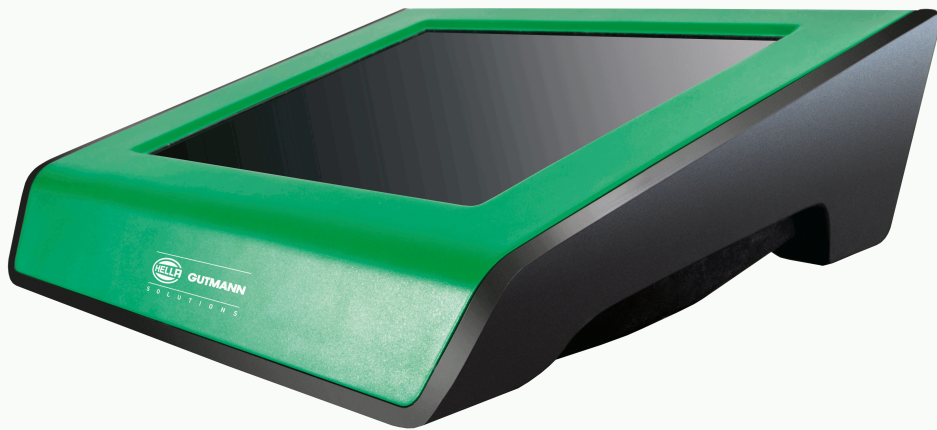


mega macs 56 Bike



User Manual

Original User Manual

HBMM56V5100EN0217S1

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1 About this Manual




1.1 Reading the Manual










Please read the user manual completely. Pay special attention to the first pages containing the safety notes and the conditions of liability. They exclusively deal with your safety during the work with the device.

When working with the device, it is recommended to read the individual work steps in the manual again to prevent hazard of persons and equipment or operating errors.









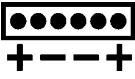
The device shall be used exclusively by a qualified person. Information and knowledge included this training is not explained in this user manual.

1.2 Marking of Text Parts

	DANGER Text parts marked in this way indicate an imminent dangerous situation which, if not avoided, will lead to death or severe injuries.
	WARNING Text parts marked in this way indicate a potentially dangerous situation which, if not avoided, will lead to death or severe injuries.
	CAUTION Text parts marked in this way indicate a potentially dangerous situation which, if not avoided, will lead to minor or slight injuries if it is not avoided.

	<p>These symbols indicate rotating parts.</p>
	<p>This symbol indicates dangerous electric voltage/high voltage.</p>
	<p>This symbol indicates the risk of crushing limbs.</p>
	<p>This symbol indicates a potential injury of the hand.</p>
	<p>NOTICE</p> <p>All texts labeled NOTICE refer to a hazard in the device or environment. Therefore, it is absolutely necessary to observe the notes or instructions stored here.</p>
	<p>NOTE</p> <p>Texts marked with NOTE contain important and helpful information. It is recommended to observe these texts.</p>
	<p>Struck-through waste bin</p> <p>This label indicates that the product must not be discarded as domestic waste.</p> <p>The bar underneath the waste bin indicates whether the product was "placed on the market" after August 13, 2005.</p>
	<p>Direct current voltage</p> <p>This label indicates a direct current voltage.</p> <p>Direct current voltage means that the electrical voltage does not change over a longer period of time.</p>
	<p>Observe user manual</p> <p>This label indicates that the user manual must always be read and always be available.</p>


1.3 Symbols on the Product

	DANGER Text parts marked in this way indicate an imminent dangerous situation which, if not avoided, will lead to death or severe injuries.
	WARNING Text parts marked in this way indicate a potentially dangerous situation which, if not avoided, will lead to death or severe injuries.
	CAUTION Text parts marked in this way indicate a potentially dangerous situation which, if not avoided, will lead to minor or slight injuries if it is not avoided.
	Observe user manual This marking indicates that the user manual/the operating instructions must always be read and always be available.
	Observe user manual This marking indicates that the user manual/the operating instructions must always be read and always be available.
	Direct current voltage This label indicates a direct current voltage. Direct current voltage means that the electrical voltage does not change over a longer period of time.
	Fire hazard This label indicates that the object must not be thrown into open fire.
	European Recycling Plattform (ERP) The label indicates the possibility of region-wide return of private electronic devices by post as packages.
	Polarity This label indicates electric voltage between 2 points.




2 User Information

2.1 Safety Precautions


2.1.1 General Safety Precautions

	<ul style="list-style-type: none">• The device is intended for use on motor vehicles only. It is a precondition for the use of the device that the user has knowledge of automotive technology and is therefore aware of the sources of danger and risks in the workshop and on motor vehicles.• Please read the entire user manual thoroughly and carefully before using the mega macs 56 Bike. You can also find the user manual under ? in the mega macs 56 Bike or on the DVD enclosed.• All notes given in the individual sections of this user manual apply. The following measures and safety precautions must also be followed.• Furthermore, pay attention to all general instructions from labor inspectorates, trade associations and vehicle manufacturers as well as all laws, legal ordinances and instructions which have to be commonly obeyed by a repair shop.
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2.1.2 Safety Precautions for the mega macs 56 Bike

  	<p>To prevent incorrect handling and consequent injuries to the user or damage to the device, observe the following:</p> <ul style="list-style-type: none">• Only select functions and menus on the touch screen display with clean fingers. Do not use a tool, e.g. screwdriver.• Only connect original power adapter to the power cord (supply voltage 12-15 V).• Protect the TFT LCD and the device from long periods of exposure to solar radiation.• Protect the device and the connecting cable from hot components.• Protect the device and the connecting cables from rotating parts.• Regularly check the connecting cables/accessory parts for damage (destruction of the device due to short circuit).• Connect the device exclusively according to user manual.• Keep the device away from fluids such as water, oil or gasoline. The mega macs 56 Bike is not waterproof.• Protect the device from strong impacts and do not drop it.• Do not open the device on your own. Only technicians authorized by Hella Gutmann are allowed to open the device. Warranty and guarantee will be rendered void at any case of unauthorized tampering of the device or if the protective seal is damaged.• If the device malfunctions, contact Hella Gutmann or a Hella Gutmann trading partner without delay.
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2.1.3 Safety Precautions for High Voltage/Line Voltage

	<p>Very high voltages occur in electrical systems. Due to voltage flashover on damaged components, such as marten damage or touching live components, the risk of electric shock is likely. High voltage via the vehicle and line voltage via the building's mains supply can cause severe injury or even death if adequate care is not taken. Therefore regard the following:</p> <ul style="list-style-type: none">• Only use power supply cables with grounding contact.• Only use a checked or the attached power cord.• Always use the original cable set.• Regularly check cables and adapters for damage.• Always connect the ground cable from device to vehicle first.• Perform any assembly work such as the connection of the device to the vehicle or the replacement of components only when ignition is switched off.• Do not touch live components when ignition is switched on.
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2.1.4 Safety Precautions – Risk of Injury

  	<p>When working on the vehicle, there is a risk of injury through rotating parts or rolling of the vehicle. Therefore regard the following:</p> <ul style="list-style-type: none">• Prevent the vehicle from rolling.• Additionally, place the gear selector to park position in vehicles with automatic transmission.• Deactivate the start/stop system to avoid an inadvertent engine start.• Connect the device to the vehicle only when engine is shut down.• Do not reach into rotating components when engine is running.• Do not run cables near rotating parts.• Check the high-voltage parts for damage.
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2.1.5 Safety Precautions – Chemical Burns

 	<p>If the TFT display is damaged, there is a danger of chemical burns due to the escape of liquid crystal. Therefore regard the following:</p> <ul style="list-style-type: none">• Immediately rinse affected parts of the body or clothing with water (consult a doctor).• Seek medical attention immediately after inhaling or swallowing.
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2.1.6 Safety Precautions Regarding the Risk of Pinching/Crushing

	<p>Pay attention not to pinch or crush any limbs when removing/inserting the modules in the mega macs 56 Bike. Therefore regard the following:</p> <ul style="list-style-type: none">• Pay attention not to reach into the danger zone when inserting the module into the device.
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2.1.7 Safety Precautions for Hybrid/Electric Vehicles

	<p>Very high tensions occur on hybrid and electric vehicles. Due to voltage flashover on damaged components, such as marten damage or touching live components, the risk of electric shock is likely. High voltage at or in the vehicle can lead to death in case of inattention. Therefore regard the following:</p> <ul style="list-style-type: none">• Only the following qualified employees are allowed to de-energize the high-voltage system:<ul style="list-style-type: none">– High-voltage technician– Skilled electrician for predetermined operations – Hybrid or rather electric vehicles– Skilled electrician• Place warning signs and warning tapes.• Check the high-voltage system and the high-voltage lines for damage (visual inspection!).• De-energizing the high-voltage system:<ul style="list-style-type: none">– Switch off ignition.– Disconnect the service disconnect plug.– Remove the fuse.• Securing the high-voltage system against re-activation:<ul style="list-style-type: none">– Withdraw the ignition key and keep it safe.– Keep the service disconnect plug safe or secure the battery master switch against re-activation.– Insulate the battery master switch, the plug connections etc. with dummy plugs, covering caps or insulating tape with the corresponding warning notice.• Check the de-energized state with a voltage tester. Even with disconnected high-voltage system, residual voltage can still be present.• Ground and short-circuit the high-voltage system (necessary only if voltage is higher than 1000 V).• Voltage below 1000 V: Cover the parts which are close to the system or which are energized e.g. with insulating cloth, hoses or plastic coverings. Voltage higher than 1000 V: Cover the parts with insulating plates/protective panels specially developed for this purpose so that sufficient protection against contact to adjacent parts is ensured.
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- Regard the following before re-energizing the high-voltage system:
 - All tools and utilities are removed from the hybrid/electric vehicle.
 - Remove the grounding and short circuit of the high-voltage system. Do not touch any of the cables now.
 - Attach the protective paneling that has been removed before.
 - Remove the protective measures at the switching system.

2.1.8 Safety Precautions for Testing/Measuring Devices

	<ul style="list-style-type: none"> • Perform measurements only on electric circuits that are <i>not</i> directly connected to the line voltage. • Never exceed the maximum permissible voltage load of 30 V alternating voltage (AC) or 60 V direct current voltage (DC) respectively. • Do not exceed the voltage limits indicated on the connecting cables. • The voltage values to be measured must be shielded extra or even twice from dangerous line voltage. The voltage limits printed on the test leads must not be exceeded. Pay attention that the allowed measuring range of 60 V/DC / 42 V peak is not exceeded when measuring positive and negative voltage at the same time. • Never perform measurements at the ignition systems. • Regularly check the test and measuring devices for damage. • Always connect the test and measuring devices to the measurement module (MT 56) first. • Do not touch the connections/measurement points during the measurement.
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2.2 Non-Liability

2.2.1 Software

2.2.1.1 Safety-Relevant Software Modifications

The present device software provides numerous diagnostic and configuration functions. Some of these functions affect the behavior of electronic components. These components also include components in safety-related vehicle systems e.g. airbag or brakes. The following notes and instructions also apply to future updates and related software extensions.

2.2.1.2 Performing Safety-Relevant Software Modifications

- Work on safety-related areas, e.g., the occupant safety system and the brake systems, may only be performed if the user has read and acknowledged this note.
- The user of the diagnostic device must comply fully with all work steps and conditions given by the device and the vehicle manufacturer, and follow the related instructions without fail.
- Diagnostic programs that make safety-related software modifications in the vehicle may and are only allowed to be used if the related warning notes including the declaration given in the following are accepted without reservation.
- It is imperative that the diagnostic program is used correctly, as programs, configurations, settings, and indicator lamps can be deleted/cleared with it. These changes affect and modify safety-related data and electronic controls, in particular safety systems.

2.2.1.3 Prohibition of Safety-Relevant Software Modifications

Changes or modifications to electronic controls and safety-related systems are not allowed to be made in the following situations:

- The ECU is damaged and it is not possible to read out the data.

- The ECU and its allocation cannot be read out unambiguously.
- Reading out is not possible due to data loss.
- The user does not have the related training and knowledge necessary.

In these cases the user is not allowed to change programs, configurations, or to make other changes in the safety system. To avoid any danger, the user has to contact an authorized dealer instantly. Only an authorized dealer can guarantee the safe function of vehicle electronics together with the factory.

2.2.1.4 Waiver of the Use of Safety-Relevant Software Modifications

The user undertakes not to use any safety-related software functions if one of the following conditions arise:

- There are doubts about the specialized skills of third parties to use these functions.
- The user does not have the prescribed training qualifications.
- There are doubts about the correct function of the safety-related software engagement.
- The device is transferred to a third party. Hella Gutmann Solutions GmbH is unaware of this fact and has not authorized the third party to use the diagnostic program.

2.2.1.5 Offer for All

The Hella Gutmann Solutions GmbH uses open source software components in the mega macs 56 Bike diagnostic device. The open source software must be made generally available to all if needed. A standard data carrier should be used for this purpose. The actual costs incurred are invoiced. The offer is valid for 3 years starting from the date the diagnostic device is purchased or a change is made to the software specified above.

2.2.2 Non-Liability

2.2.2.1 Data and Information

The information in the database of the diagnostic program has been compiled based on automotive and importer information. Great care was taken to ensure the correctness of the information. The Hella Gutmann Solutions GmbH accepts no liability for any mistakes and the resulting consequences. This statement also applies to the use of data and information that are found to be incorrect or that were incorrectly displayed, also to errors that occurred inadvertently during compilation of the data.

2.2.2.2 Burden of Proof on the User

The burden of proof is on the user of the device, that he has paid attention to technical explanations, notes on operation, equipment care as well as maintenance and safety without exception.

2.2.3 Data Protection

The Customer agrees that its data may be stored for implementing and executing the contractual relationship and that technical data may be stored for performing data audits relevant to data security, statistical analysis and quality control. The technical data shall be stored separately from personal data and shared only with our contractors. We are obliged to treat all customer data that we receive confidentially. We may only disclose customer data if statutory provisions permit or require such disclosure or if the Customer has agreed.

2.2.4 Documentation

The notes given in the device describe the most common fault reasons. However, there are often further reasons for existing faults, which cannot be listed here, or there are further sources of error, which are unknown yet. The Hella Gutmann Solutions GmbH is not liable for failed or unnecessary repair work.

The Hella Gutmann Solutions GmbH does not accept any liability for the usage of data and information that are found to be incorrect or that were incorrectly displayed, also for errors that occurred inadvertently during the compilation of the data.

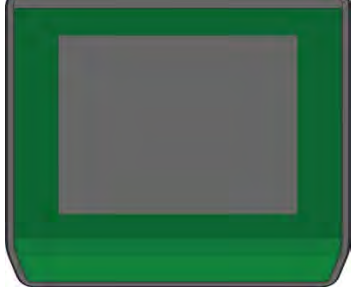
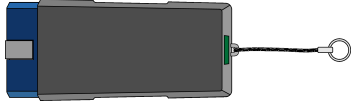

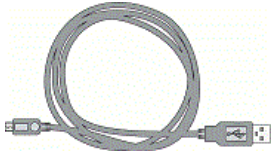

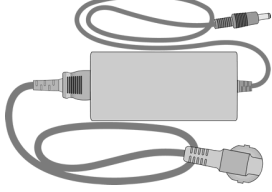


Notwithstanding the above, the Hella Gutmann Solutions GmbH does not accept any liability for any losses in relation to loss of profit, goodwill, or any other loss, including financial loss.

