



ECU Diagnostics Software



User's Manual

Diagnostics software
(as of Version 2.1.12)



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The ECU diagnostics software of HJS Emission Technology GmbH & Co. KG is to be used solely in conjunction with HJS diesel particulate filter systems (DPF® systems) and HJS SCR/SCRT® systems! The latest version of the software can be downloaded from www.hjs.com.

Dear customer!

The ECU (Electronic Control Unit) diagnostics software is required for installing, servicing and troubleshooting with an exhaust-gas aftertreatment system from HJS. With the aid of a commercially available laptop computer and a diagnostics cable, the diagnostics software can be used to communicate with the HJS ECU of the DPF® system or with the SCR dosing pump of a SCR/SCRT® system. Data can be read out, commands given and actions executed. The program is split up into different modules for recording characteristic values and the procedures of putting the system into operation, maintenance and troubleshooting. This manual provides you with an overview of the main functions of the software.

In view of the fact that the software is the subject of continuous improvement, certain points described in this manual may differ slightly from the software version you are running on your computer. No part of this document may be stored in a database or transmitted in any form (electronically, photomechanically or on a sound recording medium) without the prior written permission of HJS Emission Technology GmbH & Co. KG.

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We reserve the right to make technical changes.
Date: 08/2017



HJS-ECU



SCR dosing pump



General information

Prerequisites for using the ECU diagnostics software

PC

Compatibility with Windows versions Windows XP, Windows Vista, Windows 7 and Windows 10
Minimum screen resolution: 1024x768

HJS ECU for exhaust-gas aftertreatment systems

For all systems based on the HJS ECU as of software release 0.10.157
SMF®-AR, CRT®, FBC, SCRT®

Hardware

Diagnostics cable: all versions

Software:

Microsoft.Net 3.5

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General information on ECU diagnostics

Components and accessories

> The following components are required to perform diagnostics on the HJS ECU (together with a SMF®/CSMF diesel particulate filter system or SMF®-AR and FBC systems):

- Commercially available PC running Windows XP, Windows Vista, Windows 7 or Windows 10
- ECU Diagnostics Software 2010 (Version 2.1.11 or higher)
- ECU diagnostics kit, incl. diagnostics cable with serial connector (1) or USB connector (2).

In addition, the following components are required for diagnostics on a SCR/SCRT® system with SCR dosing pump:

- UDA2 diagnostics kit, incl. Peak PCAN-USB (3) and adapter cable (4)

! A number of functions of ECU Diagnostics Software 2010 require an activation key. Please contact Support. The driver for the diagnostics cable with USB connector and a user guide with installation hints can be found on the CD supplied.

Safety instructions and warnings



These safety instructions must be observed for the sake of your own safety and the safety of others.



General instructions and additional pieces of information must be observed in order to prevent damage to the vehicle or the exhaust-gas aftertreatment system.



All work procedures with the HJS ECU diagnostics software must be carried out by qualified staff of a vehicle workshop.



The internal components of your electronics can become damaged by electrostatic discharges.





General information



The HJS system contains components (HJS ECU, HJS Service Unit, and sensors) that can be damaged or destroyed by electrostatic discharge (ESD). For this reason, whenever handling components of the HJS system, always take the necessary precautionary measures against electrostatic discharge (ESD) as laid down in EN 61340-5-1 and EN 61340-5-2. Always follow the ESD-related instructions when installing and putting the HJS system into operation, in order to prevent damage to the unit and the entire system.

The internal components of your electronics can become damaged by electrostatic discharges. To prevent such damage from occurring, you must conduct static electricity out of your body by, for example, touching an uncoated metal surface before you touch electronic components of the system (e.g. cables). This measure of touching uncoated metal surfaces must be repeated regularly while working on the system, in order to discharge static charges that may build up in the body in the interim periods. Measures taken in the electronics themselves against static discharges and electrical fields are described in EN 61340-5-1. Please follow all instructions strictly.

