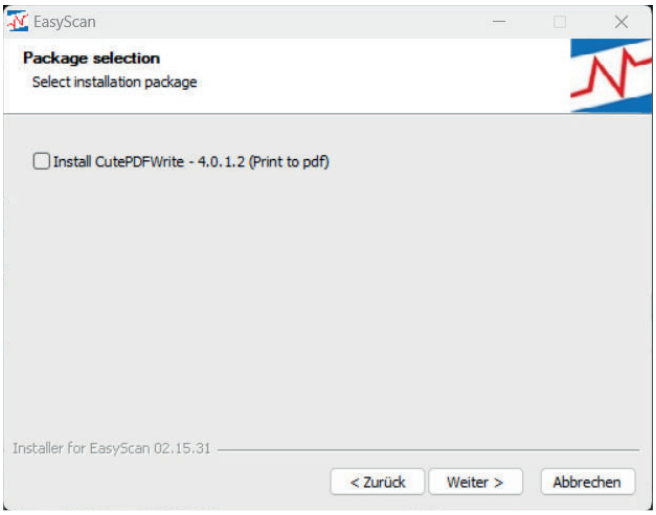
3.2.2 Chose your VCI version and start the installation

- Select your VCI version:
  - VCI Nr. 22.1560.89.0100: CAN connection only
  - VCI Nr. 22.1550.89.0000: CAN and LIN connection (no longer available to order, only for existing field applications)

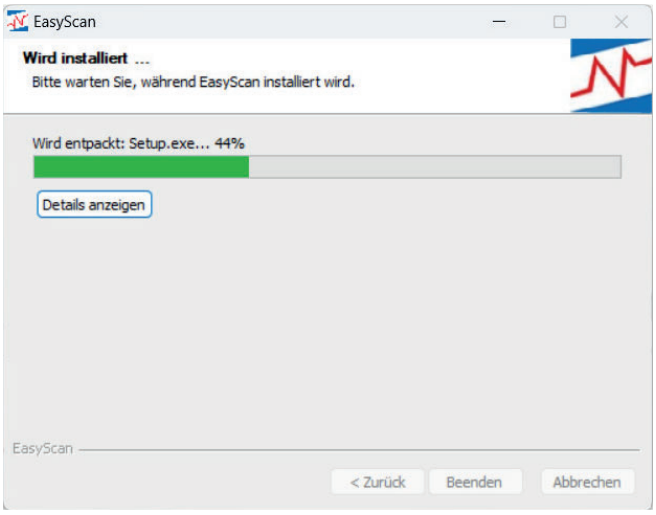


- Select Print-to-PDF installation package and select [Weiter].

3 INSTALLING THE SOFTWARE



- Start the installation.
- The EasyScan testing software is installed.
- The installation progress is displayed with a bar.



NOTE

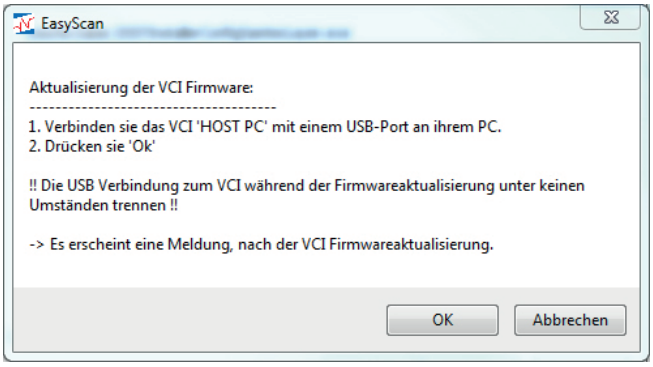
- If the Setup Wizard finds that programs required for execution of the software to be installed is not available it starts the necessary programs.
- Follow the Wizard's instructions and click "Next" (**do not** click "Finish").
- After installing the "EasyScan testing software" the Connection Assistant starts.

3.3 INSTALLATION PROCESS FOR VCI VERSION 22.1550.89.0000

3.3.1 Automatic Firmware Update

The following instructions must be carried out:

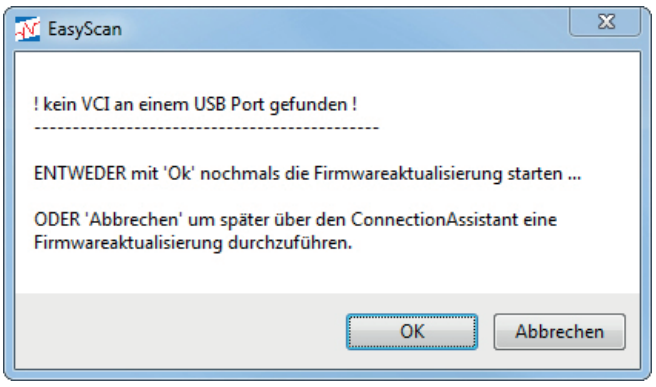
- Check whether "PC" connection cable is connected to the VCI and to the PC / notebook.
- Check the power supply:
  - Status LED (green) on the VCI is lit –> power supply connected,
  - Status LED (green) on the VCI is not lit –> connect the power supply.
- Confirm completed instructions by clicking the "OK" button.



NOTE

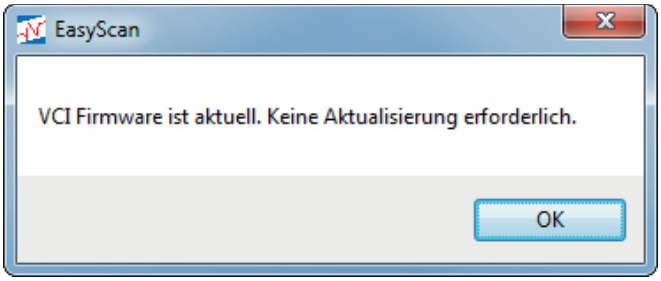
Do not disconnect the USB connection between the PC / notebook and VCI during the firmware update under any circumstance.

- If no VCI is connected, an error message appears.



NOTE

A corresponding message appears if the firmware is up to date.
Continue in chapter 3.4 "Ending the installation" on page 17.



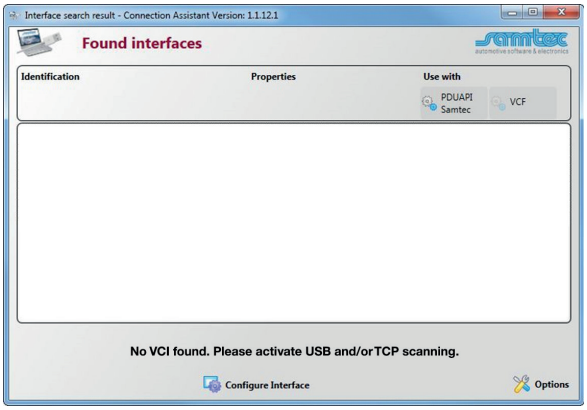
3 INSTALLING THE SOFTWARE

3.3.2 Firmware update via Connection Assistant

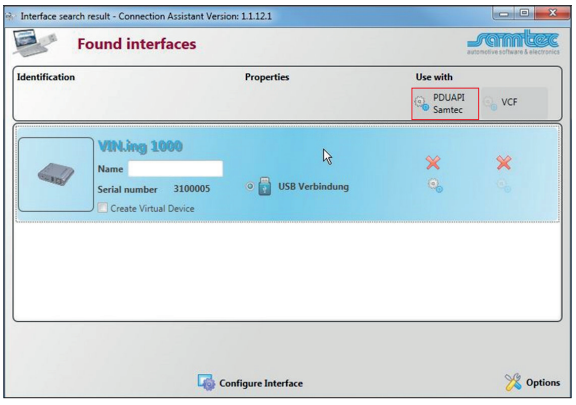
NOTE

Only carry out the following steps described in this chapter if the automatic firmware update, as described in Chapter 3.3.1 “Automatic Firmware Update” on page 14, was not successful or the installation process was interrupted.

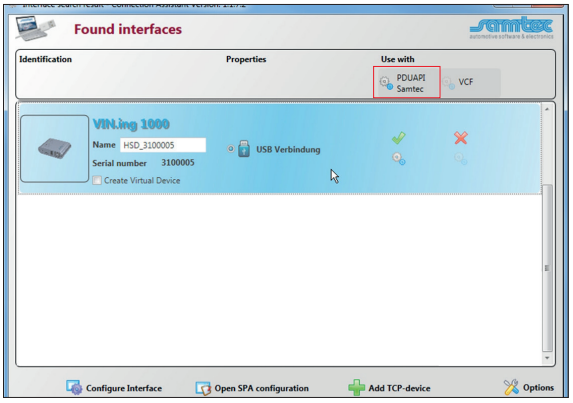
- Start the Samtec Connection Assistant via the Windows Start menu: “Start” \ “All Programs” \ “Samtec Diagnostic Tools” \ “Connection Assistant”.
- If no interface was found, click the “Options” button and select “Search for USB devices”.
- The search for USB devices is started.



- Select the found list entry by left-clicking it with your mouse.
- Click the “Configure Interface” button to open the flash function of the firmware.
- Select the VCI by clicking the left-hand red cross in the heading “Use with: PDUAPI Samtec”.



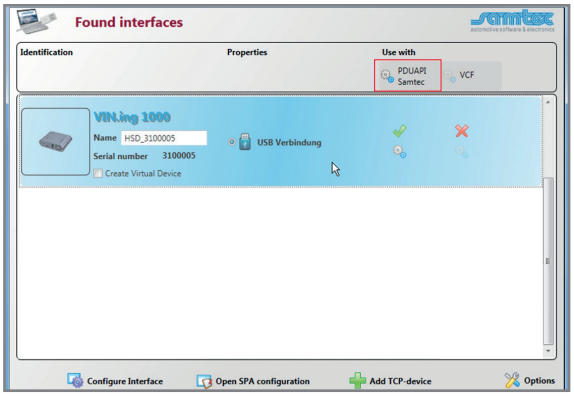
The VCI will now be used with PDUAPI.



NOTE

A name for the interface can be entered as an option in the “Name” field.