Hella Gutmann Solutions GmbH accepts no liability for damages or operating trouble resulting from failure to observe the "mega macs" user manual and the special safety precautions.

The burden of proof is on the user of the device, that he has paid attention to technical explanations, notes on operation, equipment care as well as maintenance and safety without exception.

3 Device Description

3.1 Delivery Contents

Quantity	Designation	
1	mega macs 56 Bike	
1	DT VCI	
1	Bluetooth adapter	
1	USB cable for connecting the DT VCI to the device	
1	USB cable for connection to a PC	
1 each	Power adapter and power cord for the mega macs 56 Bike	
1	Quick Start Guide	
1	DVD	

3.1.1 Checking Delivery Contents


Please check the delivery contents upon receiving your device so that complaints can be issued immediately regarding any potential damage.

Proceed as follows to check the delivery contents:

1. Open the package supplied and check for completeness based on the delivery slip.

Should you identify any damage to the package, then open the package in the presence of the delivery service and check the device for hidden damage. Any transport damage to the package supplied and damage to the device shall be registered in a damage report by the delivery service.

2. Take the device out of the packaging.

	<p>CAUTION</p> <p>Danger of short circuit due to loose parts in or on the device</p> <p>Danger of destruction of the device and/or the automotive electronics</p> <p>Never put the device into operation if you suspect that there are loose parts inside or on the device. In this case please contact the Hella Gutmann repair service or a Hella Gutmann trading partner immediately.</p>
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3. Check the device for mechanical damage and shake the device slightly to ensure that there are no loose parts inside.

3.2 Intended Use

The mega macs 56 Bike is a mobile diagnostic device for detecting and rectifying faults in automotive electronic systems.

It uses a diagnostic interface to establish a connection to the automotive electronics and to provide access to descriptions of the vehicle system. A lot of this data is transferred to the device directly from the Hella Gutmann diagnostic database via online connection. Therefore, the device must be permanently online.

The device is not suitable for repairing electrical machines and equipment or home electrics. Diagnostic devices from other manufacturers will not be supported.

If the device is used in a way not authorized by Hella Gutmann, the safety of the device may be influenced.

3.3 Using the Bluetooth Function


The terms of use of the Bluetooth function may be restricted or prohibited through law or corresponding legal regulations in certain countries.

Observe the provisions in force in the respective country before using the Bluetooth function.

3.4 Range of Functions

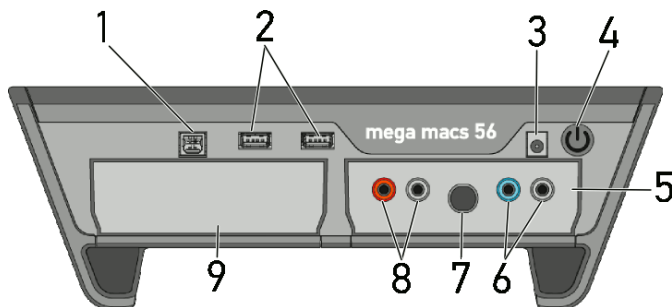
The functional scope of the mega macs 56 Bike depends on the country, the licenses acquired, and/or the optionally available hardware. This documentation may therefore describe functions that are not available on the individual device. Missing functions can be enabled by acquiring a corresponding license subject to charge and/or additional hardware.

3.5 Operating the Device

	<p>NOTICE</p> <p>Damage or destruction of the display</p> <p>Never touch the display using a tool or pointed metal object.</p> <p>Always use your finger.</p>
---	--

The device is equipped with a touch screen display. All menus and functions can be selected and or activated by slightly touching with the finger or just by pressing the arrow keys ▼▲.

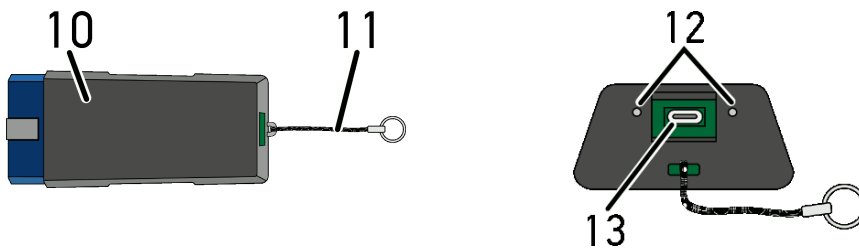
3.6 Connections of the mega macs 56 Bike



	Designation
1	<p>USB device interface</p> <p>Use the USB device interface for data exchange between the PC and the device.</p>
2	<p>2 USB host interfaces</p> <p>Connect external devices such as a printer or the DT VCI through the USB host interfaces (USB interfaces for short).</p>
3	<p>Power supply socket</p> <p>Voltage supply of the device and battery charge connection.</p>
4	<p>On/off key</p> <p>Switch the device on and off.</p>
5	<p>Measurement module MT 56</p> <p>The module contains a 2-channel oscilloscope for the following measured variables:</p> <ul style="list-style-type: none"> • Voltage • Current (with amp clamp) • Resistance

	Designation
6	Oscilloscope 1 connectors Connect a test lead to Scope 1. <ul style="list-style-type: none"> • blue = signal • black = ground
7	ST3 connector Here you can connect an amp clamp.
8	Oscilloscope 2 connectors Connect a test lead to Scope 2. <ul style="list-style-type: none"> • red = signal • black = ground
9	Additional module slot Spare slot. Insert another module here.
	Internal: 1x WLAN, 1x Bluetooth module All wireless connections are integrated in the device and are permanently switched on.

3.7 DT VCI connections



	Designation
10	DT VCI for diagnostic connector in the vehicle
11	Retaining strap for mounting e.g. a lanyard
12	Green and blue indicator lamp (LED) The indicator lamps show the operating status of the DT VCI.
13	Micro USB interface for USB cable to USB interface of the PC

3.8 Meaning of the Flashing Frequencies

Status display		Meaning
Blue LED	Green LED	
LED switched off.	LED switched off.	<ul style="list-style-type: none"> • Software inactive/faulty. • No voltage present. • DT VCI faulty.

Status display		Meaning
Blue LED	Green LED	
LED flashes quickly (1x per sec.).	LED switched off.	<ul style="list-style-type: none">• Update failed.• Update invalid.• DT VCI faulty.
LED flashes slowly (every 3 sec.).	LED switched off.	<ul style="list-style-type: none">• Update failed.• Update invalid.• DT VCI faulty.
LED flashes slowly (every 3 sec.).	LED permanently on with regular brief interruptions.	DT VCI ready for operation.

4 Initial Start-Up

This section gives a description of how to switch the device on and off as well as all the necessary steps for the first use of the device.



4.1 Charging the Battery

Prior to putting the device into operation, charge the battery for at least 8 to 10 h while the device is switched off.



Proceed as follows to charge the battery:


1. Insert the voltage supply plug into the device's socket.
2. Insert the power plug into the plug socket.
The battery is being charged.

4.2 Switching on the Device

	<p>NOTE</p> <p>At the first start-up of the device and after every software update, you need to confirm the general terms and conditions (GTC) of Hella Gutmann Solutions GmbH. Otherwise, certain device functions will be unavailable.</p>
	<p>NOTE</p> <p>If mega macs 56 Bike recovery ("Rescue App") is displayed when switching on the device, please contact the responsible support staff or the Hella Gutmann Technical Help Line.</p>


Proceed as follows to switch on the device:

1. Briefly press the on/off key.
The GTCs appear.
 2. Read the GTCs and confirm them at the end of the text.
The user selection window is displayed. The respective user name is saved for all data stored in the Car History. This enables quicker identification of the mechanic who performed the repair work if a query is subsequently made.
 3. Double-click .
 4. Enter the user name.
 5. Confirm your entry with .
 6. Activate the **Stay logged in** check box if necessary.


If the **Stay logged in** check box is activated, you will not need to select a user name when switching on in the future.
 7. Confirm your entry with .
- The input will be saved automatically. The main menu appears.

Now you can start working with the device.

4.3 License Release

	NOTE In order to use the full scope of the purchased licenses you need to download them from the HGS license server before taking the device into operation for the first time.
---	---




Proceed as follows to retrieve licenses:

1. Select **Contracts** under **> Settings** in the main menu.
2. Select **>License<**.
3. Call up **My licenses** with .
Data download is in progress. Purchased licenses are displayed.

Now you can start working with the device.

4.4 Switching off the Device

Proceed as follows to switch off the device:

1. Switch off the device with .
2. Observe the confirmation prompt.
3. Switch off the device with . Abort the procedure with .
The device is switched off.

5 Configuring the Device

Configure all interfaces and functions under **>Settings<** in the main menu.

5.1 Precondition for the Gutmann Portal

Installation requirements for the Gutmann Portal:

- Windows 7 or higher operating system installed on PC.
- All previous versions of the Gutmann Portal uninstalled on the PC.


5.2 Always Online

To obtain all the data about the related vehicle provided by Hella Gutmann, the device requires a permanent online connection. To keep the connection costs down, Hella Gutmann recommends a DSL connection and a flat rate.

1. Install the Gutmann Portal on the office or workshop PC.

The latest software for the Gutmann Portal is on the DVD supplied.

2. Connect the device to a web-compatible PC.

Once the connection symbol  in the top toolbar changes from black to green, the online connection has been set up successfully and is active.



5.3 Setting company data

Here you can enter the company data, that shall appear on the hard-copy printout, e.g.:

- Company address
- Fax number
- Homepage

5.3.1 Entering Company Data

Proceed as follows to enter the company data:

1. Select **Company** under **> Settings** in the main menu.
 2. Select **>Company data<**.
 3. Open the virtual keypad under **Company name** with .
 4. Enter the company name.
 5. Confirm your entry with .
The input will be saved automatically.
 6. Repeat steps 3-5 for further entries.
-

5.3.2 User Name

5.3.2.1 Entering the User Name

Here you can manage the different users.

The respective user name is saved for all data stored in the Car History. This enables quicker identification of the mechanic who performed the repair work if a query is subsequently made.

Proceed as follows to enter the user name:

1. Select **Company** under **> Settings** in the main menu.
2. Select **>User<**.
3. Open the virtual keypad with **+**.
4. Enter the user name.
5. Confirm your entry with **✓**.
The input will be saved automatically.

5.3.2.2 Assigning a Password

Here you have the option to assign passwords to the users.

The assigned password must be entered when selecting the user.

Proceed as follows to assign a password to a user:

1. Select **Company** under **> Settings** in the main menu.
2. Select **>User<**.
3. Select the required user name.
4. Open the virtual keypad with **⌨**.
5. Enter the requested password.
6. Confirm your entry with **✓**.
The input will be saved automatically.

5.3.2.3 Deleting the Password



Proceed as follows to delete the password:

1. Select **Company** under **> Settings** in the main menu.
2. Select **>User<**.
3. Selected the requested user name with the assigned password.
4. Delete the password under **Password (optional)** with **🗑**.
5. Observe the confirmation prompt.
6. Confirm the confirmation prompt with **✓**.
Password will be deleted.

5.3.2.4 Deleting the User Name

Proceed as follows to delete the user name:

1. Select **Company** under **> Settings** in the main menu.
-

2. Select **>User<**.
3. Select the required user name.
4. Delete the user name with .
5. Observe the confirmation prompt.
6. Confirm the confirmation prompt with .
The user name is deleted.

5.4 Updating the Device, DT VCI and Modules

Here you can perform the updates for the device, the DT VCI and the individual modules. Various system parameters are also displayed, e.g.:

- Package version
- Device number
- Software version

Hella Gutmann Solutions supplies customers with regular software updates. The update is subject to charge. These updates contain new vehicle systems as well as technical modifications and improvements. We recommend keeping your device up to date.

5.4.1 Preconditions for an Update

Ensure the following to perform updates:

- Device is connected to a web-compatible PC through USB cable, Bluetooth or WLAN.
- A Bluetooth-compatible PC or Bluetooth adapter is plugged into the PC.
- The corresponding licenses are activated by Hella Gutmann.
- The access software Gutmann Portal is installed on the PC.
- Voltage supply of device and DT VCI is ensured.

5.4.2 Calling Up System Information

Here you can find all information required for the identification of the mega macs 56 Bike.

Proceed as follows to call up system information:


1. Select **Update** under **> Settings** in the main menu.
2. Select **>System<**.
An info window appears.

Here you can find information including the software and hardware version and the device number.

5.4.3 Setting the Language

Here you can set the language version if the software is multilingual. After having set the language, the update will be installed in this language.

Proceed as follows to set the language:


1. Select **Update** under **> Settings** in the main menu.
2. Select **>System<**.
3. Open the list under **Language setting** with .
The compilation of languages depends on the prevailing software.
4. Select the requested language.
The selection will be saved automatically.


5.4.4 Starting the System Update

Here you can start a system update.

Proceed as follows to start the system update:

1. Select **Update** under **> Settings** in the main menu.
2. Select **>System<**.

	<p>NOTICE</p> <p>Insufficient voltage supply System data loss</p> <p>Do not switch off the device and the DT VCI during the update and do not disconnect them from voltage supply.</p> <p>Ensure sufficient voltage supply.</p>
---	--

3. Start **Update** under **Step** with .
- The device searches for a new update that will then be downloaded and installed.

The device switches off and on again after the successful system update. The installation will be checked automatically after startup.

5.4.5 Calling Up DT VCI Information

Here you will find all information required for the identification of the DT VCI.

Proceed as follows to call up DT VCI information:


1. Select **Update** under **> Settings** in the main menu.
2. Select **>DT VCI<**.
An info window appears.
This menu provides the software and hardware version and the module type of the DT VCI.

5.4.6 DT VCI-Update



Update the software for the DT VCI here.

5.4.6.1 Starting a DT VCI Update

Update the software for the DT VCI here.

	<p>NOTICE</p> <p>Insufficient voltage supply System data loss</p> <p>Do not switch off the device and the DT VCI during the update and do not disconnect them from voltage supply.</p> <p>Ensure sufficient voltage supply.</p>
---	--

Proceed as follows to start the DT VCI update:

1. Insert the DT VCI into the vehicle's diagnostic connector.
Both LEDs of the DT VCI flash. The DT VCI is ready for operation.
 2. Select **Update** under **> Settings** in the main menu.
 3. Select **>DT VCI<**.
 4. Start **Update** with .
 5. Regard the window with infos and instructions.
 6. Confirm the window with infos and instructions with .
- The DT VCI update will be started. Data is copied from device to DT VCI.


The message *Update (DT VCI/MT 56) successful* appears if the update was successful.

5.4.7 Module Update

Update the software for individual modules here.



The mega macs 56 Bike has 2 module slots. The 1st module slot is intended for the MT 56 (measurements module) and the 2nd is a secondary slot for further modules.

5.4.7.1 Starting the Module Update

	<p>NOTICE</p> <p>Insufficient voltage supply System data loss</p> <p>Do not switch off the device during the update and do not disconnect it from voltage supply.</p> <p>Ensure sufficient voltage supply.</p>
---	---

Proceed as follows to start the module update:

1. Select **Update** under **> Settings** in the main menu.

2. Select the tab for the required module.
An info window appears.
Here you can find information on the software and hardware version and the module type.
 3. Start the module update with .
 4. Regard the window with infos and instructions.
 5. Confirm the window with infos and instructions with .
- The module update will be started. The device searches for a new update that will then be downloaded and installed.