Installing the ECU diagnostics software / Installing the PEAK OEM driver

> The ECU diagnostics software requires Microsoft's .NET Framework as its runtime environment. This software package from Microsoft will in most cases already be installed on your PC. If not, you can download the latest version from the Microsoft website free of charge.

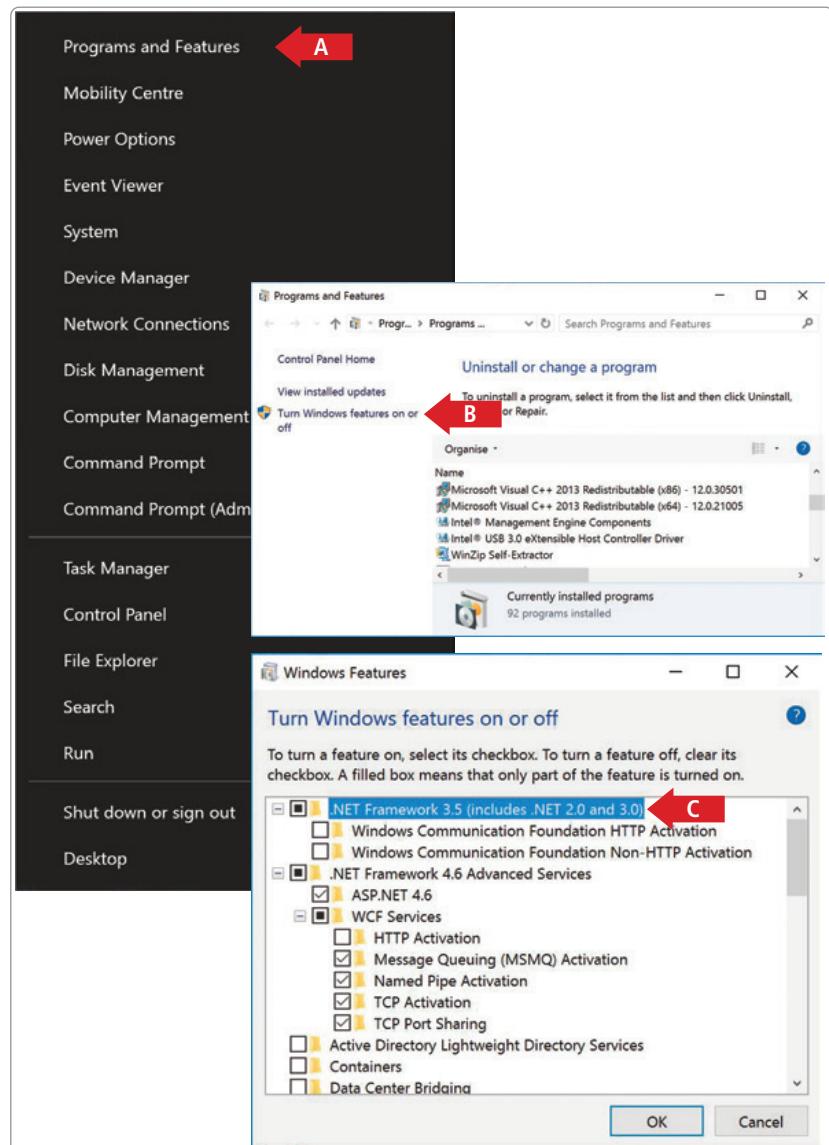
! The steps necessary to do this are described in the relevant documentation from Microsoft.

> You are now ready to install the ECU diagnostics software, which you do by double-clicking the "setup.exe" file (1) on the Installation CD. The latest version of the software can also be downloaded from HJS's website under Service & Customers / ECU Diagnostics.