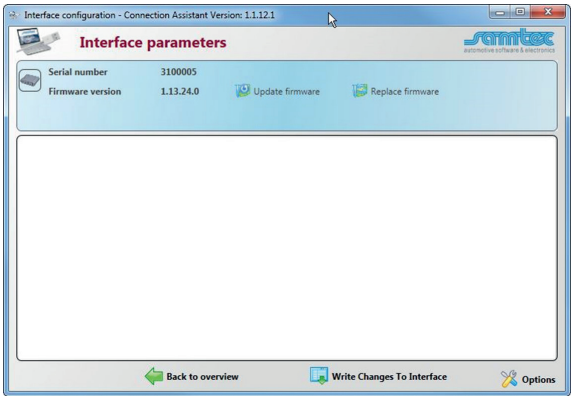
Click “Configure Interface”.



NOTE

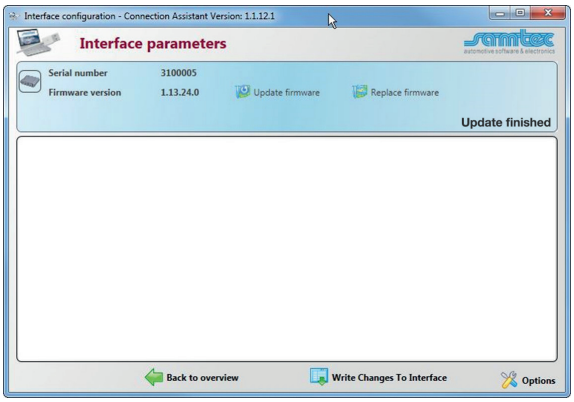
If the firmware update does not run automatically, continue with Chapter 3.3.3 “Replacing the firmware” on page 16.

Click “Update firmware” (installs automatically).



The VCI will now be used with PDUAPI.

3 INSTALLING THE SOFTWARE



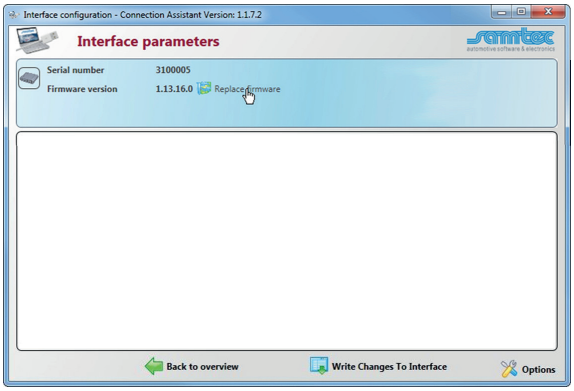
- When the update is finished, exit the Connection Assistant by clicking the operating system button (Close).

3.3.3 Replacing the firmware

The current firmware version is available to download from the Partner Portal at partner.eberspaecher.com. After downloading, save in the following directory:

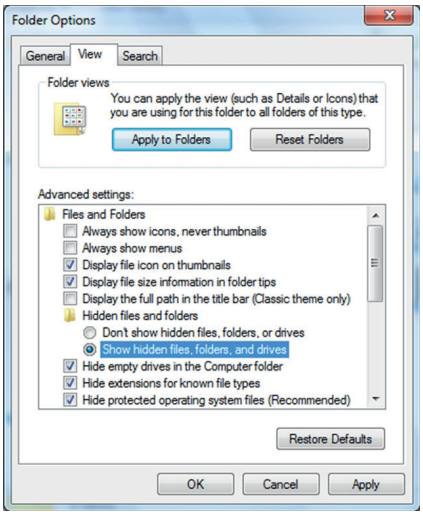


To replace the firmware, select “Replace firmware”.



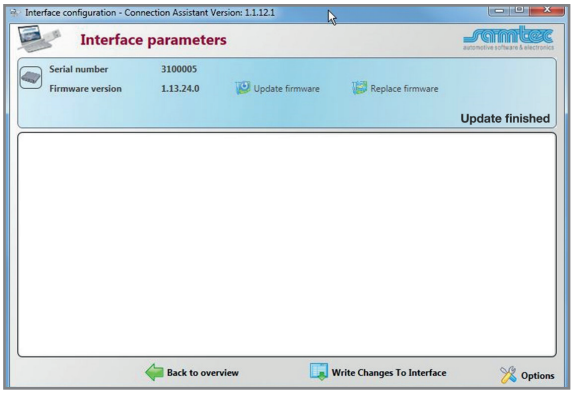
After pressing the “Replace firmware” button an Explorer window opens with the “System drive C:\" and its subfolders.

- To install the current firmware, open the directory where the downloaded firmware file is stored and select the .sfh file.
- Installation is automatic after double-clicking the file.



NOTE

The flash file required is in the “ProgramData” folder, which may be hidden. To show the folder in Windows Explorer, activate under the following menu item: “Tools \ Folder Options \ View \ Hidden files and folders \ Show hidden files, folders and drives”.



- When the update is finished, exit the Connection Assistant by clicking the operating system button (Close).

3 INSTALLING THE SOFTWARE

3.4 ENDING THE INSTALLATION

Finish the software installation by clicking the “Finish” button.



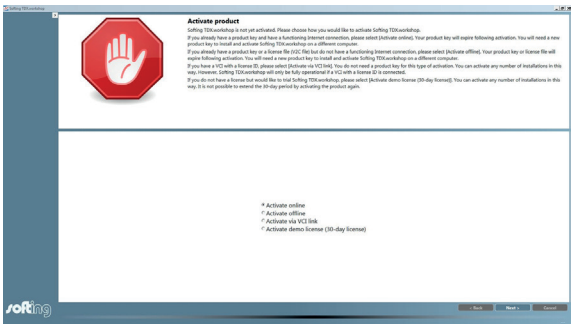
NOTE

After completing the installation or after clicking the EasyScan icon in the program bar or on the desktop, the **Homepage** is displayed for the current heater generation.

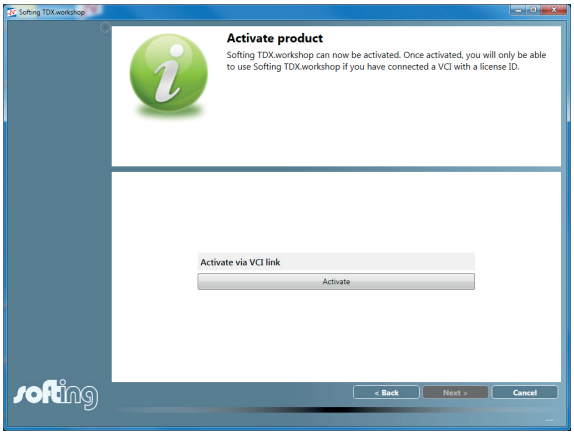
3.5 ACTIVATING EASYSCAN

NOTE

Activation is only necessary for the initial startup.



- Start the program by clicking the EasyScan icon in the program bar or on the Desktop.
- Select “Activate via VCI link” in the selection window.
- Click the “Next” button to continue the activation.



- End the activation by clicking the “Activate” button, then exit the program by clicking the operating system button  (Close).
- Restart the program by clicking the EasyScan icon in the program bar or on the Desktop. The homepage is displayed.

4 CONNECTING THE VCI

4.1 VCI VERSION 22.1560.89.0100

- Connect the USB connection cable to a free USB port on the PC / notebook.
- Connect the D-SUB 9 connection cable to the diagnostic interface of the heater.

4.2 VCI VERSION 22.1550.89.0000

4.2.1 Connect the “PC” connection cable

- Connect the “PC” connection cable to an unused USB port of the PC / notebook and to the “HOST PC” connector.

4.2.2 Connect the “diagnostics interface” connection cable and the adapter cable

- Connect the “diagnostics interface” connection cable to the VCI.

Hydronic 2 / Hydronic M II / Hydronic S3 / Airtronic 2

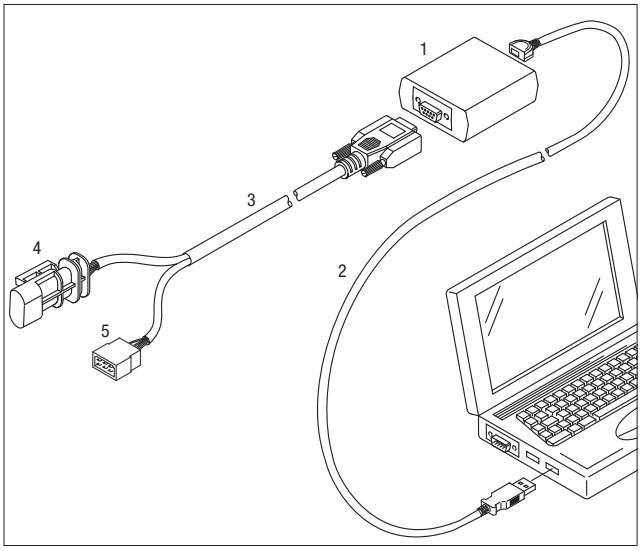
- The adapter cable (6, see Chapter 2.3) is absolutely necessary: connect it to the 8-pin connector (Item 5) of the “diagnostics interface” connection cable and to the diagnostics interface in the heater cable harness.

Hydronic 1

- Use the adapter cable (7, see Chapter 2.3) between the heater and heater cable harness and connect to the 8-pin connector (5) of the “diagnostics interface” connection cable.

Airtronic / Airtronic M / Airtronic L

- Use the adapter cable (8, see Chapter 2.3) is absolutely necessary; use it between the heater and heater cable harness and connect to the 8-pin connector (Item 5) of the “diagnostics interface” connection cable.



1 EasyScan VCI
2 “PC” connection cable
3 “Diagnostics interface” connection cable
4 Connection to the diagnostics interface in the heater cable harness (in preparation for the new heater generation)
5 8-pin connector for the adapter cable connection (see page 6 for adapter cable Order No.)