The message *Module update successfully done* appears if the update was successful.

5.5 Configuring the Interfaces

Here you can configure the interfaces for the printer, Bluetooth and WLAN.

Configure all interfaces of the device under **Settings > Interfaces**.

If there are several possible connections to devices or tools, the fastest and most stable connection is always preferred.

The hierarchy for connection is as follows:

1. USB
2. Bluetooth
3. WLAN






5.5.1 Configuring the Printer


5.5.1.1 Printing via USB Port

Here you can set the option to print via a USB port.

It is possible to connect to the USB ports any printer that supports at least the printer language PCL5 or higher and that has a USB port.

Proceed as follows to print out results via USB port:

1. Plug in the USB cable (not included in the contents of delivery) to the device's and the printer's USB port.
2. Select **Interfaces** under **> Settings** in the main menu.
3. Select **>Printer<**.
4. Open a list under **Interface** with .
5. Select **>local<**.
6. Open the list under **Color mode** with .
7. Select either **>Colour<** or **>Black/white<**.
8. Use  to open the virtual keypad under **top (mm)**.
The margins are set ex works to 15 mm.
9. Delete the number set ex works with  or  where necessary.
10. Enter the requested height of the margins in mm.






11. Confirm your entry with .
The input will be saved automatically.
12. Repeat steps 8-11 for further entries.
13. Where necessary, activate the check box **Blank out company logo** to print out results without the company logo of Hella Gutmann.
This function enables hard-copy printouts on printed paper.
It is now possible to print using the printer on the USB port.

5.5.1.2 Printing with Standard PC Printer


Here you can set the print function with the standard printer connected to the PC.

If there is no additional printer connected to the device, it is possible to print with the printer of a PC system. This requires a connection between the diagnostic device and the PC. The connection to the PC can be realized with USB port, Ethernet, Bluetooth, WLAN or UMTS.

Proceed as follows to print out results with the standard printer:

1. Select **Interfaces** under **> Settings** in the main menu.
2. Select **>Printer<**.
3. Open a list under **Interface** with .
4. Select **>Gutmann Portal<**.
The selection will be saved automatically.
5. Use  to open the virtual keypad under **top (mm)**.
The margins are set ex works to 15 mm.
6. Delete the number set ex works with  or  where necessary.
7. Enter the requested height of the margins in mm.
8. Confirm your entry with .
The input will be saved automatically.
9. Repeat steps 5-8 for further entries.
10. Where necessary, activate the check box **Blank out company logo** to print out results without the company logo of Hella Gutmann.
This function enables hard-copy printouts on printed paper.
Now you can start printing via PC.

5.5.1.3 Printing with Expert Mode


	<p>NOTE</p> <p>Do not configure the expert mode yourself. The expert mode requires professional knowledge about PC systems must be configured exclusively by an IT system administrator.</p>
---	---

Use the **>Expert mode<** interface to configure the printer interfaces manually.

It is possible to connect to the USB ports any printer that supports at least the printer language PCL5 or higher and that has a USB port.

Proceed as follows to print out results through the expert mode:

1. Select **Interfaces** under **> Settings** in the main menu.
2. Select **>Printer<**.


3. Open a list under **Interface** with .
4. Select **>Expert mode<**.

5.5.2 Configuring the Bluetooth Adapter

Configure the Bluetooth adapter here.

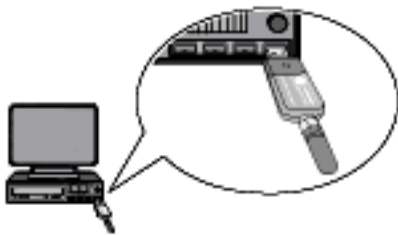
The integrated Bluetooth module enables a wireless connection to a PC on which the Gutmann Portal is installed.




5.5.2.1 Searching for the Bluetooth Adapter

	<p>NOTE</p> <p>If the device has already been delivered with a Bluetooth adapter, both devices are already assigned to each other ex works.</p> <p>The Bluetooth adapter can only be found once the Gutmann Portal is started on the PC.</p>
---	---

Proceed as follows to search for the Bluetooth adapter:

1. Insert the Bluetooth adapter into the USB port of the PC.




2. Select **Interfaces** under **> Settings** in the main menu.
3. Select the **>Bluetooth<** tab.
4. Activate the check box to take settings.
A confirmation prompt appears if WLAN was previously activated in the device.
5. Observe the confirmation prompt.
6. Confirm the confirmation prompt with .
7. Do this via  **Search for Bluetooth adapter**.
8. Observe the info window.
9. Confirm the info window with .
Connection is established and the search for a Bluetooth adapter is in progress.
Once the connection from the device to the Bluetooth adapter has been set up successfully, a selection list of the Bluetooth adapters that have been found is then displayed.
10. Select the desired Bluetooth adapter.
The selection will be saved automatically.

The automatically assigned Bluetooth adapter address appears in the field **Bluetooth adapter address**.

5.5.2.2 Disconnecting the Bluetooth Adapter Connection and Deleting the Assignment

Here you can disconnect the Bluetooth adapter connection and delete the assignment.

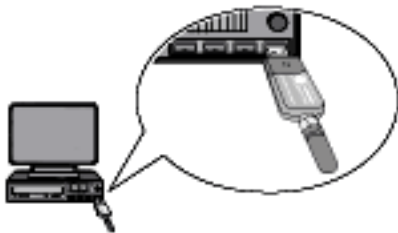
Proceed as follows to disconnect the Bluetooth adapter connection and delete the assignment:



1. Select **Interfaces** under **> Settings** in the main menu.
2. Select the **>Bluetooth<** tab.
3. Activate the check box to take settings.
A confirmation prompt appears if WLAN was previously activated in the device.
4. Observe the confirmation prompt.
5. Confirm the confirmation prompt with ✓.
6. **Disconnect the Bluetooth adapter connection and delete the assignment** with .
7. Observe the confirmation prompt.
8. Confirm the confirmation prompt with ✓.
The Bluetooth adapter connection is disconnected and the assignment is deleted.

5.5.2.3 Performing Bluetooth Diagnostics

Proceed as follows to perform Bluetooth diagnostics:

1. Insert the Bluetooth adapter into the USB port of the PC.



2. Select **Interfaces** under **> Settings** in the main menu.
3. Select the **>Bluetooth<** tab.
4. Activate the check box to take settings.
A confirmation prompt appears if WLAN was previously activated in the device.
5. Observe the confirmation prompt.
6. Confirm the confirmation prompt with ✓.
7. Click  to start **Bluetooth diagnostics**.
An info window appears.
Here you will find information including the status of the connection to the Gutmann Portal.
8. Close the info window with .



5.5.3 Configuring WLAN

Make your WLAN settings here.

WLAN is a wireless local area network. Data is transmitted wirelessly via a router and DSL modem (access point). The respective devices register in the WLAN router.

5.5.3.1 Searching and Installing a WLAN Interface

Proceed as follows to connect the device to a network (router) via a WLAN interface:

1. Select **Interfaces** under **> Settings** in the main menu.
2. Select **>WLAN<**.
3. Activate the check box to take settings.
A confirmation prompt appears if Bluetooth was previously activated in the device.
4. Observe the confirmation prompt.
5. Confirm the confirmation prompt with .
6. Open a list under **IP address mode** with .



If **>Determine automatically (DHCP)<** is set, then the device will automatically search for the IP address. This option is set ex works.

If **>Determine manually<** is set, you must enter the address of the remote station under **mega macs IP address**, e.g., "192.168.255.255".

7. Select **>Determine automatically (DHCP)<** or **>Determine manually<**.
The selection will be saved automatically.

8. **Create wireless network** with .
- The device searches for wireless networks.


Once the device has successfully finished searching for wireless networks, a drop-down list of wireless networks found is then displayed.

9. Select the requested wireless network.
10. Regard the window with infos and instructions.
11. Confirm the window with infos and instructions with .
12. Enter the WLAN password.
13. Confirm the password with .

The input will be saved automatically.

The following message appears if the wireless network has been successfully established:

- the name of the selected network under **Wireless network (SSID)**
- the security system of the selected network under **WLAN security**
- the IP address of the installed Gutmann Portal under **Gutmann Portal IP address**

14. Click the  symbol on the right of the header to check the connection status.

The device is connected to the Internet if *Data server* is displayed under **Connection**.


You can use the WLAN connection now.


5.5.3.2 Performing WLAN Diagnostics

Proceed as follows to perform WLAN diagnostics:

1. Disconnect the USB cable from the device.
2. Select **Interfaces** under **> Settings** in the main menu.
3. Select **>WLAN<**.
4. Activate the check box to take settings.


A confirmation prompt appears if Bluetooth was previously activated in the device.

5. Observe the confirmation prompt.
6. Confirm the confirmation prompt with ✓.
7. Start **WLAN diagnostics** with .
An info window appears.

Here you will find information including the WLAN chip and status, as well as the status of the Gutmann Portal connection.
8. Close the info window with .

5.5.3.3 Resetting the WLAN Configuration

Proceed as follows to reset the WLAN configuration:

1. Select **Interfaces** under **> Settings** in the main menu.
2. Select **>WLAN<**.
3. Activate the check box to take settings.
A confirmation prompt appears if Bluetooth was previously activated in the device.
4. Observe the confirmation prompt.
5. Confirm the confirmation prompt with ✓.
6. Reset the WLAN configuration with .

The WLAN configuration will be reset.

5.6 Setting the Country


Configure the following data here:

- Language setting
- Country setting
- Currency
- Date format
- Time mode
- Date
- Time
- Time zone

5.6.1 Setting the Language Option

Here you can set the language if the software is multilingual (optional).

Proceed as follows to set the language:

1. Select **Country** under **> Settings** in the main menu.
2. Open the list under **Language setting** with .
The compilation of languages depends on the prevailing software.
3. Select the requested language.

4. Regard the window with infos and instructions.
5. Close the window with infos and instructions with .
The device switches off automatically. The language setting will be saved automatically.
6. Switch on the device with the ON/OFF button.
7. Confirm the user selection window with .
The main menu appears.

5.6.2 Making Country Settings

Make your country settings here.

The country version contains certain information such as the print format for letters.

Proceed as follows to make the country settings:

1. Select **Country** under **> Settings** in the main menu.
2. Open the list under **County** with .
The compilation of countries depends on the prevailing software.
3. Select the country to the corresponding language.
The selection will be saved automatically.

5.6.3 Setting the Currency

Here you can set the prevailing currency.

Proceed as follows to set the currency:

1. Select **Country** under **> Settings** in the main menu.
2. Open the list under **Currency** with .
The compilation of currencies depends on the prevailing software.
3. Select the requested currency.
The selection will be saved automatically.

5.6.4 Setting the Date Format

Here you can set the date format.


Proceed as follows to set the date format:

1. Select **Country** under **> Settings** in the main menu.
2. Open the list under **Date format** with .
3. Select the required date format.
The selection will be saved automatically.

5.6.5 Setting the Time Format

Here you can set the time format.




Proceed as follows to set the time format:

1. Select **Country** under **> Settings** in the main menu.
2. Open the list under **Time format** with .
3. Select **>24 h<** or **>12 h<**.
The selection will be saved automatically.

5.6.6 Setting the Date

Here you can set the present date.





Proceed as follows to set the date:

1. Select **Country** under **> Settings** in the main menu.
 2. Open the drop-down list under **Date** with .
 3. Open the list under **Day** with .
 4. Select the required day.
 5. Repeat steps 3 and 4 for **Month** and **Year**.
 6. Confirm the selection with .
- The selection will be saved automatically.

5.6.7 Setting the Time

Here you can set the current time.


Proceed as follows to set the time:

1. Select **Country** under **> Settings** in the main menu.
 2. Open the settings window under **Time** with .
 3. Set the required hour under **Hour** with  .
 4. Repeat step 3 for **Minute** and **Second**.
 5. Confirm settings with .
- The setting will be saved automatically.

5.6.8 Setting the Time Zone

Here you can set the current time zone.

Proceed as follows to set the time zone:

1. Select **Country** under **> Settings** in the main menu.
2. Open the list under **Time zone** with .

The drop-down list varies depending on the country setting.


3. Select the required time zone.
The selection will be saved automatically.

5.7 Setting Units

Adapt physical units to the prevailing regional metric system here.

5.7.1 Assigning Units

Proceed as follows to assign regional units to physical sizes:

1. Select **Units** under **> Settings** in the main menu.
2. Open a list under the requested unit with .
3. Select the requested unit.
The selection will be saved automatically.

5.8 Configuring Miscellaneous

Here you can configure settings such as:


- Display brightness
- Demo mode
- Order management

5.8.1 Configuring the Hardware

Here you can set the display brightness and the energy management and you can calibrate the touch screen.


5.8.1.1 Setting the Display Brightness

Proceed as follows to set the display brightness:

1. Select **Miscellaneous** under **> Settings** in the main menu.
2. Select **>Hardware<**.
3. Open the list under **Brightness** with .
4. Select the requested brightness value.
The display brightness is adjusted immediately. The selection will be saved automatically.

5.8.1.2 Calibrating the Touch Screen


Proceed as follows to calibrate the touch screen:

1. Select **Miscellaneous** under **> Settings** in the main menu.
 2. Select **>Hardware<**.
 3. Configure the touch screen of the device with .
 4. Regard the info window.
Touch screen has been calibrated. The selection will be saved automatically.
-

5.8.1.3 Configuring the Energy Management

Here you can set whether the device shall switch off automatically if not used for some time.

Proceed as follows to set the energy management:

1. Select **Miscellaneous** under **> Settings** in the main menu.
2. Select **>Hardware<**.
3. Open a list under **Energy management (automatic switch-off)** with .
4. Select **>on<** or **>off<**.

If **>off<** is selected, the device will remain in stand by mode until the battery is empty.

If **>on<** is selected, device will switch off automatically after 10 min.

The selection will be saved automatically.

5.8.2 Configuring the Car History


This menu provides the diagnostic results to the present vehicle from the functions **>Trouble codes<**, **>Parameters<**, **>Basic settings<** and **>Codings**. This has the following advantages:

- You can evaluate the diagnostic results later.
- Compare previously performed diagnostics to present diagnostic results.
- You can show the customer the diagnostic results without needing to reconnect the vehicle.

5.8.2.1 Automatic Car History Transfer

If you have selected the option **Automatic Car History Transfer**, the data saved in the Car History will be automatically transferred to Hella Gutmann.


Proceed as follows to transfer the Car History automatically:

1. Select **Miscellaneous** under **> Settings** in the main menu.
2. Select **>Car History<**.
3. Open a list under **Automatic Car History Transfer** with .
4. Select **>on<** or **>off<**.
The selection will be saved automatically.

5.8.2.2 Manual Parameter Management

Here you can select whether the device offers to delete existing parameter records in the Car History if there is not enough memory space.


Proceed as follows to manage the parameters manually:

1. Select **Miscellaneous** under **> Settings** in the main menu.
2. Select **>Car History<**.
3. Open a list under **Administrating parameters manually** with .
- If **>on<** is selected, you can determine existing measurements in the Car History to be deleted.
- If **>off<** is selected, the device will automatically delete the oldest entries in the Car History.
4. Select **>on<** or **>off<**.
The selection will be saved automatically.

5.8.2.3 Sending the Car History

Here you can send the Car History to Hella Gutmann.