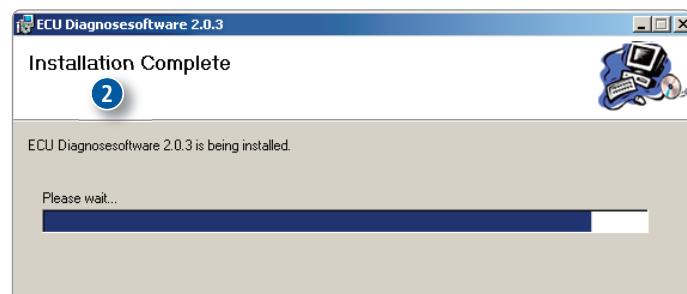
> An installation wizard (2) then navigates you through the steps to be followed.

! During the installation process, a check is made to see if a PEAK OEM driver is already installed on the computer. If it is not installed, installation of the PEAK OEM driver is started. The work steps that follow must be observed!

! If the PEAK OEM driver is installed on the computer, installation of the ECU diagnostics software is completed and the software is ready for use (see also end of this section).



Name	Größe	Typ	Geändert am
dotnetfx		Ordner	19.07.2010 11:05
Info		Ordner	19.07.2010 11:37
Autorun	1 KB	Setup-Informationen	19.07.2010 09:54
ECUDiagnoseSoftwareSetup	13.965 KB	Windows Installer-P...	19.07.2010 09:54
logo_hjs_icon	1 KB	ACDSee ICO Bild	14.04.2010 09:59
setup	428 KB	Anwendung	19.07.2010 09:53



Installing the ECU diagnostics software

> We recommend that you do not connect the PCAN-USB adapter until after the driver has been installed.

> The Windows operating system indicates that it has found new hardware and depending on the version of Windows you are running, starts an installation wizard. If necessary, confirm the steps for initialising the driver.