5 STARTING THE PROGRAM / EXITING THE PROGRAM

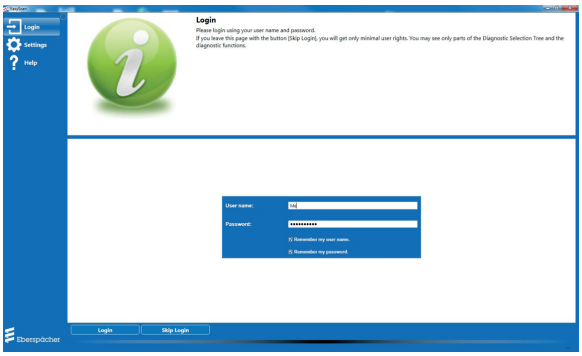
5.1 NEW HEATER GENERATION

NOTE

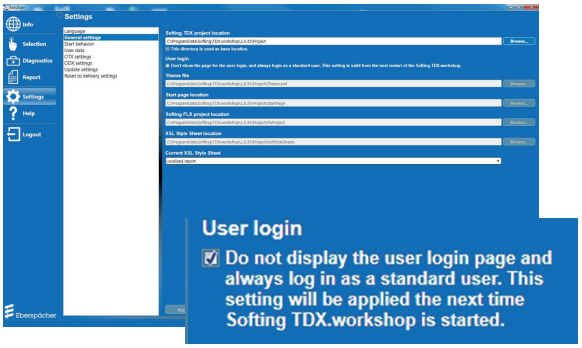
- The program can be started with “Login” or “Skip Login”.
- The user name and password are available through the national representative.
- Successful logging in is indicated in green.
- Any errors that occur are displayed in red under the input field.
- Exit the login page by clicking the “Login” or “Skip Login” button.

- Start the program by clicking the EasyScan icon in the program bar or on the Desktop.

The Login page is opened and the user name and password can be entered in the Login window.



- If no login window is displayed for entry of the user name and password, go to “Settings – General settings – User login” and deselect the selected option “ ☑ Do not display the user login page and always log in as a standard user.”.



5.1.1 Starting the program with “Login”

NOTE

If the program is used with “Login” unlimited functionality is available to the user while the program is running.

- To log in, enter the user name and password.



- Click the “Login” button. Following successful logging in the program starts with the homepage.

5.1.2 Starting the program with “Skip Login”

NOTE

It is not necessary to enter a user name and password. Limited functionality only is available to the user while the program is running.

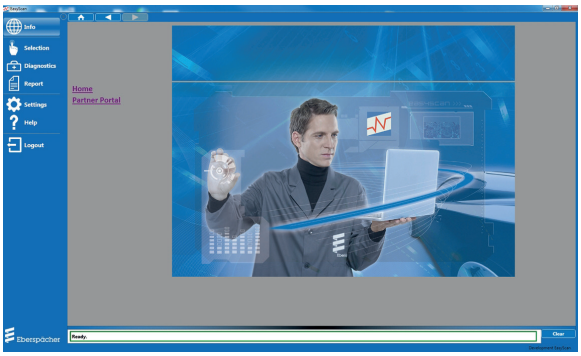


Click the “Skip Login” button. The program starts with the homepage.

5.2 CURRENT HEATER GENERATION

- Start the program by clicking the EasyScan icon in the program bar or on the Desktop.

The homepage is opened:



The top part of the homepage contains three buttons for navigation between the linked HTML pages on the Eberspächer Partner Portal, the button functions are:



Back to homepage



Back to the last HTML page



Go to the next HTML page.

NOTE

The instructions are saved as a PDF file under “User Manual” under the “Help” menu item.

5.3 LOGGING OUT OF THE PROGRAM

- You can log out on all pages with the button.



- On logging out all running diagnostic functions are ended.
- After the logout the program switches back to the Start or Login page.

5.4 EXIT THE PROGRAM

- Exit the program by clicking the operating system button (Close).

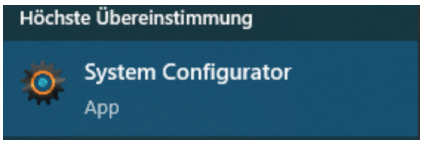
5 STARTING THE PROGRAM / EXITING THE PROGRAM

5.5 CHANGE VCI MANUALLY

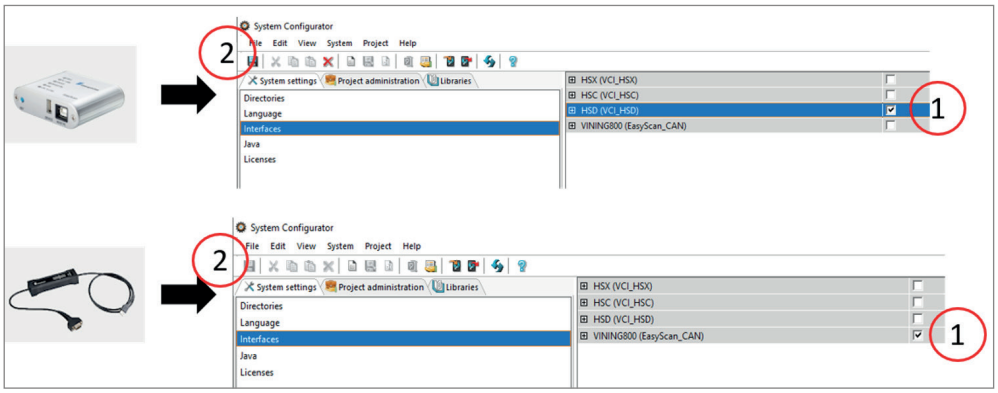
- Start the EasyScan System Configurator.

NOTE

Enter EasyScan System Configurator either via [Start > Search/ Run] and start the app.



- Or find it in the system via this path:C:\Program Files (x86)\ Softing\Diagnostic Tool Set 8\8.08_PA\bin\SystemConfigurator.exe
- Select and save the desired VCI.



- Close system configurator.
- Start EasyScan.

6 USER INTERFACE

6.1 LAYOUT



The user interface is divided into 4 areas.

1 Title row
2 Menu column
3 Working range
4 Message bar

6.1.1 Title row (1)

The title of the diagnostics software is displayed in the title row.

6.1.2 Menu column (2)

NOTE

After restarting the program the menu column has the status (expanded or collapsed) that it had before exiting the program.

The individual menu items are available to choose in the menu column.
The respective corresponding page is shown in the workspace (3).
The menu column can be expanded and collapsed using the arrow symbol in the top right-hand side.

The following menu items are available to choose in the menu column:

- Info (see Page 22)
- Selection (see Page 23)
- Diagnostics (see Page 27)
- Report (see Page 32)
- Settings (see Page 32)
- Help (see page Page 34)
- Logout (see Page 36)

6.1.3 Workspace (3)

NOTE

- After restarting the program the page displayed before exiting the program is once again displayed in the workspace.
- Only the selected diagnostic functions are displayed as a tab in the workspace.
- The page selected in the menu column is always shown in the workspace.
- Home link –> Homepage is displayed.
- Partner Portal link –> If online the Partner Portal is displayed.

6.1.4 Message bar (4)

Errors/faults, warnings and information are output in the message bar. The message output last is displayed at the top of the list. If there are no errors or warnings the message bar stays closed. If an error or warning occurs the message bar is open and the top message is displayed.

All entries can be deleted using the “Clear” button.

The message bar can be made larger using an expander.

7 PROGRAM DESCRIPTION

7.1 “INFO” MENU ITEM

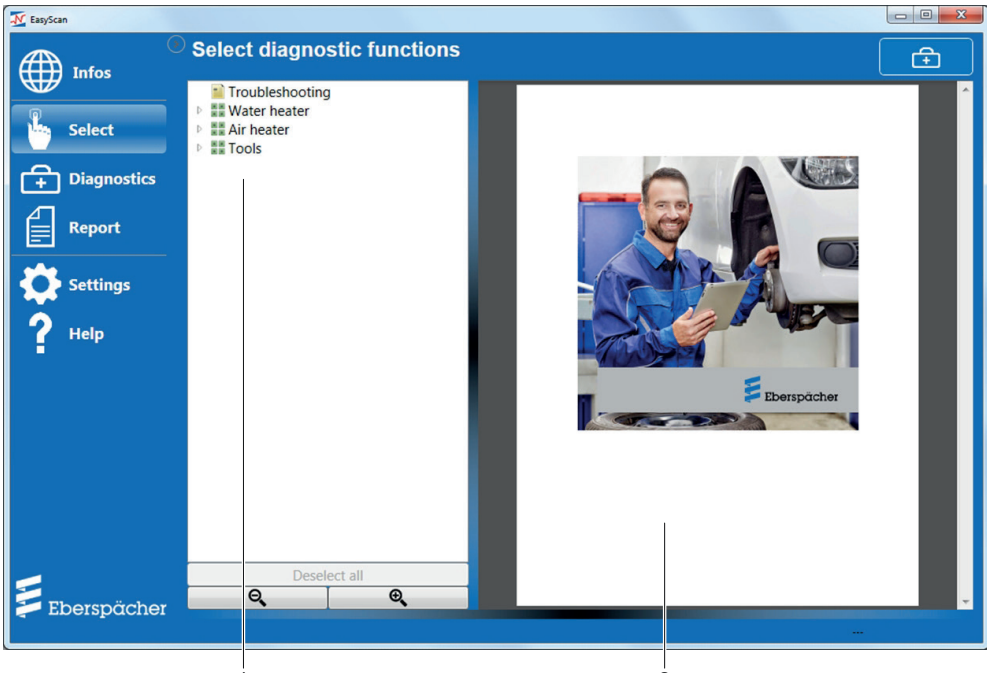


7.1.1 Opening the “INFO” menu item

Click “Info” in the menu column to open the menu item.
In offline mode the homepage is displayed in the workspace; in online mode the Eberspächer website is displayed.

7 PROGRAM DESCRIPTION

7.2 “SELECTION” MENU ITEM



1 Selection tree
2 View window with document

7.2.1 Opening the “Selection” menu item

NOTE

- The workspace for selecting heaters and diagnostic functions is divided into two; on the left is the selection tree (1), on the right the View window (2).
- The layout of the two windows can be adjusted using an expander ⟷.
- The selection must be further refined by opening an appropriate node in the selection tree.
- If an element is selected in the selection tree, the corresponding document appears in the View window.

Click “Selection” in the menu column to open the menu item. The selection tree and View window are displayed.

7 PROGRAM DESCRIPTION

7.2.1.1 SELECTION TREE ELEMENTS

The selection tree can contain the following elements:

Grouping elements

A grouping element can be expanded. Grouping elements, description elements, control box elements (heaters) and diagnostic function elements can in turn lie under this element.

Description elements

Click a description element to display descriptions in the workspace.