Proceed as follows to send the Car History data:



1. Select **Miscellaneous** under **> Settings** in the main menu.
2. Select **>Car History<**.
3. **Send Car History** with .
The Car History is sent to Hella Gutmann.

5.8.2.4 Parameter Management

	NOTE The menu point Parameter management can be done only if >Manage parameters manually< is set to on .
---	---

With the **Parameter management** function, you can delete parameter records from the Car History. This is useful if more memory space is required for further parameter records.



Proceed as follows to delete parameter records:

1. Select **Miscellaneous** under **> Settings** in the main menu.
2. Select **>Car History<**.
3. Call up **Parameter management** with .
An info and selection window appears.
Deactivate all parameter records with .
Activate all parameter records with .
4. Activate or deactivate the required parameter records.
5. Delete the selected parameter records with .
The parameter records are deleted.

5.8.2.5 Displaying Error Logs

If a fault occurs when sending the Car History data, the error log is stored in the device memory.

Proceed as follows to call up the error log:

1. Select **Miscellaneous** under **> Settings** in the main menu.
2. Select **>Car History<**.
3. Call up **Error logs** with .
4. Select the required error log.
An info window appears.
It displays the troubles that occurred while sending the Car History data.
5. Close the info window with .


5.8.3 Configuring Other Matters

Here you can configure settings such as:


- Demo mode
- Order management
- Factory reset

5.8.3.1 Setting the Demo Mode

Here you can set whether the device shall give predetermined values during the vehicle communication. This setting is mainly intended for marketing and sales presentations.

	<p>NOTE</p> <p>In the course of vehicle diagnostics the demo mode must be switched off. Otherwise the device will deliver predetermined diagnostic results and no real values.</p>
---	---


Proceed as follows to set the demo mode:

1. Select **Miscellaneous** under **> Settings** in the main menu.
2. Select **>Miscellaneous<**.
3. Open the list under **Demo mode** with .
4. Select **>on<** or **>off<**.
Demo mode is switched off or on.

5.8.3.2 Setting Tips

Here you can activate or deactivate additional information on different functions.


Proceed as follows to set the indication of tips:

1. Select **Miscellaneous** under **> Settings** in the main menu.
2. Select **>Miscellaneous<**.
3. Open the list under **Tips** with .
4. Select **>on<** or **>off<**.
Tips are switched off or on. The selection will be saved automatically.

5.8.3.3 Automatic E-mail Actualization

Here you can set the time interval in which the emails shall be retrieved automatically.


Proceed as follows to retrieve e-mails automatically:

1. Select **Miscellaneous** under **> Settings** in the main menu.
2. Select **>Miscellaneous<**.
3. Open a list under **Automatic E-mail actualization** with .
4. Select **>off<** or the required time interval.
The selection will be saved automatically.

5.8.3.4 Configuring Order Management

Here you can set the data exchange between device and order management.

Proceed as follows to set the order management:

1. Select **Miscellaneous** under **> Settings** in the main menu.
2. Select **>Miscellaneous<**.
3. Open a list under **Order management** with .
4. Select **>on<** or **>off<**.
Order management is switched off or on. The selection will be saved automatically.

5.8.3.5 Performing a Factory Reset

Here you can reset the device to factory settings.



The following data and files will be reset to the state of delivery if you do the factory reset:

- Data stored in the Car History
- Downloaded files such as wiring diagrams or service schedules
- User data such as company data

The following functions will be also modified or deleted:

- IP address mode
- Telekom HotSpot
- Bluetooth MAC address
- asanetwork
- Display settings
- Confirmation of General terms and conditions
- Printer settings

Proceed as follows to perform a factory reset:


1. Select **Miscellaneous** under **> Settings** in the main menu.
 2. Select **>Miscellaneous<**.
 3. Select **Start factory reset** with .
 4. Observe the confirmation prompt.
 5. Confirm the confirmation prompt with .
- The device will be automatically reset to the condition at delivery.

5.8.3.6 Screenshot

Use the screenshot function to save the current screen content. The screenshot is saved in the respective device file.

Creating a Screenshot

Proceed as follows to create a screenshot:

- Double-click the  symbol on the left in the header.

The screenshot is created and saved to the device file.


The message *Screenshot created* is displayed if the screenshot has been created successfully.

Sending Screenshots to the Gutmann Portal

Here you can send screenshots from the device file to the Gutmann Portal. They are displayed on the PC as a graphics file.

The screenshots are saved in the Gutmann Portal installation directory in the "Screenshots" subfolder.

Proceed as follows to send screenshots to the Gutmann Portal:

1. Select **Miscellaneous** under **> Settings** in the main menu.
2. Select **>Miscellaneous<**.
3. **Send screenshots** with .
A connection is established. This may take a few minutes. Screenshots are sent to the Gutmann Portal.


The message *Screenshots successfully sent* appears if screenshots have been sent successfully.

5.9 Contracts

Here you can see the general terms and conditions as well as the licenses and notes of the programs and functions used by the Hella Gutmann Solutions GmbH.

5.9.1 Retrieving the License

Proceed as follows to retrieve licenses:

1. Select **Contracts** under **> Settings** in the main menu.
2. Select **>License<**.
3. Call up **My licenses** with .
Data download is in progress. Purchased licenses are displayed.

5.9.2 Displaying the GTC

Here you will find the general terms and conditions (GTC) of Hella Gutmann Solutions GmbH. The agreement to the terms can only be revoked by doing a factory reset.

Proceed as follows to have the GTCs indicated:

1. Select **Contracts** under **> Settings** in the main menu.
2. Select **>GTC<**.
The GTCs appear.

5.9.3 Displaying Other Licenses

Here you can view a list of the licenses and notes of the programs and functions used by the Hella Gutmann.

Proceed as follows to retrieve licenses:

1. Select **Contracts** under **> Settings** in the main menu.

2. Select **>Miscellaneous<**.
A list with the licenses and notes of the programs and functions used by the Hella Gutmann appears.

5.10 Test Functions

Here you can perform various tests.

5.10.1 Precondition for Test Functions


Regard the following to perform the test functions:

- Voltage supply of the device through mains supply and mains cable is ensured.
- DT VCI connected to the device via Bluetooth.
- DT VCI is *not* connected to the vehicle's diagnostic port.

5.10.2 Performing the VCI Plug Test

This test serves as a function check for faults in the DT VCI.

Proceed as follows to perform the test functions:

1. Select **Test functions** under **> Settings** in the main menu.
2. Start the **VCI plug (USB)** test with .
The DT VCI is tested.

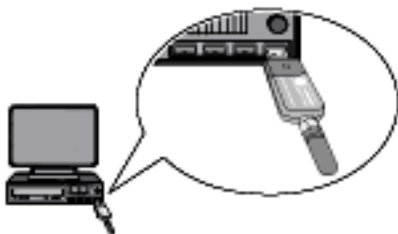
The message *VCI OK, no malfunction detected* appears if DT VCI has been tested successfully.


5.10.3 Performing VCI Diagnostics

This diagnostics is used to test the functionality of Bluetooth for defects to determine data loss.

Proceed as follows to perform VCI diagnostics:

1. Insert the Bluetooth adapter into the USB port of the PC.












2. Insert the DT VCI into the vehicle's diagnostic connector.
Both LEDs of the DT VCI flash. The DT VCI is ready for operation.
3. Select **Test functions** under **> Settings** in the main menu.
4. Start **VCI diagnostics (Bluetooth)** with .
The window **Bluetooth diagnostics** appears.
The Bluetooth function will be tested.







VCI diagnostics is completed successfully if *0* is displayed under **Defective protocols** and *Diagnostics complete* is displayed under **Status**.

6 Working with the Device





6.1 Symbols








6.1.1 General Symbols



Symbols	Designation
	Switch off Switch the device off.
	Enter Call up the selected menu.
	Confirm Perform the following functions: <ul style="list-style-type: none"> • Start the selected function. • Confirm the present entry. • Confirm your menu selection.
	Cancel Cancel the following functions: <ul style="list-style-type: none"> • Active function • Input
	Start Start a function or procedure.
	Delete Delete data or entries.
	Arrow keys Navigate with the cursor in menus or functions.
	Print Print the current window.
	Help Open the user manual and explanations on the individual menus or functions.

Symbols	Designation
	Virtual keypad Open the virtual keypad for text input.
	Selection window Open a selection window.
	Select all Select all available elements.
	Unselect all Unselect all available elements.
	Zoom in Zoom in the present view.
	Zoom out Zoom out of the present view.






6.1.2 Symbols in the Header



Symbols	Designation
	Vehicle data This menu contains the data of the currently selected vehicle.
	User Here you can click the symbol to change the user or double-click  to enter a new user name.
	Help Select the menus >Assistance in selection< and >User Manual< . <ul style="list-style-type: none"> >Assistance in selection< Indication of the active assistance for the different icons and the drop-down menu Black symbol: Help function is inactive Green symbol: Help function is active >User Manual< Calling up the complete manual

Symbols	Designation
 	<p>Shopping cart</p> <p>The spare parts booked for order are indicated with the following information:</p> <ul style="list-style-type: none"> • Quantity • Component name • Manufacturer • Item number <p>The shopping cart symbol is dark if there are spare parts in the cart.</p>
	<p>Order network</p> <p>This network is used for data exchange between device and order network.</p>
 	<p>Mail box</p> <p>The incoming e-mails and help calls are stored here. The symbols indicate an incoming e-mail or help call:</p> <ul style="list-style-type: none"> • Envelope symbol: No new e-mails • Envelope symbol with exclamation mark: At least one new e-mail <p>Call up the corresponding list using the symbol.</p>
	<p>Battery state of charge</p> <p>The battery state of charge is indicated here.</p> <ul style="list-style-type: none"> • Green symbol: Battery is fully charged. • Symbol flashing green-white: Battery is being charged. • Symbol partly red: Battery must be charged.
	<p>Printer</p> <p>Printer is ready for operation</p> <ul style="list-style-type: none"> • Black symbol: Printer is ready • Symbol flashes green-black: Print job is in progress • Red symbol: Connecting error between device and PC.







Symbols	Designation
	<p>Vehicle connection status</p> <p>Here you can view the active and inactive connections between the device and the DT VCI. The symbol shows the active connection.</p> <ul style="list-style-type: none"> • Black symbol: Connection to DT VCI is inactive. • Green symbol: At least 1 connection to the DT VCI is active.
	<p>PC connection status</p> <p>Here you can view the active and inactive interfaces between the device and the PC, e.g.:</p> <ul style="list-style-type: none"> • USB • Bluetooth • WLAN <p>The symbol shows the active interface.</p> <ul style="list-style-type: none"> • Black symbol: No interface is active. • Green symbol: At least 1 interface is active.



6.1.3 Symbols in the Main Menu

Symbols	Designation
	<p>Home</p> <p>Return to the main menu.</p>
	<p>Vehicle Selection</p> <p>Select a vehicle or access the Car History. First select a vehicle to access the following functions depending on the vehicle:</p> <ul style="list-style-type: none"> • Diagnostics • Vehicle Information
	<p>Diagnostics</p> <p>Here you can find vehicle-specific ECU diagnostics, e.g.:</p> <ul style="list-style-type: none"> • Trouble code readout • Parameter readout • Codings
	<p>Vehicle Information</p> <p>Here you will find information regarding the selected vehicle:</p> <ul style="list-style-type: none"> • Car History
	<p>Measurements</p> <p>The 2-channel oscilloscope is stored here. The 2-channel oscilloscope supports the following measured variables:</p> <ul style="list-style-type: none"> • Voltage • Resistance • Current










Symbols	Designation
	<p>Applications</p> <p>Useful applications are stored here:</p> <ul style="list-style-type: none"> • Calculator • Glossary with explanation of technical terms • Calculations
	<p>Settings</p> <p>Configure the device here.</p>

6.1.4 Symbols in the Vehicle Selection Menu


Symbols	Designation
	<p>Vehicle database</p> <p>Select a vehicle from the database e.g. according to the following criteria:</p> <ul style="list-style-type: none"> • Manufacturer • Fuel type • Model • Engine code • Output • Shortcut • Engine displacement
	<p>Car History</p> <p>Call up the Car History here.</p>
	<p>Display Car History files</p> <p>Call up a list of saved diagnostic data records on a certain vehicle.</p>
	<p>Page forward</p> <p>Go one page forward.</p>
	<p>Page back</p> <p>Go one page back.</p>
	<p>Information</p> <p>Here you can call up information regarding the selected vehicle e.g.:</p> <ul style="list-style-type: none"> • Vehicle type • Engine displacement • Output • Engine code

Symbols	Designation
	Update the Car History Update the list of vehicles in the Car History and the vehicle status here.
	Vehicle search in the vehicle database Search for a vehicle in the vehicle database using its manufacturer key no. or its license plate number.








6.1.5 Symbols in the Diagnostics Menu

Symbols	Designation
	System information Here you can find information and help texts on the selected system.
	Expand view Here you can call up a print preview with individual trouble codes after a global check of the trouble codes. More detailed information on the individual trouble codes in the systems appears.
	Reduce view Here you can close a print preview after a global check of the trouble codes.
	Selection to the right Add available individual parameters to the selected parameters here.
	Selection to the left Relocate single parameters back to the list of available parameters here.
	Select all Relocate all parameters selected back to the list of available parameters.
	Parameter information Call up detailed information on the selected parameter.
	Parameter selection Return to the parameter list.
	Save parameters Save the automatic recording of the parameters in the Car History here.




6.1.6 Symbols in the Vehicle Information Menu














Symbols	Designation
	<p>Car History</p> <p>This menu contains all the work done on vehicles provided that you have entered a license plate number or a keyword for the vehicle selection.</p> <p>The data is saved under the license plate number or keyword entered previously.</p>

6.1.6.1 Symbols in the Car History Menu






Symbols	Designation
	<p>Sending a Call for Help</p> <p>Contact the Technical Help Line and request data here.</p>
	<p>Next step</p> <p>Call up the next step of the help dialog.</p>
	<p>Next entry</p> <p>Here you can call up the next entry in the Car History.</p>
	<p>Previous step</p> <p>Call up the previous step of the help dialog.</p>
	<p>Previous entry</p> <p>Here you can call up the previous entry in the Car History.</p>
	<p>Add data inquiry or symptom</p> <p>Add another data inquiry or a further symptom to a help call.</p>
	<p>Call for help memory</p> <p>View all the stored helps calls here.</p>

6.1.7 Symbols in the Measurements Menu




Symbols	Designation
 	<p>Module slot</p> <p>Here the device indicates the module slots in which the individual measurement modules are located.</p>
	<p>Expand Y axis</p> <p>Expand the Y axis to display a larger value range.</p>

Symbols	Designation
	Shorten Y axis Shorten the Y axis to display a smaller value range.
	Expand X axis Expand the X axis to display a larger time frame.
	Shorten X axis Shorten the X axis to display a smaller time frame.
	Saving the measurement Save the performed measurement here.
	Settings Make various settings for signal acquisition and the output of values.
	Adjust cursor Open functions for the cursor setting here: <ul style="list-style-type: none"> • Cursor position • Measuring Signals • Cursor settings
	Trigger Open the functions for the trigger setting. The triggering fixes a voltage point of the signal and displays this point always at the same position on the monitor. The trigger enables the human eye to see a still image.
	Set measuring ranges Open functions for the measuring range setting here e.g.: <ul style="list-style-type: none"> • Measuring range calibration • Zero line shifting • Automatic setting of measuring range (Auto Set)
	Previous page Return to the previous page.
	Measured data folder View all the measurements stored manually here.
	Display and stop saved measurements View or stop a saved measurement here. If you restart after a stop, it will continue at the point at which it was stopped.
	Stop a saved measurement Stop the display of a saved measurement here. If you start the measurement again after a stop, it will start over.
	Start the measurement Change from the display of a stored measurement directly to Oscilloscope .