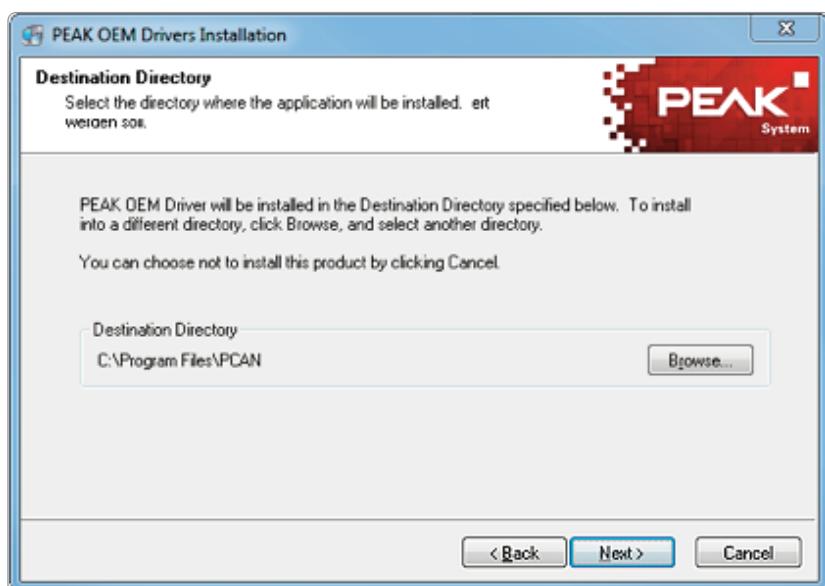
> Starting installation



> Accepting the license agreement

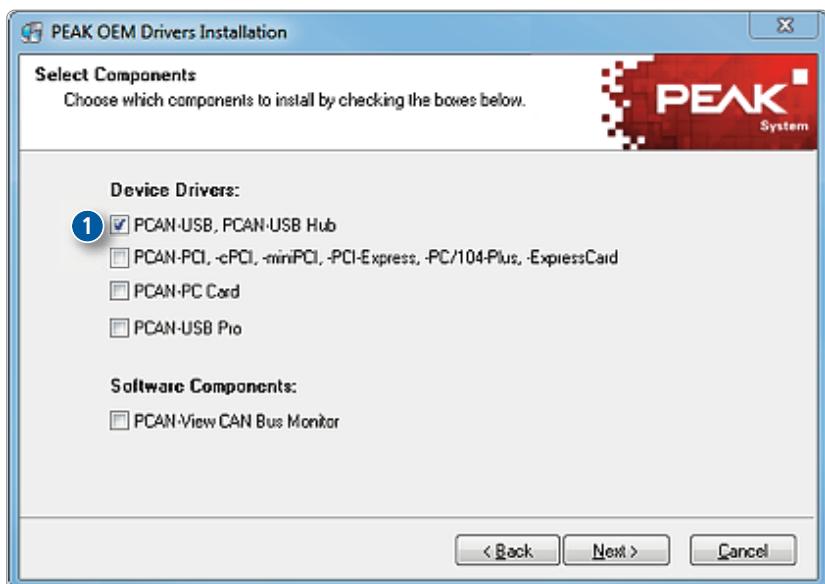


> Selecting the destination directory

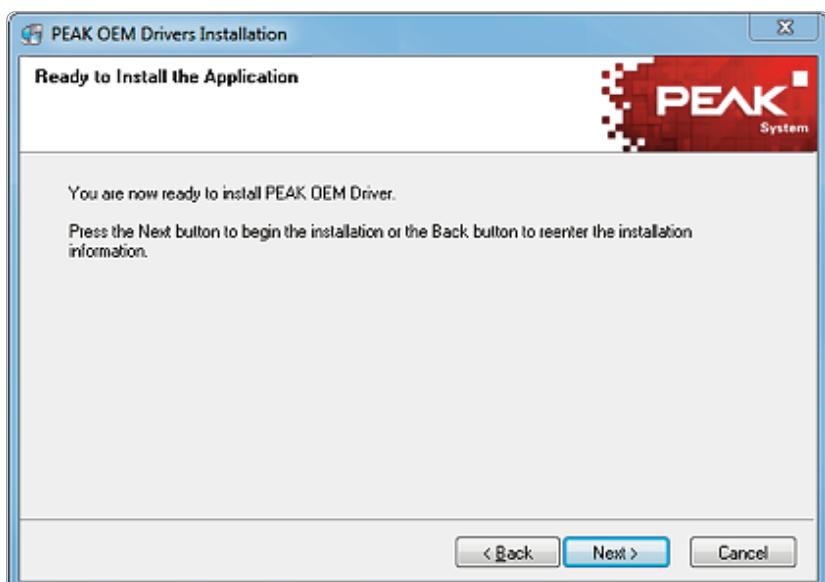


> Selecting the driver to install

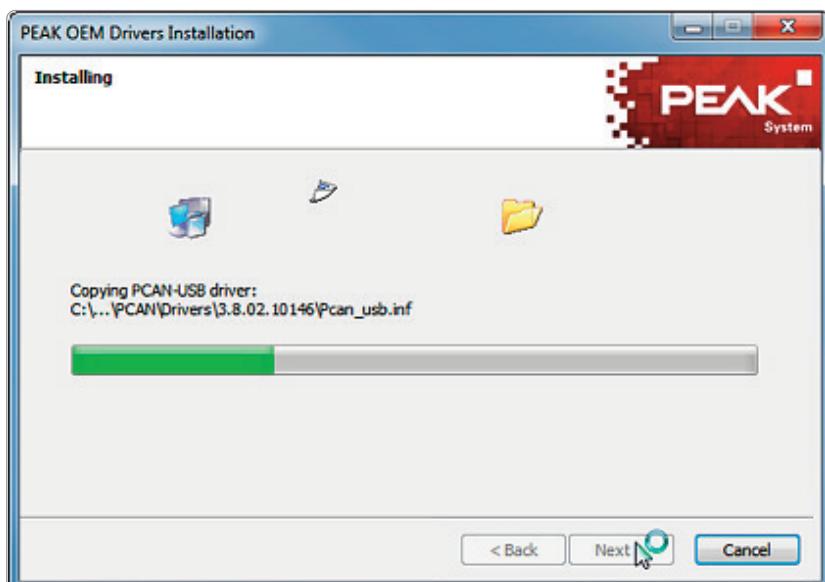
! Please select only the PCAN-USB driver (1) as illustrated. Selecting one of the other drivers listed can lead to failure of the installation routine!