Control box elements (heaters)

A control box element (heaters) can be expanded. The diagnostic function elements are located under this element.

If control box elements (heaters) are selected with a tick, all diagnostic function elements are also selected at the same time.

If the tick is removed from control box elements (heaters), all diagnostic function elements are also deselected.

Diagnostic function elements

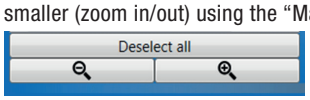
A diagnostic function element cannot be expanded. Diagnostic function elements can be selected for diagnosis with a tick. If the tick is removed any diagnostic function currently in progress is ended and the worksheet in the workspace is removed.
All elements are linked to a document, which is displayed in the View window after the element is selected.

7.2.1.2 NAVIGATION IN THE SELECTION TREE

NOTE

The information about which diagnostic functions and heaters have been selected in the selection tree is saved after the program is exited. The save is carried out individually for each logged in user.

- The selection of all heaters and diagnostic functions can be cancelled by clicking the “Deselect all” button.
- The display of the selection tree can be enlarged or made smaller (zoom in/out) using the “Magnifying glass” button.



7.2.1.3 SELECTION TREE MENU

The Selection Tree menu contains the following items for selection:

List of Contents

List of the supported heaters.

Troubleshooting

Brief description of possible error or fault sources.

Water heaters

1st and 2nd generation water heaters.

Air heaters

1st generation air heaters.

Tools

Signal viewer, graphic display of signals, see Chapter 7.2.3 “Tools” on page 25.

7.2.2 Select heater type and display diagnostic functions

NOTE

Select water or air heater, the heater type is detected automatically. For information on which heaters are detected automatically, see “List of Contents” description element.

In the Selection Tree menu, open the node of

Water heaters or

Air heaters.

Click

Diagnostics in the selected node to display the heaters available to choose from.

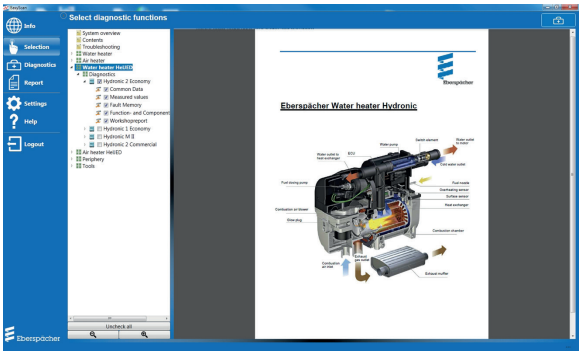
Select and mark heater.
The diagnostic functions are displayed, can be selected individually and selected (marked) with a tick.
When a tick is set next to the selected heater, all diagnostic functions are displayed and are marked as selected with a tick:

☑ General data
☑ Measured values
☑ Fault memory
☑ Functions and component activation
☑ Workshop report

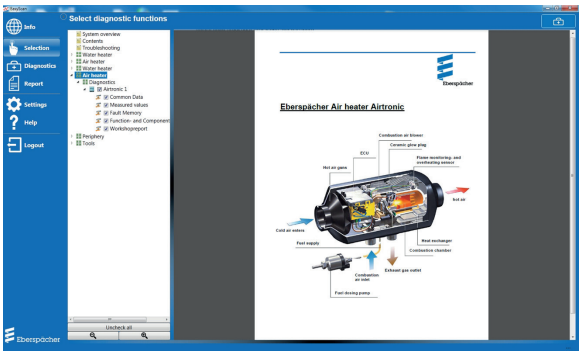
If the tick is removed from the selected heater, all diagnostic function elements are also deselected.

7 PROGRAM DESCRIPTION

7.2.2.1 WATER HEATERS



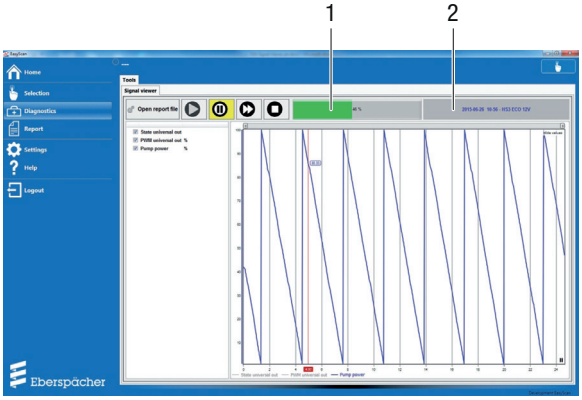
7.2.2.2 AIR HEATERS



7.2.3 Tools

Open the “Tools” node in the selection tree.

The Signal Viewer for graphic display of recorded signals is displayed.



1 Recording is displayed in a progress bar.

2 Heater type and date of the recording.

7.2.3.1 FUNCTION OF THE BUTTON

- Play back selected signals, taking into account the real runtime.
- Cancel import or playback process.
- Play back signals as quickly as possible, i.e. do not take into account their real runtime.
- Pause the playback process.

7.2.3.2 SELECTING AND IMPORTING A REPORT FILE

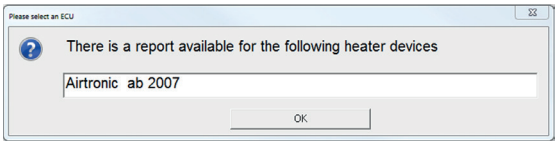
Click the “Open report file” button.



The “Open File” dialog opens and a valid Report file (XML) can be selected.

After selecting the report file it is searched for control boxes for which recorded signals are available.

All control boxes found are offered for selection in a list.



Confirm the selection with OK, the import starts.

This process can be cancelled at any time by clicking the Stop button .

7.2.3.3 SELECTING SIGNALS

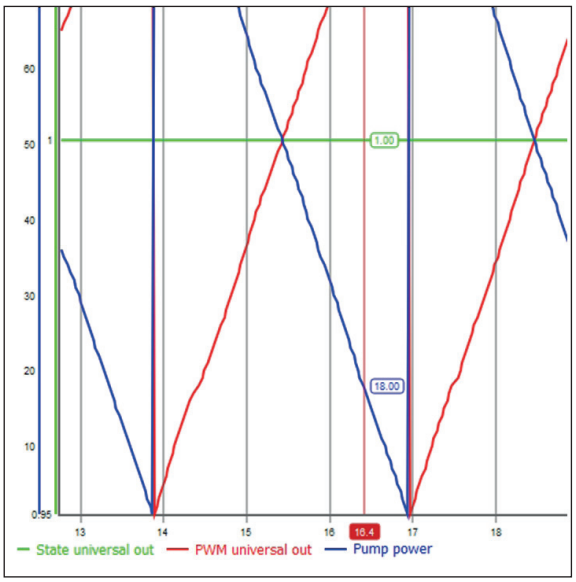
After the import all available signals are displayed for selection and graphic display in the Signal Viewer.

7 PROGRAM DESCRIPTION

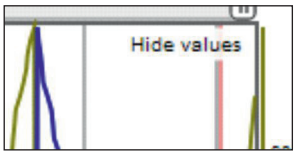
7.2.3.4 PLAYING BACK SIGNALS

Click the Start button ▶. The graphic display for each selected signal is started.

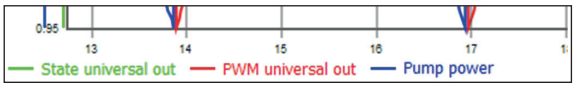
The mouse cursor movement on any position in the diagram shows the current X and Y values for each signal.



This function can be deactivated using the “Hide values” button. The button is in the top right-hand corner of the diagram.



A signal can be removed from the diagram temporarily and then added back again by clicking the relevant signal in the key.



Directly above the diagram area there is a slidebar. This can be used to change the time axis, e.g. to view a specific time range.



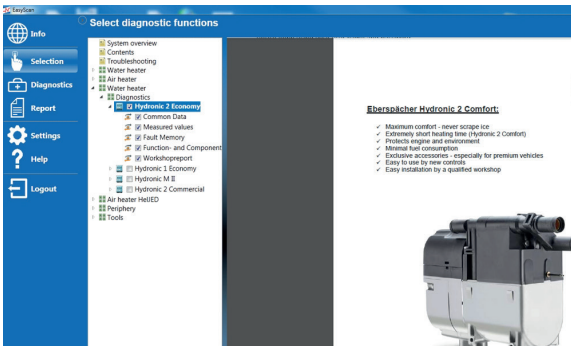
7.2.4 Selecting a diagnostic function

In the selection tree, select the required diagnostic function for the relevant heater.

Functions to be carried out for the diagnosis are marked with a tick ☑.

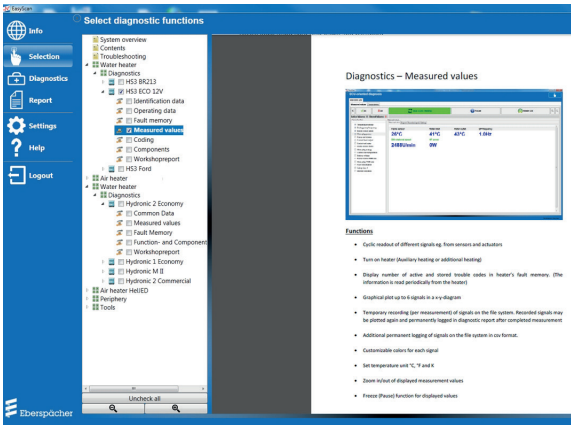
The following diagnostic functions can be selected for the relevant heater:

- ☑ Common Data (see Page 27)
- ☑ Measured values (see Page 28)
- ☑ Fault Memory (see Page 30)
- ☑ Functions and Component Activation (see Page 31)
- ☑ Workshop report (see Page 32)



NOTE

- Diagnostic functions and heaters selected in the selection tree are saved and are displayed again with the next start.
  If the information is not required, remove the tick next to the heater.
- The save is carried out individually for each logged in user.
- A document with further node-specific information is stored for each node in the selection tree.
- The document is loaded and shown by clicking a node.
- Nodes below a heater represent diagnostic functions. A short functional description is stored for each of these nodes.