6.1.7.1 Symbols in the Cursor Settings Menu

Symbols	Designation
	<p>Place the cursor</p> <p>Here you can move the cursor.</p>
	<p>Measuring Signals</p> <p>Use these keys to set the current x and y cursor position as start mark to the signal so that a signal range can be measured afterwards.</p>
	<p>Cursor settings</p> <p>Use these keys to set the cursor speed.</p>
	<p>Expand X axis</p> <p>Expand the X axis to display a larger time frame.</p>
	<p>Reduce X axis</p> <p>Shorten the X axis to display a smaller time frame.</p>




6.1.7.2 Symbols in the Trigger Menu



Symbols	Designation
	<p>Place the trigger</p> <p>Move the trigger here.</p>
	<p>Set the trigger level</p> <p>Set the trigger level here.</p>
	<p>Trigger settings</p> <p>Perform the following trigger settings:</p> <ul style="list-style-type: none"> • Trigger channel • Trigger mode • Trigger edge • Trigger level

6.1.7.3 Setting Symbols in the Measurements Menu




Symbols	Designation
	Current value View the currently measured value here.
	Minimum value View the minimum value of the entire measuring process here.
	Maximum value View the maximum value of the entire measuring process here.
	Peak-to-peak value View the maximum distance between the upper and lower signal peak of the entire measuring process.
	Frequency View the signal frequency here.
	Period duration View the duration of a signal period here.
	On/off ratio Here you can view the percentage signal-to-noise relation (duty cycle) of the time the signal is switched on and switched off. One signal period is 100 %. This indication mode is suitable for square wave signals only.
	Top pulse width View the duration of the top signal amplitude here.
	Lower pulse width View the duration of the lower signal amplitude here.

6.1.7.4 Symbols in the Measuring Range Menu



Symbols	Designation
	Zero line up Move the zero line for the measuring range up. This increases the size of the negative measuring range and larger negative voltages can be measured and displayed.
	Zero line down Move the zero line for the measuring range down. This increases the positive measuring range and enables the measurement and indication of higher positive voltage values.
	Measuring range calibration Set the voltage curve on the zero line. In this way, you can compensate for interference voltages and measuring range tolerances.

Symbols	Designation
	<p>Set value windows to zero position</p> <p>Set the following value windows to zero simultaneously so that only future values will be taken into account:</p> <ul style="list-style-type: none"> • Minimum • Maximum • Peak-to-peak
	<p>Auto Set</p> <p>Analyze the incoming signal once and automatically set the ideal measuring range. If the measurement signal changes during the ongoing measurement, the Auto Set function does <i>not</i> correct the measuring range automatically. Start the Auto Set function again to have the measuring range adapted automatically.</p>





6.1.8 Symbols in the Applications Menu

Symbols	Designation
	<p>Calculator</p> <p>Perform general calculations here.</p>
	<p>Glossary</p> <p>The glossary explains automotive technical terms, abbreviations and components.</p>
	<p>Calculations</p> <p>Here you can perform the the following conversions:</p> <ul style="list-style-type: none"> • Fuel consumption • Piston speed • Current/power output/resistance • Conversion of technical units







6.1.8.1 Symbols in the Glossary

Symbols	Designation
	<p>Search</p> <p>Search for components and abbreviations via search term.</p>
	<p>Component information</p> <p>Here you can find explanations to the selected component or the selected abbreviation.</p>



6.1.9 Symbols in the Settings Menu

Symbols	Designation
	<p>Add user</p> <p>Here you can add a new user the the list of device users.</p> <p>The prevailing user name is saved for all data stored in the >Car History<. This enables quicker identification of the mechanic who performed the repair work if a query is subsequently made.</p>
	<p>Start diagnostics</p> <p>Here you can start a connection test of the prevailing interface.</p>
	<p>Find and configure wireless network</p> <p>Search for wireless networks and make the necessary settings here.</p> <p>Searching for the Bluetooth Adapter</p> <p>Here you can search for the Bluetooth adapter.</p>
	<p>Language management</p> <p>Uses this symbol to set language-specific keypad layouts and to delete installed languages.</p>

6.1.10 Symbols on the Virtual Keypad

Symbols	Designation
	<p>Copy/paste</p> <p>Here you can copy text into the clipboard or paste text from the clipboard.</p>
	<p>Insert special characters</p> <p>Use this symbol to insert special characters into the text.</p>
	<p>Select the keypad</p> <p>Here you can select and manage the country-specific keypads.</p>
	<p>Manage keypad languages</p> <p>Here you can select language-specific and country-specific keypads.</p>
	<p>Add keypad to list</p> <p>Here you can add country-specific keypads from the Available keypads list to the Keypad list.</p>
	<p>Remove keypad from list</p> <p>Here you can remove country-specific keypads from the Keypad list.</p>


6.1.11 Symbols in the Manual

Symbols	Designation
	Search for entries Here you can search for certain words.
	Search for next entry Here you can search for a related entry that corresponds to the entered search pattern.


6.2 Vehicle Selection

Here you can select vehicles according to the following parameters:

- Manufacturer
- Model
- Fuel type


	NOTE You require an online connection if you wish to access all available information.
---	--


Proceed as follows to select a vehicle:

1. Select **>Vehicle selection<** in the main menu.
2. Select **>i<**.
3. Select **Vehicle database** with .
4. Select the requested manufacturer.
5. Select the requested fuel type.
6. Select the requested model.
7. Double-click to the requested vehicle type.
The **Vehicle data** menu appears.

Here you can enter either the license plate number or the customer name (max. 10 characters).

8. Open the virtual keypad with .

	NOTE If you do not enter a license plate number or the customer name, the device does not store any data of the current vehicle in the Car History. One license plate number or customer name can be used for several vehicles.
---	--

9. Enter the license plate number or customer name.
10. Click  twice to confirm the input.
The input will be saved automatically.

Vehicle selection is now ready for **>Diagnostics<** and **>Vehicle data<** and the data will be stored in the **>Car history<**.

The device will then automatically switch back to the main menu.


6.2.1 Vehicle search

Here you can search for vehicles in the vehicle database using the following parameters:






- Manufacturer key
- License plate number

6.2.1.1 Country-Specific Search of Vehicle


The country-specific vehicle search determines the vehicle type depending on the country using various search criteria, such as license plate number or manufacturer key.

	<p>NOTE</p> <p>The country-specific vehicle search is only possible in the following countries:</p> <ul style="list-style-type: none"> • Germany • Denmark • Finland • France • Ireland • Netherlands • Norway • Sweden • Switzerland • Austria
---	--




Proceed as follows to search for a vehicle by country:

1. Select **>Vehicle selection<** in the main menu.
2. Select **>i<**.
3. Select **Vehicle search** with .
4. Select **>Country-specific<**.
5. Open list under **Country** with .
6. Select the requested country.
The search criteria are adapted on a country-specific basis.
7. Open the virtual keypad on the first search criterion with .
8. Enter the requested value.
9. Confirm your entry with .
10. Repeat steps 8 to 10 for the second search criterion where necessary.
11. Start the country-specific search with .
Data download is in progress. The corresponding vehicles are selected from the database.
A drop-down list appears.
12. Double-click the required vehicle to select.
13. Perform steps 8 to 10 as described in the section **Vehicle selection (Page 59)**.

6.2.1.2 Searching a Vehicle By License Plate Number

	<p>NOTE</p> <p>Vehicle search by license plate number is possible only for the following countries:</p> <ul style="list-style-type: none"> • Denmark • France (type mine) • Ireland • Netherlands • Norway • Austria (national code) • Sweden • Switzerland (type approval number)
---	---

Proceed as follows to search for a vehicle according to its license plate number:



1. Select **>Vehicle selection<** in the main menu.
2. Select **>i<**.
3. Select **Vehicle search** with .
4. Select **>Car History<**.
5. Open the virtual keypad under **License plate number** with .
6. Enter the license plate number or customer name.
7. Click  twice to confirm the input.
Data download is in progress. The corresponding vehicles are selected from the database.
A drop-down list appears.
8. Double-click the required vehicle to select.
9. Perform steps 8 to 10 as described in the section **Vehicle selection (Page 59)**.

6.3 OBD diagnostics

Switch to the OBD diagnostics directly only by selecting the vehicle manufacturer and the fuel type.

6.3.1 Performing an OBD Diagnostics Quick Start

Proceed as follows to perform an OBD diagnostics quick start:

1. Select **>Vehicle selection<** in the main menu.
2. Select **>i<**.
3. Select **OBD diagnostics** with .
4. Select the requested manufacturer.
5. Select the requested fuel type.
6. Select the requested system.
7. Confirm the selection with .
8. Observe the info window.

9. Confirm the info window with ✓ if appears.
The diagnostics start.

6.4 Diagnostics

Here you can exchange data between device and the vehicle systems that have to be checked. The respective scope of inspection and variety of functions depend on the "intelligence" of the vehicle system.

The following parameters are available under **>Diagnostics<**:

- **>Trouble codes<**

Here you can read out and delete trouble codes stored in the ECU memory. Information on the fault code are available too.

- **>Measured value<**

Here the device indicates the present flat rate units or states of the ECU graphically and alphanumerically.

- **>Actuators<**

Here you can activate actuators with the help of the ECU.

- **>Service reset<**

Here you can reset the service interval manually or automatically.

- **>Basic settings<**

Here you can assign basic setting values to ECUs and actuators.

- **>Codings<**

Here you can code tasks to actuators and ECUs and you can adapt new components to the vehicle.

- **>Test function<**

Here the device evaluates and depicts the performance of the individual cylinders.


6.4.1 Preparing Vehicle Diagnostics

The selection of the correct vehicle is a basic precondition for trouble-free vehicle diagnostics. The device provides various kinds of assistance to facilitate the selection, e.g. indicating the installation position of the diagnostic port.

The following ECU functions are possible in the **>Diagnostics<** menu:

- Trouble code readout
- Parameter readout
- Actuator tests
- Service reset
- Basic settings
- Codings
- Test function

Proceed as follows to prepare vehicle diagnostics:


	<p>NOTICE</p> <p>Danger of short circuit and voltage peaks when connecting the DT VCI</p> <p>Danger of destruction of automotive electronics</p> <p>Switch off ignition before connecting the DT VCI to the vehicle.</p>
---	---


1. Insert the DT VCI into the vehicle's diagnostic connector.
Both LEDs of the DT VCI flash. The DT VCI is ready for operation.
2. Perform steps 1 to 10 as described in the section **Vehicle selection (Page 59)**.
3. Select **>Diagnostics<** in the main menu.
Now you can select the type of diagnostics.

6.4.2 Trouble codes

If a component malfunction is detected while ECU carries out an internal test, a trouble code will be set in memory and the corresponding warning lamp will be activated. The device reads out the trouble code and displays it in plain text. It also indicates information about the trouble code, such as possible effects and causes. A link to the measurements is available if measuring is required to detect potential fault reasons.

6.4.2.1 Reading Out Trouble Codes

	<p>CAUTION</p> <p>Rolling of vehicle</p> <p>Risk of injury or material damage</p> <p>Proceed as follows before starting:</p> <ol style="list-style-type: none"> 1. Prevent the vehicle from rolling. 2. No gear is engaged. 3. Regard the window with infos and instructions.
---	---

	<p>NOTE</p> <p>The selection of the following possibilities depends on the selected manufacturer and vehicle type:</p> <ul style="list-style-type: none"> • Functions • Assemblies • Systems • Data
---	--

Proceed as follows to read out the trouble codes:

1. Insert the DT VCI into the vehicle's diagnostic connector.
Both LEDs of the DT VCI flash. The DT VCI is ready for operation.
2. Perform steps 1 to 10 as described in the section **Vehicle selection (Page 59)**.
3. Select **Diagnostics > Function > Trouble codes**.
4. Select the requested assembly.
5. Observe the information and instructions windows.

6. Select the requested system.


When only one system is available for a vehicle, then the device selects this system automatically.

7. Observe the info window.

8. Select further sub-categories where necessary.

9. Call up the **>Information<** tab.

10. Follow the instructions on the screen.

11. Start trouble code reading with .

Communication to vehicle is being established. All trouble codes read out are indicated.

12. Select the requested trouble code.

Corresponding repair tips are indicated.

The repair tips contain the following information:

- Trouble code number, original trouble code number in addition where necessary
- Title of trouble code
- Explanation of the function and task of the component
- Vehicle-specific data e.g. wiring diagrams
- Possible effects
- Possible causes, when, and under which conditions the trouble occurred, and when it was saved.
- General diagnostic information regardless of the vehicle type and which does not always apply to the present problematic case.


13. Repair the vehicle. Then clear the saved trouble codes from the vehicle system.


6.4.2.2 Deleting Trouble Codes in Vehicle System

Here you can delete the read-out trouble codes of a vehicle system.

Proceed as follows to delete the trouble codes of a vehicle system:

1. Perform steps 1 to 13 as described in the section **Reading out trouble codes (Page 63)**.




	<p>NOTE</p> <p>All trouble codes selected will be irrevocably deleted from the ECU memory after the deletion process.</p> <p>Therefore, always save the read-out data read in the Car History.</p>
---	---

2. Clear the saved trouble codes from the vehicle system with .
- All trouble codes in the ECU memory will be cleared.


The message *Trouble code deletion done* appears if the trouble codes have been cleared successfully.


6.4.2.3 Global Check, Reading Trouble Codes

The global check scans all ECUs assigned to the vehicle software for stored trouble codes.

	<p>CAUTION</p> <p>Rolling of vehicle Risk of injury or material damage</p> <p>Proceed as follows before starting:</p> <ol style="list-style-type: none"> 1. Prevent the vehicle from rolling. 2. No gear is engaged. 3. Regard the window with infos and instructions.
	<p>NOTE</p> <p>The stored trouble codes cannot be retrieved any more after global check with trouble code deletion. Therefore, it is recommended to perform the global check with trouble code reading first.</p>
	<p>NOTE</p> <p>The selection of the following possibilities depends on the selected manufacturer and vehicle type:</p> <ul style="list-style-type: none"> • Functions • Assemblies • Systems • Data

Proceed as follows to perform the global check with trouble code reading:


1. Insert the DT VCI into the vehicle's diagnostic connector.
Both LEDs of the DT VCI flash. The DT VCI is ready for operation.
2. Perform steps 1 to 10 as described in the section **Vehicle selection (Page 59)**.
3. Select **Diagnostics > Function > Trouble codes**.
4. Select **>Global check<**.
5. Call up the **>Information<** tab.
6. Follow the instructions on the screen.
7. Call up the ECU overview with .
8. Select further sub-categories where necessary.
The device indicates all ECUs installed in the vehicle.
The device automatically activates all ECUs.
Deactivate all ECUs with
Activate all ECUs with .
9. Activate/deactivate the requested ECUs.

10. Start the global check with trouble code reading with .
Communication to vehicle is being established.

Activated ECUs are read out. This may take a few minutes.


The number of trouble codes in the prevailing ECU memory is indicated.

You can call up a print preview with a list of the individual trouble codes for the respective ECU with **+**.

You can close the print preview with a list of the individual trouble codes for the respective ECU with **-**.
11. Call up the required trouble codes under **Faults** in the respective ECU memory with .
The device indicates all trouble codes and repair tips.


6.4.2.4 Global Check, Trouble Code Clearing




Here you can clear all the trouble codes stored in the ECUs.

	<p>NOTE</p> <p>The stored trouble codes cannot be retrieved any more after global check with trouble code deletion. Therefore, it is recommended to perform the global check with trouble code reading first.</p>
---	--

Proceed as follows to perform the global check with trouble code deletion:

1. Perform steps 1 to 11 as described in the section **Global check, trouble code reading (Page 65)**.

	<p>NOTE</p> <p>Clearing all trouble codes in all vehicle systems is possible only if all systems can be read out with the same OBD plug.</p>
---	---

2. Delete all trouble codes in the bottom toolbar with .
3. Regard the window with infos and instructions.
4. Confirm the window with infos and instructions with .
5. Observe the info window.
6. Confirm the info window with .
All saved trouble codes will be deleted.

6.4.3 Parameters

Many of the on-board systems supply digital measured values in the form of parameters for fast diagnostics. Parameters indicate the present state or nominal and actual values of the components. The device displays the parameters alphanumerically and graphically.

Example 1

The engine temperature can be within a range of -30 °C to 120 °C.

If the temperature sensor reports 9 °C but the engine actually has a temperature of 80 °C, the ECU calculates an incorrect injection time.

A trouble code is not stored, as this temperature is logical for the ECU.




Example 2

Fault text: *Oxygen sensor signal faulty*


In both cases, diagnostics can be significantly eased if the corresponding parameters are read out.


The mega macs 56 Bike reads the parameters and displays them in plain text. It additionally provides information on the parameters.

6.4.3.1 Reading Out Parameters


	<p>CAUTION</p> <p>Rolling of vehicle Risk of injury or material damage</p> <p>Proceed as follows before starting:</p> <ol style="list-style-type: none"> 1. Prevent the vehicle from rolling. 2. No gear is engaged. 3. Regard the window with infos and instructions.
	<p>NOTE</p> <p>Calling up the ECU parameters for the fault diagnostics after the trouble codes have been read has priority over all other work steps.</p>
	<p>NOTE</p> <p>The selection of the following possibilities depends on the selected manufacturer and vehicle type:</p> <ul style="list-style-type: none"> • Functions • Assemblies • Systems • Data

Proceed as follows to read out the parameters:

1. Insert the DT VCI into the vehicle's diagnostic connector.
Both LEDs of the DT VCI flash. The DT VCI is ready for operation.
2. Perform steps 1 to 10 as described in the section **Vehicle selection (Page 59)**.
3. Select **>Diagnostics<** in the main menu.
4. Select **Parameters** under **> Function**.
5. Regard the warning notice.
6. Select the requested assembly.
7. Regard the warning notice if appears.
8. Select the requested system.
9. Observe the information and instructions windows.
10. Call up the **>Information<** tab.
11. Follow the instructions on the screen.
12. Call up the parameter with .
13. Select the OBD plug and system.
14. Regard the window with infos and instructions.

15. Confirm the window with infos and instructions with .
Communication to vehicle is being established. A drop-down list appears.

The device automatically adds the most important parameters to the list **Selected parameters**.

Use  in the bottom toolbar to call up information on the selected parameters in the parameter selection menu, e.g. component descriptions.

An explanation of the selected parameter appears.

16. Select the requested parameter group under **Groups**.


Diagnose a certain problematic case directly by selecting a parameter group, as only the parameters required for it are stored.


17. Select additionally required parameters in the list **Available parameters** by double-clicking if required.

You can select maximum 16 parameters at the same time.

18. Start the parameter reading with .

During the readout procedure, the recordings are automatically saved in the Car History under the previously entered license plate number.

	<p>NOTE</p> <p>A light blue bar in the top toolbar indicates how much of the memory space reserved for this purpose in the Car History has been used. If the blue bar is complete, the first data of the present measurement will be removed from the memory and the free capacity is filled with new data.</p>
---	--

19. Press  to cache the records of the selected parameters.
The recordings are saved in the Car History.




The parameter readout will start again afterwards.

20. Return to the list of parameter selection with .

6.4.4 Actuators



Use this menu to activate components in electronic systems. You are hence able to check basic functions and cable connections of those components.


6.4.4.1 Activating the Actuator


	<p>DANGER</p> <p>Rotating/moving parts (electric fan, brake calliper piston, etc.)</p> <p>Danger of cutting or pinching fingers or device parts</p> <p>Remove the following things from the danger zone before actuating actuators:</p> <ul style="list-style-type: none"> • Limbs • Persons • Device parts • Cables
	<p>CAUTION</p> <p>Rolling of vehicle</p> <p>Risk of injury or material damage</p> <p>Proceed as follows before starting:</p> <ol style="list-style-type: none"> 1. Prevent the vehicle from rolling. 2. No gear is engaged. 3. Regard the window with infos and instructions.
	<p>NOTE</p> <p>The selection of the following possibilities depends on the selected manufacturer and vehicle type:</p> <ul style="list-style-type: none"> • Functions • Assemblies • Systems • Data


Proceed as follows to activate the actuator:

1. Insert the DT VCI into the vehicle's diagnostic connector.
Both LEDs of the DT VCI flash. The DT VCI is ready for operation.
2. Perform steps 1 to 10 as described in the section **Vehicle selection (Page 59)**.
3. Select **>Diagnostics<** in the main menu.
4. Select **Actuators** under **> Function**.
5. Select the requested assembly.
6. Regard the warning notice if appears.
7. Select the requested system.
8. Observe the info window.
9. Call up the **>Information<** tab.

10. Follow the instructions on the screen.
11. Start the actuator test with .
12. Select the OBD plug and system.
13. Regard the window with infos and instructions.
14. Confirm the window with infos and instructions with .
Communication to vehicle is being established.
15. Activate the check box for the requested component.

	<p>NOTE</p> <p>If the vehicle offers the automatic actuator test, all ECUs and actuators connected to them will be automatically actuated one after the other.</p>
---	---

	<p>NOTE</p> <p>The actuator test of a component must be finished completely first before the next test can be started.</p>
---	---


16. Observe the info window.
17. Follow the on-screen instructions.
18. Confirm the info window with .
19. Push the button indicated.
The actuator test is performed.


The message *Actuator test successfully done* appears if the actuator test was successful.

6.4.5 Service reset



Use this menu to reset service intervals provided that this function is supported by the vehicle. The device performs the resets either automatically or you find a description for the manual reset procedure.

6.4.5.1 Performing Manual Service Resets



	<p>CAUTION</p> <p>Rolling of vehicle Risk of injury or material damage</p> <p>Proceed as follows before starting:</p> <ol style="list-style-type: none"> 1. Prevent the vehicle from rolling. 2. No gear is engaged. 3. Regard the window with infos and instructions.
---	--

	<p>NOTE</p> <p>The selection of the following possibilities depends on the selected manufacturer and vehicle type:</p> <ul style="list-style-type: none"> • Functions • Assemblies • Systems • Data
---	--

Proceed as follows to perform the manual service reset:




1. Insert the DT VCI into the vehicle's diagnostic connector.
Both LEDs of the DT VCI flash. The DT VCI is ready for operation.
2. Perform steps 1 to 10 as described in the section **Vehicle selection (Page 59)**.
3. Select **>Diagnostics<** in the main menu.
4. Select **Service resets** under **> Function**.
5. Select the requested system.
6. Observe the info window.
7. Call up the **>Information<** tab.
8. Follow the instructions on the screen.
9. Start the manual service reset with .
10. Select the OBD plug in the subsystem where necessary.
11. Regard the window with infos and instructions.
12. Follow the instructions on the screen.
13. Confirm the performed service reset with .

6.4.5.2 Performing Automatic Service Resets

	<p>CAUTION</p> <p>Rolling of vehicle Risk of injury or material damage</p> <p>Proceed as follows before starting:</p> <ol style="list-style-type: none"> 1. Prevent the vehicle from rolling. 2. No gear is engaged. 3. Regard the window with infos and instructions.
	<p>NOTE</p> <p>The selection of the following possibilities depends on the selected manufacturer and vehicle type:</p> <ul style="list-style-type: none"> • Functions • Assemblies • Systems • Data

Proceed as follows to perform the automatic service reset:

1. Insert the DT VCI into the vehicle's diagnostic connector.
Both LEDs of the DT VCI flash. The DT VCI is ready for operation.
2. Perform steps 1 to 10 as described in the section **Vehicle selection (Page 59)**.
3. Select **>Diagnostics<** in the main menu.
4. Select **Service resets** under **> Function**.
5. Select the requested system.
6. Observe the info window.

7. Call up the **>Information<** tab.
8. Follow the instructions on the screen.
9. Start the automatic service reset with .
10. Select the OBD plug and subsystem where necessary.
11. Regard the window with infos and instructions.
12. Confirm the window with infos and instructions with .
Communication to vehicle is being established. The service reset will be done automatically.
The message *Service interval reset* appears if the service reset was successful.
13. Confirm the info window with .

6.4.6 Basic settings



Here you can adjust or adapt components and ECUs according to manufacturer's specifications.


6.4.6.1 Preconditions for Basic Settings

Regard the following in order to perform basic settings:



- Vehicle system is working properly.
- No trouble codes saved in ECU memory
- Vehicle-specific preparations performed.

6.4.6.2 Performing Manual Basic Settings


	<p>WARNING</p> <p>Wrong or incorrectly performed basic settings Risk of injury or material damage to vehicles</p> <p>Regard the following when performing basic settings:</p> <ul style="list-style-type: none"> • Select the correct vehicle type. • Regard the window with infos and instructions.
	<p>CAUTION</p> <p>Rolling of vehicle Risk of injury or material damage</p> <p>Proceed as follows before starting:</p> <ol style="list-style-type: none"> 1. Prevent the vehicle from rolling. 2. No gear is engaged. 3. Regard the window with infos and instructions.


	<p>NOTE</p> <p>The selection of the following possibilities depends on the selected manufacturer and vehicle type:</p> <ul style="list-style-type: none"> • Functions • Assemblies • Systems • Data
---	--


Proceed as follows to perform the manual basic setting:

1. Insert the DT VCI into the vehicle's diagnostic connector.
Both LEDs of the DT VCI flash. The DT VCI is ready for operation.
2. Perform steps 1 to 10 as described in the section **Vehicle selection (Page 59)**.
3. Select **>Diagnostics<** in the main menu.
4. Select **Basic settings** under **> Function**.
5. Select the requested assembly.
6. Select the requested system.
7. Observe the information and instructions windows.
8. Call up the **>Information<** tab.
9. Follow the instructions on the screen.
10. Start the manual basic setting with .
11. Regard the window with infos and instructions.
12. Follow the instructions on the screen.
13. Confirm the performed basic setting with .





6.4.6.3 Performing Automatic Basic Settings

	<p>WARNING</p> <p>Wrong or incorrectly performed basic settings Risk of injury or material damage to vehicles</p> <p>Regard the following when performing basic settings:</p> <ul style="list-style-type: none"> • Select the correct vehicle type. • Regard the window with infos and instructions.
---	---

	<p>CAUTION</p> <p>Rolling of vehicle Risk of injury or material damage</p> <p>Proceed as follows before starting:</p> <ol style="list-style-type: none"> 1. Prevent the vehicle from rolling. 2. No gear is engaged. 3. Regard the window with infos and instructions.
---	--

	<p>NOTE</p> <p>The selection of the following possibilities depends on the selected manufacturer and vehicle type:</p> <ul style="list-style-type: none">• Functions• Assemblies• Systems• Data
---	---

Proceed as follows to perform the automatic basic setting:




1. Insert the DT VCI into the vehicle's diagnostic connector.
Both LEDs of the DT VCI flash. The DT VCI is ready for operation.
2. Perform steps 1 to 10 as described in the section **Vehicle selection (Page 59)**.
3. Select **>Diagnostics<** in the main menu.
4. Select **Basic settings** under **> Function**.
5. Select the requested assembly.
6. Select the requested system.
7. Observe the information and instructions windows.
8. Call up the **>Information<** tab.
9. Follow the instructions on the screen.
10. Start the automatic basic setting with .
11. Regard the window with infos and instructions.
12. Confirm the window with infos and instructions with .
Communication to vehicle is being established.
13. Select further sub-categories where necessary.
14. Confirm the selection with .
15. Regard the window with infos and instructions.
16. Confirm the window with infos and instructions with .
Communication to vehicle is being established. Basic settings are made automatically.

The message *Basic setting successfully done* appears if the basic setting was successful.

6.4.7 Codings



Here you can code components and ECUs. Codings are necessary, if components were replaced or additional functions in an electronic system must be activated.

6.4.7.1 Performing Manual Coding Procedures




	<p>WARNING</p> <p>The ECU is not coded or is incorrectly coded</p> <p>Risk of death or serious injury as a result of the ECU not working or working incorrectly</p> <p>Material damage of the vehicle or the ambient area</p> <p>Regard the following when performing coding procedures:</p> <ul style="list-style-type: none"> • Some working procedures require a specific training e.g. workings on the airbag. • Regard the window with infos and instructions.
	<p>CAUTION</p> <p>Rolling of vehicle</p> <p>Risk of injury or material damage</p> <p>Proceed as follows before starting:</p> <ol style="list-style-type: none"> 1. Prevent the vehicle from rolling. 2. No gear is engaged. 3. Regard the window with infos and instructions.
	<p>NOTE</p> <p>The selection of the following possibilities depends on the selected manufacturer and vehicle type:</p> <ul style="list-style-type: none"> • Functions • Assemblies • Systems • Data

Proceed as follows to perform manual coding:

1. Insert the DT VCI into the vehicle's diagnostic connector.
Both LEDs of the DT VCI flash. The DT VCI is ready for operation.
2. Perform steps 1 to 10 as described in the section **Vehicle selection (Page 59)**.
3. Select **>Diagnostics<** in the main menu.
4. Select **Codings** under **> Function**.
5. Select the requested assembly.
6. Select the requested system.
7. Observe the info window.
8. Call up the **>Information<** tab.
9. Follow the instructions on the screen.



10. Start the manual coding with .
11. Regard the window with infos and instructions.
12. Follow the instructions on the screen.
13. Confirm the coding performed with .

6.4.7.2 Performing Automatic Coding Procedures

	<p>WARNING</p> <p>The ECU is not coded or is incorrectly coded</p> <p>Risk of death or serious injury as a result of the ECU not working or working incorrectly</p> <p>Material damage of the vehicle or the ambient area</p> <p>Regard the following when performing coding procedures:</p> <ul style="list-style-type: none"> • Some working procedures require a specific training e.g. workings on the airbag. • Regard the window with infos and instructions.
	<p>CAUTION</p> <p>Rolling of vehicle</p> <p>Risk of injury or material damage</p> <p>Proceed as follows before starting:</p> <ol style="list-style-type: none"> 1. Prevent the vehicle from rolling. 2. No gear is engaged. 3. Regard the window with infos and instructions.
	<p>NOTE</p> <p>The selection of the following possibilities depends on the selected manufacturer and vehicle type:</p> <ul style="list-style-type: none"> • Functions • Assemblies • Systems • Data

Proceed as follows to perform an automatic coding procedure:

1. Insert the DT VCI into the vehicle's diagnostic connector.
Both LEDs of the DT VCI flash. The DT VCI is ready for operation.
2. Perform steps 1 to 10 as described in the section **Vehicle selection (Page 59)**.
3. Select **>Diagnostics<** in the main menu.
4. Select **Codings** under **> Function**.
5. Select the requested assembly.
6. Select the requested system.
7. Observe the info window.
8. Call up the **>Information<** tab.
9. Follow the instructions on the screen.