7 PROGRAM DESCRIPTION

7.3 "DIAGNOSTICS" MENU ITEM

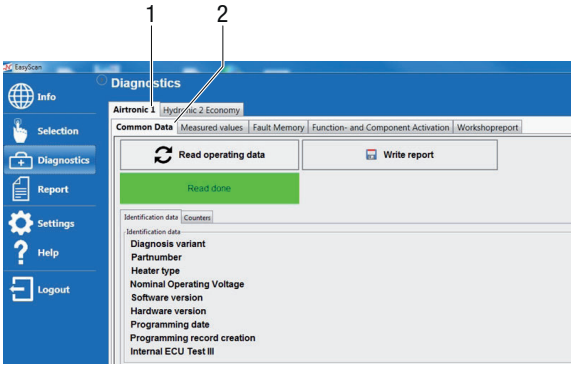
7.3.1 Start diagnosis

NOTE

Heaters are diagnosed with the diagnostic functions selected in the selection tree previously under the "Selection" menu item. If no diagnostic function was selected before switching to the diagnosis, a warning appears and the program switches automatically to the selection.

Each diagnostic function has its own user interface.
The diagnostic functions are displayed in tabs (inner tabs).

The outer tabs represent **heaters**, the inner tabs contain the user interfaces of the corresponding **diagnostic functions**.



1 Outer tabs
2 Inner tabs

NOTE

- Only the diagnostic functions selected under Section 7.2.4 are displayed as tabs in the workspace.
- The first time a diagnostic function tab is selected the corresponding diagnostic function is started.
- On switching between the tabs the diagnostic functions remain activated.
- The diagnostic function shown in the figure is only an example.
- The description of the user interface or how the individual diagnostic functions work is given on the following pages.

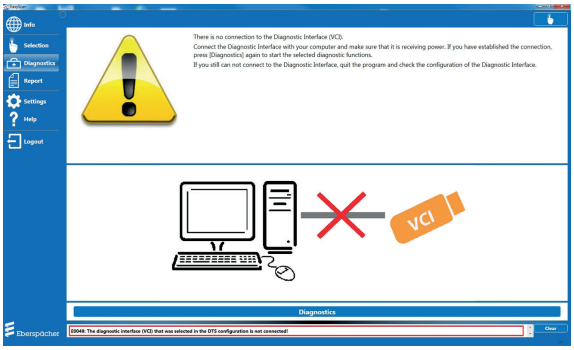
7.3.2 Interruption

If, on starting or during an active diagnostic function, the program determines

- that no VCI is connected, or
- the connection with the VCI has been interrupted,

all active diagnostic functions are ended.

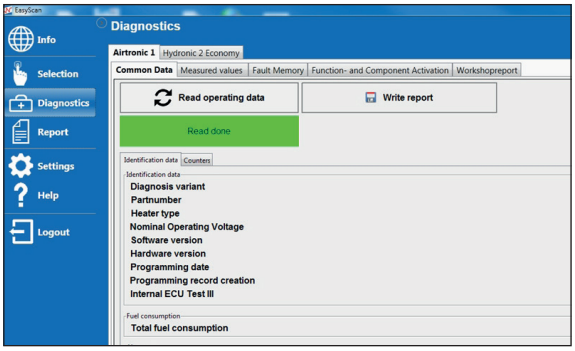
The following message appears in the workspace.
In addition, the corresponding error message is displayed in the message bar.



After the connection with the VCI has been re-established the already selected diagnostic functions can be started again using the Diagnosis button in the menu column or at the bottom edge of the page.

7.3.3 "Common Data" tab

In the outer tab of the selected heater, open the inner "Common Data" tab.
The "Common Data" is read out and displayed.



7 PROGRAM DESCRIPTION

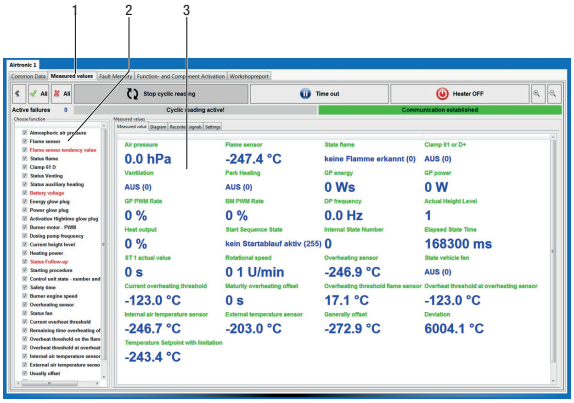
7.3.4 “Measured values” tab

7.3.4.1 SELECTING AND DISPLAYING SIGNALS

NOTE

- The number of signals can vary depending on the heater.
- The signals selected in the menu column are read out cyclically.
- The number of selected signals affects the “refresh rate” of the measured values.
  - We recommend selecting only those signals actually required. The fewer the signals that have to be read, the more measured values per second can be determined for each signal. This achieves a higher time resolution.
- If errors occur while reading out the faulty function / component is displayed in **red**.

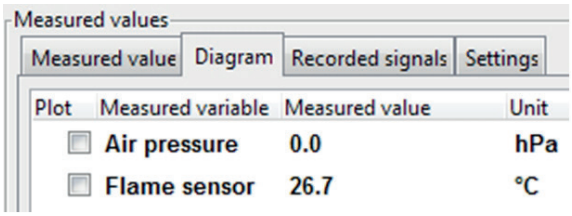
Open the inner “Measured values” tab in the workspace. Mark the signals in the “Choose function” window with ticks (checkmarks). The measured values of the signals are displayed.



1 “Measured values” tab
2 “Choose function” window
3 Measured values of the selected signals

7.3.4.2 CREATING A DIAGRAM (OPTION)

Select a maximum of six signals, mark with a tick and display in the X-Y Live diagram during a measurement.



7.3.4.3 STARTING CYCLICAL READING

On opening the “Measured values” tab the measured value analysis starts automatically. The default test parameters of the autostart function can be selected and deselected in the “Measurement settings” tab. The autostart function can be disabled here if necessary.

NOTE

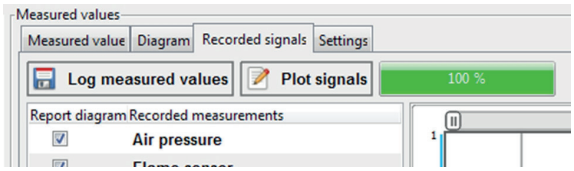
All selected signals are read out and displayed as quickly as possible in the control box.
These signals are also stored temporarily internally and are filed in the file system at certain time intervals.

If “Cyclic reading” is active, other signals can be added or removed dynamically.
This has the following effect:

- A new signal is added.
  - The signal is not saved temporarily in the file system.
- An existing signal is removed and added again if applicable.
  - The signal is also stored temporarily in the file system. However, the signal value = 0 is used for the period during which the signal is not selected.

In the inner “Measured values” tab, start the function by clicking the “Cyclic reading” button.





7.3.4.4 ENDING CYCLICAL READING

In the inner “Measured values” tab, end the function by clicking the “Stop cyclic reading” button.



7 PROGRAM DESCRIPTION

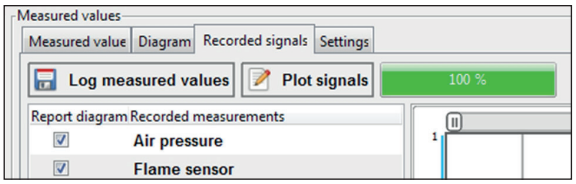
7.3.4.5 PLAYING BACK SIGNALS AGAIN

NOTE

- The recorded signals are available in the file system until a new measurement is started. In this case all recorded signals are deleted from the file system.
- The zero point does not correspond to the time when the heater was switched on, but the time at which cyclical reading was started.
- However, if the heater is started and cyclical reading is then switched on immediately, the two zero points are located directly next to each other.

In the inner “Measured values” tab, play back the recorded signals again and log them by clicking the “Plot signals” button.



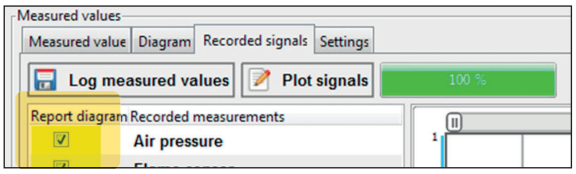


7.3.4.6 LOGGING MEASURED VALUES

The “Log measured values” button is used to save all recorded signal traces as X/Y value pairs in the report.

NOTE

If a signal is selected in the “Report diagram” column, a diagram is created in the report.



7.3.4.7 REQUESTING OR EXITING THE HEATING FUNCTION

NOTE

If the heater was not switched on via EasyScan, it can also not be switched off via EasyScan. It must then be switched off, for example, using the control unit or via the switch input.

The pre-heating or auxiliary heating function can be requested at any time at the heater.
The button changes its appearance depending on the operating state of the heater, which is read out cyclically in the background.





7.3.4.8 STOP MEASURED VALUE DISPLAY

NOTE

Only the display is frozen. The measurement continues. Diagrams and saving the signals in the file system are not affected by the pause.

Stop the measured value display by clicking the “Time out” button.



7.3.4.9 “ACTIVE FAULT” DISPLAY IN THE CONTROL BOX

NOTE

Certain active faults prevent starting of the pre-heating or auxiliary heating function. In the event of a number greater than zero and a heater that does not start the fault memory should be read out.

7 PROGRAM DESCRIPTION

7.3.4.10 ZOOM IN / ZOOM OUT MEASURED VALUE DISPLAY



Enlarge the size (zoom in) of the workspace for display of the measured values and the diagram by clicking the "+" button, click the "–" button to reduce the size (zoom out).

7.3.4.11 HIDING / SHOWING THE "CHOOSE FUNCTION" AREA

NOTE

The "Choose function" workspace window can be expanded or collapsed.

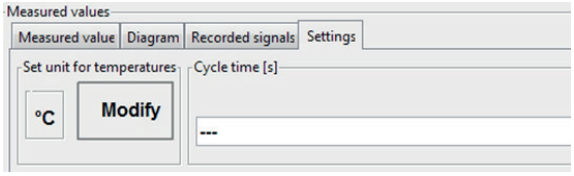
Collapse the window by clicking the < button and expand it by clicking the > button.