10. Start automatic coding with .
Communication to vehicle is being established.
11. Regard the window with infos and instructions.
12. Confirm the window with infos and instructions with .
Coding is performed automatically.

The message *Coding successfully done* appears if the coding process was successful.

6.5 Vehicle Information

This menu provides the following information:


- Car History
Here you will find the diagnostic results.

6.5.1 Car History


This menu provides the diagnostic results to the present vehicle from the functions **>Trouble codes<**, **>Parameters<**, **>Basic settings<** and **>Codings**. This has the following advantages:

- You can evaluate the diagnostic results later.
- Compare previously performed diagnostics to present diagnostic results.
- You can show the customer the diagnostic results without needing to reconnect the vehicle.

6.5.1.1 Selecting Vehicles from the Car History



	<p>NOTE</p> <p>Diagnostic results automatically stored here can be retrieved only if the function Automatic Car History Transfer is set to >on< under Settings > Miscellaneous > Car History.</p>
---	---

Proceed as follows to select a vehicle from the Car History:

1. Select **>Vehicle selection<** in the main menu.
2. Select the  Car History tab.
3. Double-click the required vehicle to select.
The device will then automatically switch back to the main menu. The vehicle selected appears in the top toolbar.

6.5.1.2 Deleting Entries from the Car History

Proceed as follows to clear one or more entries from the Car History:



1. Select **>Vehicle selection<** in the main menu.
2. Select the  Car History tab.
3. Call up **Delete Car History** with .
A drop-down list appears.

Following functions are available:

- **Delete single entry**
- **Clear entire Car History**
- **All Older Than**





6.5.1.3 Deleting Single Entries and the Entire Car History

Proceed as follows to delete single entries and/or the entire Car History:

1. Activate the requested check box.
2. Confirm the deletion process with .
3. Observe the confirmation prompt.
4. Confirm the confirmation prompt with .
The selected entries will be deleted.

6.5.1.4 All Older Than








Proceed as follows to delete defined entries from the Car History:

1. Activate the check box **All older than**.
2. Open the drop-down list with .
3. Open the list under **Day** with .
4. Select the required day.
5. Repeat steps 3 and 4 for **Month** and **Year**.
6. Confirm the selection twice with .
7. Observe the confirmation prompt.
8. Confirm the confirmation prompt with .
The selected entries will be deleted.

6.5.1.5 Sending a Call for Help

Contact the Technical Help Line and request data here.


Proceed as follows to send a help call to the Hella Gutmann Technical Help Line:

1. Select **>Vehicle information<** in the main menu.
2. Call up **Car History** with .
3. Select the requested Car History file with  .
4. Call up the help call with .
5. If necessary, open a list under **Contact person** with  and select the required contact person.
6. Open the virtual keypad under **Call-back number** with .
7. Enter the required telephone number.
8. Confirm your entry with .

9. Activate the requested check box under **What do you want to do?**

If you have activated **Contact the Technical Help Line**, a Hella Gutmann colleague will call you back as soon as possible.








Technical documents such as repair instructions or wiring diagrams can be requested if you activate **Request data**.

	<p>NOTE</p> <p>You need to enter a telephone number and to tick at least one of the check boxes to be able to continue.</p>
---	--






Contacting the Technical Help Line


Here you can contact the Hella Gutmann Technical Help Line for getting support with diagnostic work. You have also the option to request technical documents, such as repair instructions or wiring diagrams.

Proceed as follows to send a help call to the Hella Gutmann Technical Help Line:


1. Select **>Vehicle information<** in the main menu.
2. Call up **Car History** with .
3. Select the requested Car History file with  .
4. Call up the help call with .
5. If necessary, open a list under **Contact person** with  and select the required contact person.
6. Open the virtual keypad under **Call-back number** with .
7. Enter the required telephone number.
8. Confirm your entry with .
9. Activate the check box **What do you want to do?** Activate the **Contact the Technical Help Line** check box.

If you have activated **Contact the Technical Help Line**, a Hella Gutmann colleague will call you back as soon as possible.


10. Continue with .
11. Open the selection window under **First registration:** with .
12. Open the list under **Day** with .
13. Select the day of the first registration.
14. Repeat steps 12 and 13 for **Month** and **Year**.
15. Confirm the selection with .
The selection will be saved automatically.
16. Continue with .
17. Select the required assembly or the required symptom.
18. If required, select additional sub-functions to provide a better definition of the problematic case.


19. Confirm the selection with .
An info window appears.

Here you have an overview of the information that has already been entered.

Add further symptoms with .


Delete the symptom selection with .

Use  to go back one step and change previous entries.

20. Continue with .


An input window appears.

Here you can enter a written request or message of any nature to the Hella Gutmann Technical Help Line.

	<p>NOTE</p> <p>To proceed, a text containing a minimum of 20 characters must be entered.</p>
---	---

21. Open the virtual keypad under **Problem/question/remark (at least 20 characters):** with .


22. Enter your text here.

23. Confirm your entry with .

24. Continue with .

An info window appears.

Here you have an overview of the information that has already been entered.

Use  to go back one step and change previous entries.









25. Send a help call with .














Car History data will be transferred.

Requesting Data

Here you can request technical documents, such as repair instructions or wiring diagrams.

Proceed as follows to request data:

1. Select **>Vehicle information<** in the main menu.
2. Call up **Car History** with .
3. Select the requested Car History file with  .
4. Call up the help call with .
5. If necessary, open a list under **Contact person** with  and select the required contact person.
6. Open the virtual keypad under **Call-back number** with .
7. Enter the required telephone number.
8. Confirm your entry with .
9. Activate the check box **What do you want to do?**, activate the **Request data** check box.
10. Perform steps 10-19 as described in the section **Contacting the Technical Help Line**.
The window **Data selection** is indicated.
11. Activate the check box for the required data type.
12. Open the list under **Systems** with .
13. Select the requested system.

14. Open the list under **Components** with  where necessary.
15. Select the requested component where necessary.
16. Open the virtual keypad under **Remark** with .
17. Enter your remark.
18. Confirm entries twice with .
An info window appears.
Here you have an overview of the information that has already been entered.
Add further data with .
- Delete the data selection with .
- Use  to go back one step and change previous entries.
19. Continue with .
- A drop-down list appears.
Add further symptoms with .
- Delete the symptom selection with .
- Use  to go back one step and change previous entries.
20. Continue with .
- An info window appears.
Here you have an overview of the information that has already been entered.
Use  to go back one step and change previous entries.
21. Send a help call with .
- Car History data will be transferred.


6.6 OBD

Indication of the individual OBD modes for petrol and Diesel vehicles as well as the pre-test of the German exhaust-emission check and the VW short trip.

OBD modes and OBD tests	
Pre-test of German exhaust-emission analysis	Quick test of the exhaust-gas relevant parameters of an OBD vehicle. This test should be done before the actual exhaust-gas emission inspection.
Readiness code	Indication of the type of diagnostic connector.
Parameters	Indication of all emission-relevant parameters. The number of the available parameters depends on the vehicle.
Freeze frame data	Indication of ambient data (rpm, coolant temperature) of the stored fault code.
Permanent trouble codes	Indication of all permanent trouble codes that are emission-relevant.
Delete trouble codes	Deletion of all trouble codes from "Mode 2/3/7".
Oxygen sensor test results	Check and evaluation of oxygen sensor function. This mode is not supported at CAN bus protocols.
Result of sporadic system test	Indication of manufacturer-specific parameters.

OBD modes and OBD tests	
Sporadic trouble codes	This mode displays all sporadic and emission-relevant trouble codes.
Actuator tests	Here you can actuate the actuators that have been determined by the manufacturer as emission-relevant.
Vehicle Information	Here you can call up vehicle and system information.
Inactive trouble codes	Here you can view freeze frame data as well as permanent and sporadic fault codes.

7 Measurements

	NOTE The use of the measuring technology menu requires the optionally available measurement module (MT 56).
---	---

Here you can select measured variables and channel. Then you can perform various measurements.


Measurement technology is a digital signal acquisition and output. This means that the voltage signal is detected and saved within a few microseconds. Only if there are enough values saved, the signal will be displayed as a curve on the screen.

7.1 Oscilloscope

Use the oscilloscope for measuring and/or depicting the following measured variables:

- Voltage
- Current
- Resistance

Current measurements are allowed exclusively using the amp clamp from Hella Gutmann. Depending on the required measurement, different clamps are to be used.

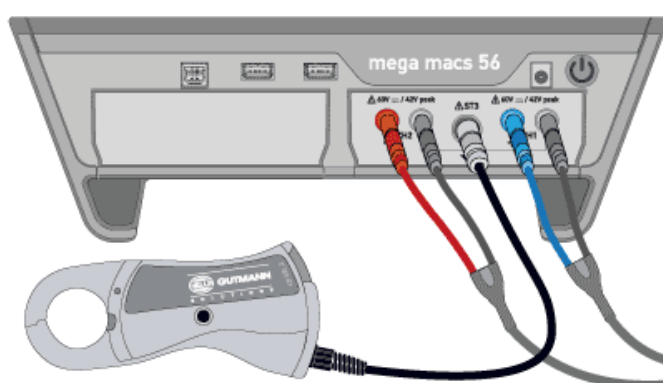
	CAUTION Overvoltage Fire hazard/danger of damage to the device and its surroundings Comply with the max. permitted voltage load of the oscilloscope channels: <ul style="list-style-type: none">• Alternating voltage (AC): max. 30 V• Direct current voltage (DC): max. 60 V
---	--

7.1.1 Oscilloscope Channels


The measurements module (MT 56) has 2 oscilloscope channels. With channel 1 (connections scope 1 and ST3), you can measure each of the measured variables indicated. With channel 2 (connection scope 2), it is only possible to measure voltage. This means you can measure the voltage together with any other measured variable.

7.1.2 Performing Oscilloscope Measurements

7.1.2.1 Connecting the Test Lead to the MT 56



7.1.2.2 Measuring Voltage or Resistance

	<p>CAUTION</p> <p>Overvoltage</p> <p>Fire hazard/danger of damage to the device and its surroundings</p> <p>Comply with the max. permitted voltage load of the oscilloscope channels:</p> <ul style="list-style-type: none"> • Alternating voltage (AC): max. 30 V • Direct current voltage (DC): max. 60 V
---	--

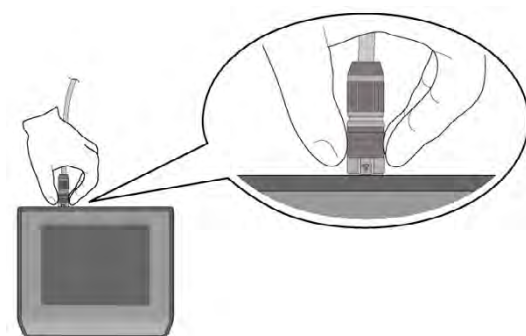
Proceed as follows to measure voltage or resistance:

1. Insert the test lead into MT 56 and connect it to the relevant component.
2. Select **>Measurements<** in the main menu.
3. Activate the check box for the desired measured variable and the oscilloscope channel.
4. Confirm the selection with **✓**.
Measurement will be started.

7.1.2.3 Measuring Current

Proceed as follows for current measurements:

1. Insert the electrical plug connection of the amp clamp with the arrow pointing down into the ST3 connection of the device.



2. Select **>Measurements<** in the main menu.
3. Activate the check box for **Current**.
4. Confirm the selection with **✓**.
5. Regard the window with infos and instructions.
6. Close the window with infos and instructions with **✕**.
The amp clamp is calibrated. Measurement will be started.
7. Closely grip the amp clamp jaws around the cable.
8. Should you use the green amp clamp (CP 40), black amp clamp (CP 200), or blue amp clamp (CP 700), then connect it with the arrow pointing towards the battery around all positive cables, or with the arrow pointing away from the battery around all negative cables respectively.
Current will be measured.

7.1.3 Setting Measuring Ranges

The measuring range can be set in three different ways in the device:

- **manual**
The user adjusts the measuring range.
- **automatic**
The measuring range is adjusted automatically once depending on the input signal.
- **continuously automatic**
The measuring range is continuously adjusted to the input signal.

At the beginning of each measurement you need to set the measuring range manually. Resistance measurements are excluded from this rule. Here the measuring range is being adapted automatically and continuously (**Auto Range** function active).

7.1.3.1 Manual Setting of Measuring Ranges

Proceed as follows to set all measuring ranges manually while measurement is in progress:


1. Set the measuring range for voltage and current (vertical axis) with **▼ ▲**.
2. Set the time period (horizontal axis) with **◀ ▶**.
3. Shift the zero line of the measuring range up or down, e.g., to measure negative voltage with **⏏ > ⏏**
or **⏏ < ⏏**.
4. Go one step back with **⏏**.

7.1.3.2 Automatic Setting of Measuring Ranges

If resistance is measured, then the measuring range cannot be set automatically.

Proceed as follows to set the measuring ranges for voltage, current, temperature, and pressure while measurement is in progress:

1. Start Auto Set with  > .

	<p>NOTE</p> <p>If the measurement signal changes during the ongoing measurement, the Auto Set function does <i>not</i> correct the measuring range automatically. Start the Auto Set function to have the measuring range adapted automatically.</p>
---	---




The MT 56 analyzes the incoming signal once. The measuring range will be set automatically.

2. Go one step back with .

7.1.3.3 Deactivating Automatic Measuring Range Adaptation for Resistance Measurement

As a standard feature, the measuring range for resistance measurements is adjusted automatically. This is realized with the **Auto Range** function. Deactivate the **Auto Range** function in order to be able to configure the measuring range manually.

Proceed as follows to deactivate **Auto Range**:

1. Call up Settings with .
2. Select **>Miscellaneous<**.
3. Open the list under **Auto Range** with .
4. Select **>off<**.
Auto Range is deactivated.
5. Confirm the selection with .
The selected measuring range will no longer be continuously adapted automatically. The measuring range can now be set manually.

7.1.4 Configuring the Trigger

The signal pickup is realized in the trigger mode if the time axis in the oscilloscope is set <1.0 s.





The depiction of the signal is **triggered** once the signal reaches a certain voltage point. As the device always fixes the voltage point at the same position on the screen, it appears as a still image to the human eye. In most cases, the default trigger settings are sufficient for expressive signal depiction. If the default trigger settings are insufficient, however, the depiction can be influenced by certain trigger parameters:

- Trigger mode
- Trigger edge
- Trigger level

7.1.4.1 Setting the Trigger Position

By adjusting the trigger position, you can shift the signal depiction to the left or to the right.


Proceed as follows to set the trigger position while measurement is in progress:

1. Open the trigger settings with .
The bottom toolbar is adjusted. The trigger position is identified by a blue cross.
2. Set the trigger position with  .
You can also click in the signal depiction to set the trigger position.
3. Go one step back with .




7.1.4.2 Setting the Trigger Mode

With the trigger mode, you can decide when the oscilloscope initiates the triggering. The following trigger modes are available:

- Automatic (standard setting)
The oscilloscope generates a triggering in regular intervals and depicts the signal on the screen, even if the recorded signal delivers no trigger conditions.
- Normal
The signal will be only displayed and actualized if it passes the manually prescribed trigger level. The former depiction remains on the screen until the signal passes the trigger level again.


	<p>NOTE</p> <p>To configure trigger mode, expert mode must be set to >on<.</p>
---	--

Proceed as follows to set the trigger mode while measurement is in progress:




1. Call up Settings with .
2. Select the **>Trigger<** tab.
3. Open the list under **Trigger mode** with .
4. Select **>normal<**.
5. Confirm the selection with .
The selection will be saved automatically.

7.1.4.3 Setting the Trigger Edge

Use the trigger edge setting to decide whether the triggering will be done with a positive edge (increasing voltage signal) or negative edge (decreasing voltage signal). The trigger edge is set to **positive** as a standard feature ex works. Therefore, a signal with an initially negative edge might not be displayed completely on the screen. Changing the trigger edge can improve signal depiction.


	<p>NOTE</p> <p>To modify the trigger edge, expert mode must be set to >on<.</p>
---	---

Proceed as follows to set the trigger edge while measurement is in progress:





1. Call up Settings with .
2. Select the **>Trigger<** tab.
3. Open the list under **Trigger edge** with .
4. Select **>positive<** or **>negative<**.
5. Confirm the selection with .
The selection will be saved automatically.

7.1.4.4 Setting the Trigger Level

The trigger level controls the voltage point at which triggering takes place. The trigger level is set to **>automatic<** as a standard feature ex works.

	<p>NOTE</p> <p>The expert mode must be set to >on< to be able to modify the trigger level.</p>
---	--

Proceed as follows to set the trigger level manually while measurement is in progress:




1. Call up Settings with .
 2. Select the **>Trigger<** tab.
 3. Open the list under **Trigger level** with .
 4. Select **>Manually<**.
 5. Confirm the selection with .
The selection will be saved automatically.
 6. Set the trigger level with .
- You can also click in the signal depiction to set the trigger level.

7.1.5 Other Functions

7.1.5.1 Calibrating Signals

Here you can set the signal line on the zero line. In this way, you can compensate for interference voltages and measuring range tolerances.

Proceed as follows to calibrate the signal while measurement is in progress:











1. Start the calibration with  **>** .
- The signal will be calibrated.
2. Go one step back with .

7.1.5.2 Measuring Signals

Measurement must be completed to be able to measure the signal in the **Guided measurement** function.

Here you can measure the signal. For this, the device defines two measuring points and determines their differential values.

Proceed as follows to measure the signal while measurement is in progress:

1. Open cursor settings with .
2. Use     to shift the cursor to the 1st measuring point.
3. Start the signal measurement with .
- The first measuring point will be fixed. The left value windows are now indicating the differential values of both measuring points. Before that, they indicated the position values of the first measuring point.
4. Use     to shift the cursor to the second measuring point.
5. Read the differential values of both measuring points in the left value windows.
6. Repeat steps 2 to 5 for further entries where necessary.



7. Go one step back with .

7.1.5.3 Zero Reset of Values

Here you can set the following value windows to zero simultaneously:

- Minimum
- Maximum
- Peak-to-peak

Proceed as follows to set the value window to zero while measurement is in progress:



1. Reset the values to zero with .
The selected value windows are set to zero simultaneously.
2. Go one step back with .

7.1.6 Other Configurations

7.1.6.1 Configuring Indications

Here you can switch on or off the indication of 9 measured variables for describing a signal.

Proceed as follows to set the indication while measurement is in progress:

1. Call up Settings with .
 2. Select **>Indication<**.
 3. Activate the check box for the requested measured variables.
A maximum of 8 measured variables can be displayed at the same time.
 4. Confirm the selection with .
- The corresponding measured values appear in the left part of the screen.




7.1.6.2 Activating the Expert Mode

Here you can activate expert mode, which is used to enable functions such as the following:


- Inversion
- Trigger mode
- Trigger edge
- Trigger level

Expert mode is set to **>off<** by default ex works.

Proceed as follows to activate the expert mode while measurement is in progress:




1. Call up Settings with .
2. Select **>Miscellaneous<**.
3. Open the list under **Expert mode** with .
4. Select **>on<**.
The expert mode is active.
5. Confirm the selection with .

7.1.6.3 Configuring the Coupling

	<p>CAUTION</p> <p>Overvoltage</p> <p>Fire hazard/danger of damage to the device and its surroundings</p> <p>Comply with the max. permitted voltage load of the oscilloscope channels:</p> <ul style="list-style-type: none"> • Alternating voltage (AC): max. 30 V • Direct current voltage (DC): max. 60 V
---	--


The coupling is used to set which shares of the input signal shall be indicated. If signals with direct-current voltage and alternating voltage interfere, the DC voltage signal can be filtered out by setting the coupling, e.g., when checking the alternator.

Proceed as follows to set the coupling while measurement is in progress:




1. Call up Settings with .
2. Select **>Miscellaneous<**.
3. Open the list under **Coupling** with .
4. Select **>Alternating voltage (AC)<** or **>Direct-current voltage (DC)<**.
 If you select **>Alternating voltage<**, the DC voltage share of the input signal is filtered out.
 If you select **>Direct-current voltage<**, the device indicates the complete input signal.
5. Confirm the selection with .
 The signal indication will be adapted.

7.1.6.4 Inverting the Signal

Here you can invert the signal indication so that all positive signals are indicated negative and all negative signals are indicated positive. This can make sense if a signal is displayed incompletely.

	<p>NOTE</p> <p>To modify Inversion, expert mode must be set to >on<.</p>
---	---

Proceed as follows to invert a signal:




1. Call up Settings with .
2. Select **>Miscellaneous<**.
3. Open the list under **Inversion** with .
4. Select **>on<**.
5. Confirm the selection with .
 The device indicates an inverted signal.

7.1.7 Recording Measurements

Every measurement taken will be recorded and can be saved if requested. A light blue bar in the top toolbar indicates how much of the memory space reserved for measurements has been used up. When the blue bar is full, measurements are overwritten with the latest data.







7.1.7.1 Saving the Measurement in Oscilloscope

Proceed as follows to save the ongoing measurement in the oscilloscope:

1. Start saving with .
2. Double-click .
3. Enter the requested name for the measurement.
4. Click  twice to confirm the input.
The measurement will be saved automatically.

7.1.8 Displaying Recorded Measurements

Proceed as follows to display a recorded measurement:

1. Select **>Measurements<** in the main menu.
2. Open Measured data folder with .
3. Select the requested measurement.
4. Confirm the selected measurement with .
The measurement is displayed.
5. Select the requested function:
 - Start the measurement display with .
 - Interrupt the measurement with .
 - Stop the measurement with .
 - Return to **Oscilloscope** with . The oscilloscope is opened with the settings made in the previous measurement.

8 Applications


An overview of the available applications is shown here.

8.1 Calculator

Perform general calculations here.

8.1.1 Activating the Calculator

Proceed as follows to make calculations:



1. Select **>Applications<** in the main menu.
2. Select **Calculator** with .
3. Perform the requested calculations.

8.2 Glossary

The glossary explains automotive technical terms, abbreviations and components.

8.2.1 Calling Up the Glossary

Proceed as follows to call up the glossary:

1. Select **>Applications<** in the main menu.
2. Select **Glossary** with .
3. Select the required tab with the initial letter of the word you are looking for.
You can also enter the search term directly with .
4. Double-click to the requested term.
An explanatory text is displayed.




8.3 Calculations

Here you can perform the the following conversions:

- Fuel consumption
- Piston speed
- Current/power output/resistance
- Conversion of technical units

8.3.1 Calling Up Calculations

Proceed as follows to call up calculations:

1. Select **>Applications<** in the main menu.
2. Select **Calculations** with .
3. Select the required calculation type.
4. Select the required size.
5. Open the virtual keypad with .
6. Enter the requested value.
7. Confirm your entry with .
8. Repeat steps 5 to 7 for further entries where necessary.
The calculation result is displayed under **Result**.

9 General Information

9.1 Troubleshooting

The following list shall help you to repair smaller problems yourself. Select the relevant problem description and check and perform the steps listed under **Solution** in sequence until the problem is solved.

Problem	Solution
The device does not boot.	<ul style="list-style-type: none"> • Check the connections of the power adapter and cable to the device and plug socket. • Ensure voltage supply.
The program hangs up or is without function.	<ul style="list-style-type: none"> • Briefly interrupt the voltage supply. Restart the device. • Check the present software for incorrect or missing files. • Perform a software update.
The device does not print.	<ul style="list-style-type: none"> • Switch on the printer. • Ensure that the printer is online. • Ensure the paper feed. • Exactly adjust the paper feed mode (continuous or rather single sheet). • Check the printer configuration. • Correctly connect the printer cable. • Exchange the printer cable for testing purpose. • Select another printer for testing purpose.
The oscilloscope indicates wrong values.	<ul style="list-style-type: none"> • Plug the test lead correctly into the MT 56. • Remove all cables except the test lead. • Attach the test lead correctly to the affected components of the vehicle. • Replace the test lead for testing purposes. • Connect the measuring channel (-) to the vehicle ground.
Communication to vehicle cannot be established.	<ul style="list-style-type: none"> • Select the correct vehicle by engine code. • Strictly follow the notes in the window with infos and instructions. • Check if 12 V voltage supply is ensured via the vehicle at pin 16 of the DT VCI (DT VCI may be defective). • Perform a DT VCI plug test.

9.2 Care and Maintenance

Like any device, the mega macs 56 Bike must be handled with care. Therefore regard the following:


- Clean the device regularly with mild cleaning detergents.
- Use commercial household cleaning detergents and a moistened, soft cleaning cloth.
- Replace damaged cables/accessories immediately.
- Always use original spare parts.

9.2.1 Replacing the Battery

For this, only use the battery offered by Hella Gutmann, because the use of different products may damage the device.


Proceed as follows to replace the battery:

1. Switch off the device and remove all connecting cables.
2. Push down and lift both release slides at the back of the device.
The battery is unlocked.
3. Remove the battery.

	NOTE Pay attention that the latches on the left and right are engaged in the recesses.
---	--

4. Insert the new battery into the device.
5. Slightly push the battery until it clicks into place.
6. Switch on the device again.

9.3 Disposal

	NOTE The guidelines listed here is exclusively valid in Europe.
---	---

In compliance with Directive 2012/19/EU of the European Parliament and Council of 4 July 2012 relating to Waste Electrical and Electronic Equipment (WEEE), and the German national statute governing the distribution, return and environmental disposal of electrical and electronic equipment (Electrical and Electronic Equipment Act – ElektroG) of 16 March 2005, we are obliged to take back this device, distributed by us after 13 August 2005, at the end of its service life free of charge and to dispose of it in accordance with the above-mentioned directives.

Because this device is equipment that is used exclusively commercially (B2B), it must not be handed over to a public disposal facility.


The device can be disposed of at the following address (specifying the date of purchase and the device number):

Hella Gutmann Solutions GmbH
Am Krebsbach 2
79241 Ihringen
GERMANY

WEEE reg. no. DE 25419042
 Phone: +49 7668 9900-0
 Fax: +49 7668 9900-3999
 Mail: info@hella-gutmann.com

9.4 Technical data of the mega macs 56 Bike

9.4.1 General Data


Supply voltage	12-15 V 
Current consumption	max. 4 A
Battery charging voltage	12.5-18 V
Battery	Li-Polymer battery, 7.4 V, 1000 mAh, rechargeable
Battery capacity	44.64 Wh / 6200 mAh
Display	Design: TFT Resolution: 1024 x 768 XGA Size: 10.4"
Input	Touch screen
Ambient temperature	Recommended: 10-35 °C Working range: 0-40 °C
Compatibility	asanetwork
Weight	2200 g incl. battery and module
Dimensions	310 x 265 x 100 mm (H x W x D)
Type of protection	IP20
Interfaces	<ul style="list-style-type: none"> • 1x USB device 2.0 (max. 480 Mbit/s) • 2x USB host 2.0 (max. 480 Mbit/s) • Bluetooth class 1 (max. 3 Mbit/s) • WLAN • 2 module slots
Range	inside: 3-10 m outside: max. 50 m

9.4.2 DT VCI


Rated current	200 mA
Voltage supply	12-15 V (+/- 10%)

Ambient temperature	Recommended: 10-35 °C Working range: 0-45 °C
Dimensions	110 x 50 x 26 mm (H x W x D)
Type of protection	IP20
Data transfer rate	max. 3 Mbit/s
Frequency band	2.4 GHz
Interfaces	<ul style="list-style-type: none"> • Bluetooth class 1 • Micro USB
Range	inside: 3-10 m outside: max. 50 m

9.4.3 Measurement Module

Supply voltage	5 V  (through module interface)
Power input	2.5 W
Current consumption	max. 500 mA, standard 300 mA
Ambient temperature	Recommended: 10-35 °C Working range: 0-40 °C
Suitable for humid environment?	No
Altitude	max. 2000 m above NHN (normal height null)
Relative air humidity	approx. 10-90 %
Continuous operation	Yes
Weight	Approx. 220 g
Dimensions	40 x 110 x 140 mm (H x W x D)
Type of protection	IP20
Bandwidth	max. 100 kHz
Sampling rate	1 MSa/s
Amplitude resolution	12 bit
Overload protection	max. 200 V
Measuring channels	2

Measured variables	<ul style="list-style-type: none"> • Voltage • Current (external clamp meter) • Resistance
Interfaces	<ul style="list-style-type: none"> • 4x safety socket 4 mm (2 per measuring channel) • 1x ST3 (12-pin) ST3 connection: <ul style="list-style-type: none"> • 6x communication • 1x voltage inlet 5 V • 1x Voltage outlet +17 V • 2x scope (+/-) • 1x Hardware registration (coding) • 1x Ground

Vertical deflection factor	
Operating mode	Channel 1 or channel 2 single, channel 1 and channel 2 parallel
Tolerance	5 % from the end of range
Input impedance	0.5 MOhm
Input coupling	DC, AC
Input voltage	60 V  / 42 V peak

Range	
Current	<ul style="list-style-type: none"> • Blue clamp (CP 700) <ul style="list-style-type: none"> – Measuring range: ± 700 A – Current load: max. 25 mA • Green clamp (CP 40) <ul style="list-style-type: none"> – Measurable current: -10 - 40 A – Current load: max. 25 mA
Resistance	<ul style="list-style-type: none"> • Measuring range: 10 Ohm - 1 MOhm • Measurable resistance: approx. 1 MOhm

Horizontal deflection factor	
Time coefficient	5 ms - 200 s
Tolerance	100 ppm

Trigger	
Trigger mode	automatic (standard), normal
Trigger level	automatically: The trigger level is adapted to the input signal. manually: The trigger level can be selected individually.

Trigger channel	Scope 1: Standard Scope 2: Individually
Trigger edge	positive negative

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1 STUECK/PIECE(S)



9XQ 460 990-371

Made in Germany