7.3.4.12 SETTING THE UNIT FOR TEMPERATURE SIGNAL

Temperature signals can be saved with °C, °F or K units. The setting is usually made during the initial startup and is saved in the system. The setting can be changed again at any time.

The default setting is °C.



7.3.4.13 ASSIGNING COLOURS TO MEASURED VARIABLES

Different colours can be assigned to the measured variables (signals) for improved clarity.

The settings are saved in the system and can be changed again at any time.



7.3.5 "Fault Memory" tab

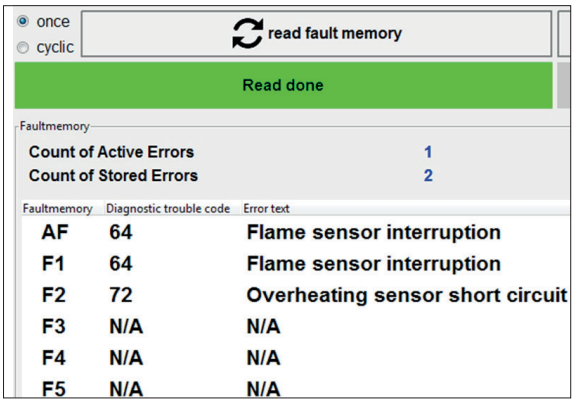
7.3.5.1 READING OUT THE FAULT MEMORY

NOTE

The fault memory can be read out once or cyclically. The required type can be set using the button next to the "read fault memory" button.

If cyclical reading is active you can switch between active and saved faults.

- Open the "Fault Memory" tab in the workspace.
- Set one-off or cyclical reading out of the fault memory.
- Click the "read fault memory" button to read out the fault memory of the control box.
  - The number of active or stored errors is displayed.
  - Information on the faults found is displayed.



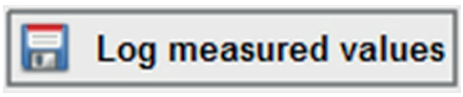
7.3.5.2 DELETE FAULT MEMORY

Click the "Clear fault memory" button to remove all active and stored faults from the fault memory of the control box.



7.3.5.3 LOG THE FAULT MEMORY IN THE DIAGNOSTIC REPORT

Click the "Log measured values" button to save all faults and information from the fault memory in the file system.



7 PROGRAM DESCRIPTION

7.3.6 "Functions and Component Activation" tab

7.3.6.1 STARTING / ENDING THE SELF-TEST

NOTE

- The self-test can be exited prematurely.
- If the self-test is running, heating mode cannot be requested. Individual actuators cannot be activated.

Open the "Functions and Component Activation" tab in the workspace.
The buttons for starting the heater, workshop heating mode or self-test are synchronised with the actual operating state and are shown or hidden automatically or change their function from switch on to switch off.

Start self-test by clicking the button





Yellow display:	Grey display:
Feedback from the control box about the status of the current self-test. The status is queried cyclically until the self-test is completed.	Remaining time until the self-test is completed.

Possible states are:

Start	Assigned text
0x00	Self-test not ok
0x01	Self-test ok
0x02	Self-test in progress
0x03	Self-test not yet performed or cancelled

7.3.6.2 HEATER **ON**

NOTE

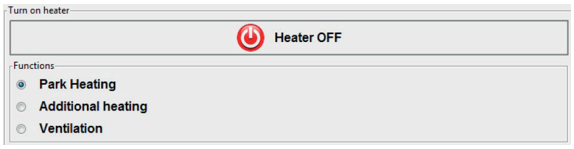
Self-test cannot be requested if heating mode is running. Individual actuators cannot be activated.

Select the required operating mode in the "Functions" field.
Start the heater by clicking the "Heater ON" button.
Status feedback, whether the operating mode was accepted by the control box.



7.3.6.3 HEATER **OFF**

If the control box has accepted the operating mode, the display changes to



Exit the selected operating mode and switch off the heater by clicking the "Heater OFF" button.

7.3.6.4 ACTIVATING INTERNAL OR EXTERNAL COMPONENTS / ACTUATORS (E.G. BURNER MOTOR)

NOTE

- The requested component test runs for x minutes and ends itself, but can also be ended prematurely.
- If test period = 0 minutes:
  - The requested component test runs infinitely, but can be ended at any time.
- The component can be activated again with a new manipulated variable.

Status messages for the BURNER MOTOR component

- Feedback, whether the component was activated or not.
- Feedback from the control box on the current status of the component test.
- Remaining time until the component test is completed, if it was activated with duration > 0 seconds.

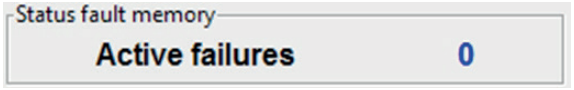
Possible displays:

Start	Assigned text
0x00	Component test not ok
0x01	Component test ok
0x02	Component test in progress
0x03	Component test not yet performed or cancelled

7.3.6.5 FAULT MEMORY STATUS

NOTE

If certain active faults exist these are frequently caused by the fact that components cannot be activated or heating mode cannot be started.
Query fault memory status.



7 PROGRAM DESCRIPTION

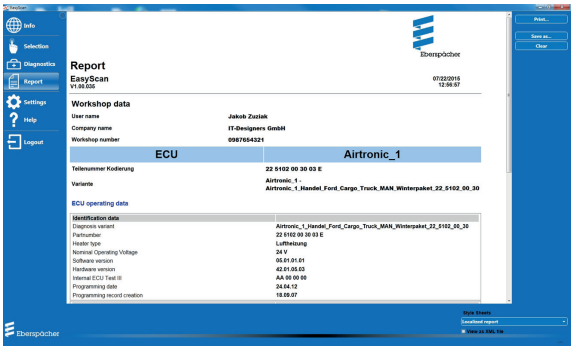
7.4 “REPORT” MENU ITEM

7.4.1 Opening the “Report” menu item

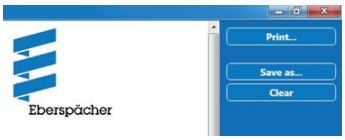
Click “Report” in the menu column to open the menu item.

Information (e.g. identification data, measured values, fault memory entries, etc.) from the diagnostic functions can be written in a report.

The report can be displayed alternatively in HTML or in XML format.



The following actions (top right-hand side of page next to the Eberspächer logo) can be carried out with a report:





The Print dialog of the operating system is opened.

The report can be printed using the selected printer.



The Save as dialog of the operating system is opened.

The report can be saved under any name required. The following name is proposed:

Report_<YYYYMMDD_HHMMSS>.xml

(YYYYMMDD_HHMMSS stands for year, month, day, hour, minute, second).



The current report is deleted.

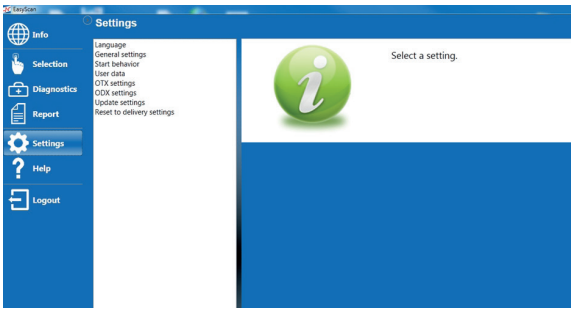
7.5 “SETTINGS” MENU ITEM

7.5.1 Open “Settings” menu

NOTE

If setting changes have not yet been saved with [Accept], they can be undone with [Cancel].

Click “Settings” in the menu column to open the menu item.



- During installation a file with defined program presets (default settings) is created. Each logged in user receives a copy of these settings. These can be changed by the user. Changes are made only in the copy of the logged in user.
- Click [Reset to delivery settings] to reset the settings of the logged in user to the content of the defined program presets.
- The workspace for the program settings is divided into two. All settings groups are in the left-hand window.
- Depending on the selected group, the corresponding input mask appears in the right-hand window.
- The layout of the two windows can be changed using an expander ↔.
- The settings are checked for validity during input. If the value entered is invalid, the input red is framed in red and an error message appears in the message bar.
  After correcting the entry the red frame around the input field disappears and the message bar is closed.

7 PROGRAM DESCRIPTION

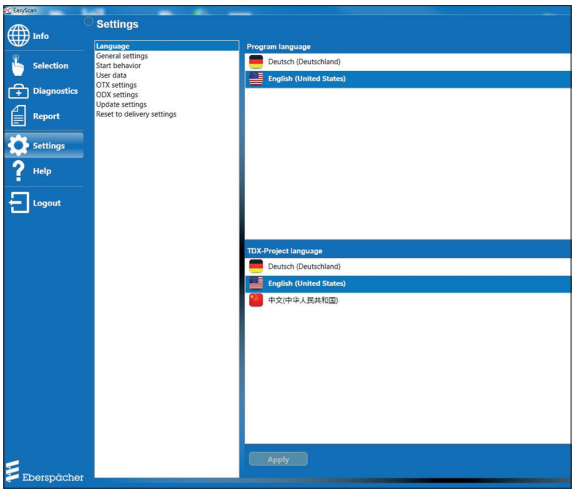
The following settings groups are available

- Language
- General settings
- User data
- OTX settings
- ODX settings
- Update settings
- Reset to delivery settings

7.5.2 Adjusting the settings

7.5.2.1 LANGUAGE

Open the Settings window by clicking the “Language” settings group in the left-hand selection window.



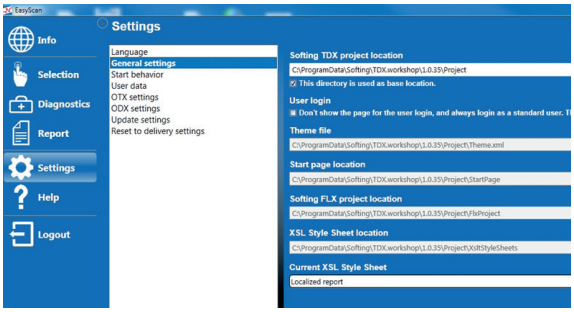
- The Settings window is divided horizontally and enables the language setting to be made for the program and for TDX projects.
- All languages supported by the program are offered for selection.
- For each language the country flag and name of the language in the respective national language are displayed in the selection lists.
- When the language is changed, all texts in the program are switched to the relevant language without having to restart the program.
- Currently running diagnostic functions are ended.
- If, on starting the program, no valid language is set, the language selection appears instead of the homepage.

7.5.2.2 GENERAL SETTINGS

NOTE

Do not change the preset setting.

Open the Settings window by clicking the “General settings” settings group in the left-hand selection window.



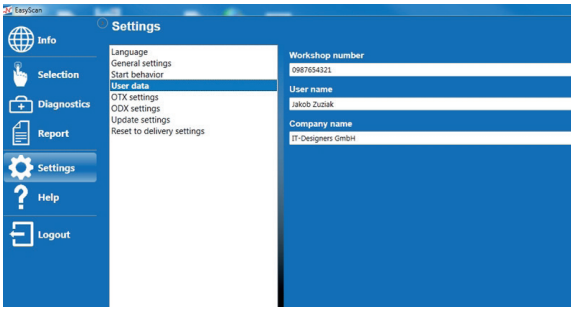
The following settings belong to the “General settings”:

- Softing TDX project location
  - This setting is used to specify the directory of the Softing TDX Project.
- User login:
  - Use this setting to activate user management with the user roles model.
- Theme file:
  - This setting is used to specify the path to the theme file.
- Start page location
  - This setting is used to specify the directory of the homepage.
- Softing FLX project location
  - This setting is used to specify the directory of the FLX project (definition of the selection tree).
- XSL Style Sheet location
  - This setting is used to specify the directory in which all style sheets are stored, with which the report in HTML format is generated from the report in XML format.
- Current XSL Style Sheet
  - This setting is used to define the current style sheet to be used.

7 PROGRAM DESCRIPTION

7.5.2.3 USER DATA

Open the Settings window by clicking the “User data” settings group in the left-hand selection window.



Workshop number

Enter the workshop's identifier in the input field.

User name

Enter the user name in the input field.

Company name

Enter the company or workshop name in the input field.

7.5.2.4 OTX SETTINGS

Do not change the preset settings.

7.5.2.5 ODX SETTINGS

Do not change the preset settings.

7.5.2.6 UPDATE SETTINGS

NOTE

For the software and update installation the user who carries out the installation must be logged into the PC / notebook with administrator rights.

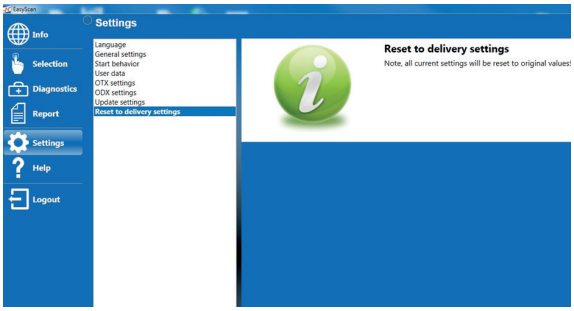
Firmware update

Search for the current EasyScan installation file on the Ebers-pächer Partner Portal under Customer Area/Download and download the file.

Install the software as described in Chapter 3 “Installing the software” on page 13.

7.5.2.7 RESET TO DELIVERY SETTINGS

Open the Settings window by clicking the “Reset to delivery settings” settings group in the left-hand selection window.

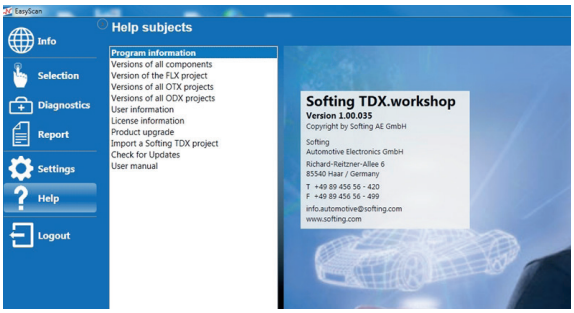


Click “Reset to delivery settings” to reset all settings to the defined program presets (status following installation).
Before the reset, all diagnostic functions currently running are ended.

7.6 “HELP” MENU ITEM

7.6.1 Opening the “Help” menu item

Click “Help” in the menu column to open the menu item.



The Help page has a layout with 2 windows.

- All Help topics are listed in the left-hand window.
- The corresponding information for the selected topic appears in the right-hand window.

The layout of the two windows can be changed using an expander ↔.

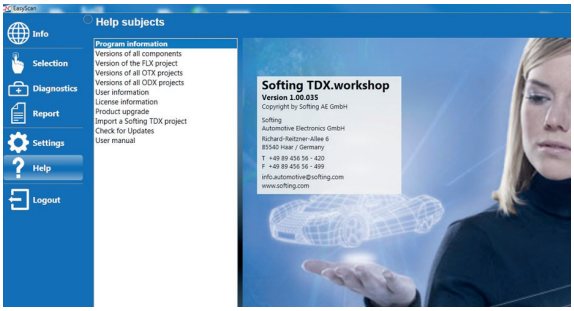
7 PROGRAM DESCRIPTION

Help topics available:

- Program information
- Versions of all components
- Version of the FLX project
- Versions of all OTX projects
- Versions of all ODX projects
- User information
- Licence information
- Product upgrade
- Import a Softing TDX project
- Check for updates
- User manual

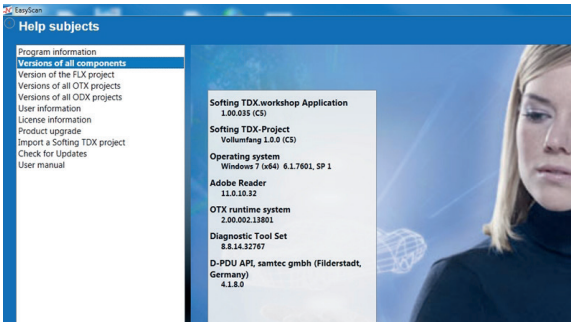
7.6.1.1 PROGRAM INFORMATION

Open the Information window by clicking the “Program information” selection item in the left-hand selection window.
Information on the Softing TDX.workshop package version together with the Softing contact details is displayed.



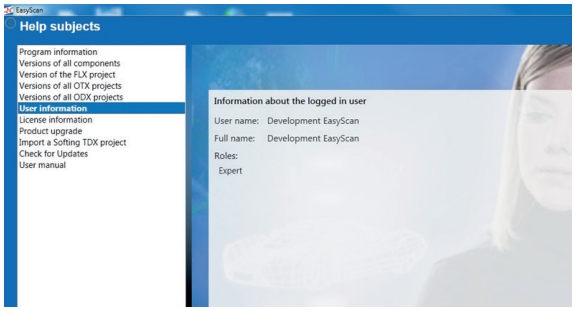
7.6.1.2 VERSIONS OF ALL COMPONENTS

Open the Information window by clicking the “Versions of all components” selection item in the left-hand selection window.
Information on the version names of all software components of Softing TDX.workshop is displayed.



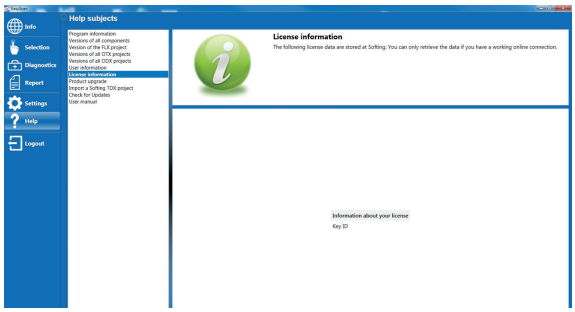
7.6.1.3 USER INFORMATION

Open the Information window by clicking the “User information” selection item in the left-hand selection window.
Information on the logged in user and their roles is displayed.



7.6.1.4 LICENCE INFORMATION

Open the Information window by clicking the “Licence information” selection item in the left-hand selection window.
Licence information stored on the Softing Licence Server is displayed.
The information can only be requested via an active internet connection.
Invalid requests are displayed in red under the information, valid requests in green.



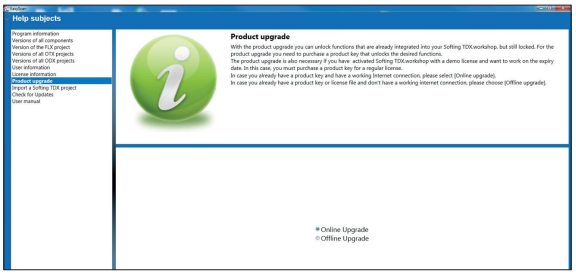
7 PROGRAM DESCRIPTION

7.6.2 Product upgrade

Open the Information window by clicking the “Product upgrade” selection item in the left-hand selection window.

The product upgrade activates functions which are already integrated in Softing TDX.workshop but are still blocked. A product key must be purchased from Softing to activate these functions.

It is possible to activate new functions via “Online Upgrade” or “Offline Upgrade”:



Online upgrade

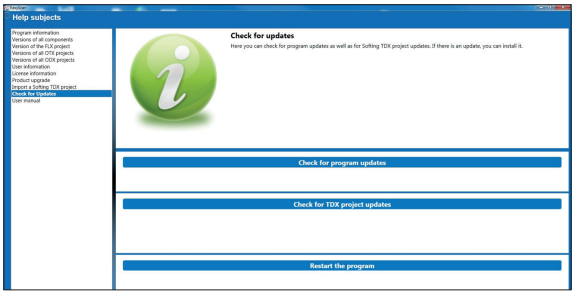
The online upgrade is recommended if an active internet connection is available.

Offline upgrade

An offline upgrade is used only as an alternative solution in case an internet connection is not working.

7.6.2.1 CHECK FOR UPDATES

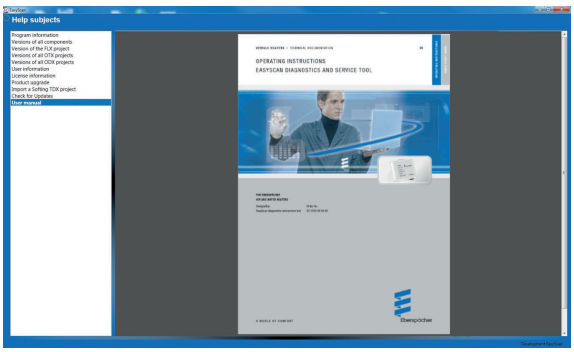
Open the Information window by clicking the “Check for Updates” selection item in the left-hand selection window.
If program updates and / or Softing TDX Project updates are available they are displayed.
The sources of the updates must be configured under [Settings] > [Update Settings].



Following an update, restart the program using the [Restart the program] button.
If the program is not restarted, new functions and settings, such as a new colour for the program (theme) are not activated.

7.6.2.2 USER MANUAL

Open the Information window by clicking the “User manual” selection item in the left-hand selection window.
These “EasyScan Diagnostics and Service Tool” operating instructions are displayed.



7.7 “LOGOUT” MENU ITEM

7.7.1 Run “Logout” menu item

Click “Logout” in the menu column to log out the user.
You can log out on pages with the 

button. On logging out all running diagnostic functions are ended. The program then switches back to the Login page.

7.7.2 Exit the program

Exit the program by clicking the operating system button  (Close).

8 WHAT TO DO IF ...

8.1 NO COMMUNICATION BETWEEN THE EASYSCAN DIAGNOSTICS TOOL AND THE PC / LAPTOP

NOTE

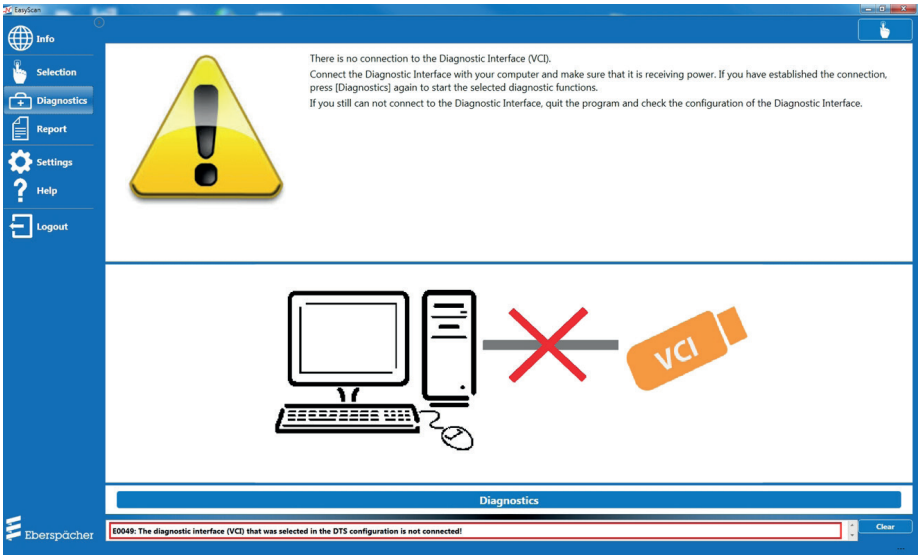
Failed communication between the EasyScan diagnostics tool and a PC / laptop is frequently due to the causes listed in the following.

8.1.1 Error message, e.g.: E0049

- A diagnostic function has been selected, e.g.



- After pressing the Diagnostics button the diagnostic function is not started.
- A description of the error is displayed on the screen and in the message bar.



Error message	Cause	Remedy
E0049	USB connection from the diagnostics interface (VCI) to the PC / laptop is faulty.	Ensure a connection exists between the diagnostics interface and PC / laptop and check in “Windows –> Control Panel –> System and Security -> System -> Device Manager”. If the connection is correct the entry of the diagnostic interface is displayed. Universal Serial Bus devices HSD VCI
	Diagnostics interface (VCI) is configured incorrectly.	Check the configuration with “Connection Assistant” and “System Configurator”. For procedure see Chapter 8.3 Remedial actions.
	The diagnostics interface (VCI) has a USB 2.0 connection and is connected to a USB 3.0 port of the PC / laptop.	Updating the USB host controller drivers. For procedure see Chapter 8.3 Remedial actions.

8 WHAT TO DO IF ...

8.2 NO COMMUNICATION BETWEEN EASYSCAN AND THE HEATER CONTROL BOX

NOTE

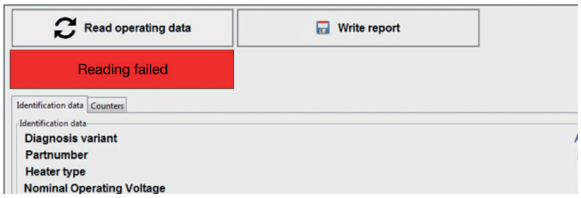
Failed communication between the EasyScan diagnostics tool and heater control box is frequently due to the causes listed in the following.

8.2.1 Error message, e.g.: “Reading failed”

- A diagnostic function has been selected, e.g.



- After pressing the Diagnostics button the diagnostic function is started.
- “Reading failed” error message appears as a red status row.

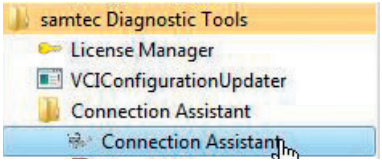


Error message	Cause	Remedy
Reading failed	Diagnostics interface (VCI) has no power supply. “VBAT” LED on the diagnostics interface does not light up.	Connecting the power supply. “VBAT” LED on the diagnostics interface must light up green.
	Cable harness connector contact problems with connection to the diagnostics interface (VCI) or control box.	Test connectors for continuity, short circuit and damage.
	Defective heater cable harness.	Check the cable harness cables for continuity, short circuit and damage.
	No or defective terminal resistor.	Attach or replace terminal resistor. The measured resistance between CAN high and CAN low with an interrupted power supply should be approx. 60 Ω (min. 50 Ω / max. 70 Ω).
	CAN high and CAN low are mixed up at the CAN control box.	Check CAN connections and make connections as per circuit diagram.
	Missing terminal 15 voltage for control boxes.	Connect power supply as per circuit diagram.

8.3 REMEDIAL ACTIONS

8.3.1 Checking the VCI configuration using the “Connection Assistant”

- Select the “Connection Assistant” program in the operating system under “Start/Programs/samtec Diagnostic Tools/ Connection Assistant” and start by clicking the “Connection Assistant” menu item.



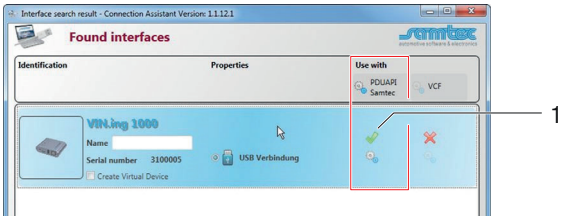
- The program searches for connected diagnostics interfaces.
- At least one interface should be found.
- The serial number and connected interface must match.



8 WHAT TO DO IF ...

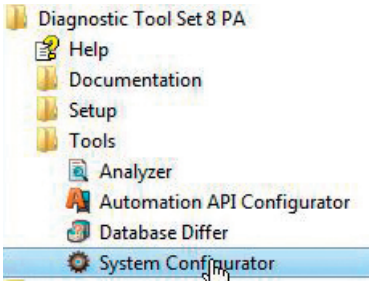
NOTE

The green tick (1) must be set in the “Use with” area. A red cross results in problems in the “Licensing via VCI” of EasyScan.

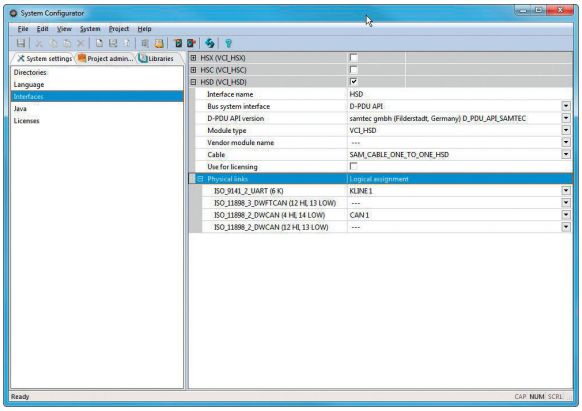


8.3.2 Checking the VCI configuration using the “System Configurator

- Select the “System Configurator” program in the operating system under “Start/Programs/Diagnostic Tool Set 8 PA/Tools” and start by clicking the “System Configurator” menu item.



- The EasyScan diagnostics interface configuration is opened and must look like the following.



8.3.3 Updating the USB 3.0 host controller drivers

If no USB 2.0 port is available for connecting the diagnostics interface to the PC / laptop and the interface is not detected at a USB 3.0 port, we recommend that the relevant system drivers be updated by a software/electronics professional.

8.4 SERVICE

8.4.1 Technical Support

If you have any technical questions or problems with the heater, the control unit or the operating software, please contact the following service address:
support-UK@eberspaecher.com

9 ENVIRONMENT

9.1 CERTIFICATION

The high quality of Eberspächer products is the key to our success. To guarantee this quality, we have organised all work processes in the company along the lines of quality management (QM).
Even so, we still pursue a large number of activities for continuous improvement of product quality in order to keep pace with the similarly constantly growing requirements made by our customers.
All the steps necessary for quality assurance are stipulated in international standards.
This quality is to be considered in a total sense.
It concerns products, processes and customer - supplier relationships.
Officially approved public experts assess the system and the corresponding certification company awards a certificate.
Eberspächer Climate Control Systems GmbH has already qualified for the following standards:
Quality management in accordance with
ISO TS 9001:2015 and IATF 16949:2016
Environmental management system in accordance with
ISO 14001:2015

9.1.1 Disposal of materials

End-of-life devices and their components, defective components and packaging material can all be separated into their constituent materials so that all parts can be disposed of as in an environment-friendly manner or recycled where applicable.

Environmentally-friendly disposal includes the possible separation of materials so that recoverable materials can be reused. Ensure that end-of-life devices and their components are disposed of properly and are recycled.

9.1.2 Dismantling the heater

The heater is dismantled according to the instructions given in the current repair instructions.

9.1.3 Packaging

The packaging of the heater can be kept for possible return shipment.



9.2 NOTE ON ENVIRONMENTAL PROTECTION

Electric and electronic devices as well as batteries must not be disposed of with household waste.

Consumers are obliged by law to return electrical and electronic devices as well as batteries at the end of their service lives to the public collecting points set up for this purpose or at the point of sale. Details to this are defined by the national law of the respective country. The symbol on the product, the instruction manual or the package indicates that a product is subject to these regulations.

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