> Prompt for starting installation

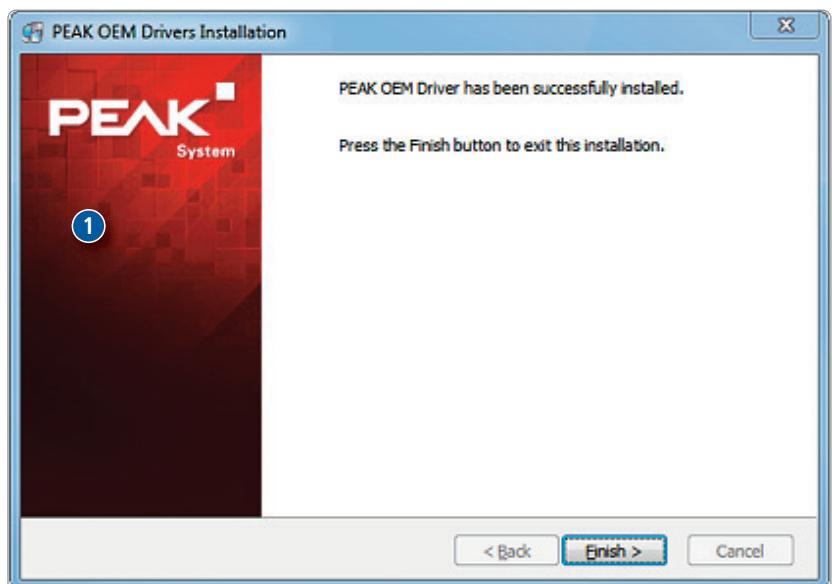


> Driver installation

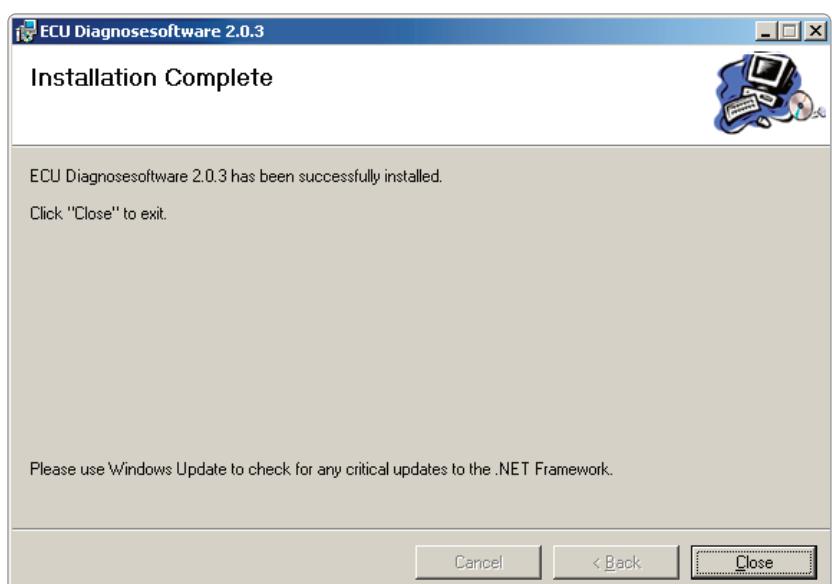




> Finishing driver installation



> Once installed, you can start the ECU diagnostics software either from the icon on the desktop or from Programs after clicking the Start button.



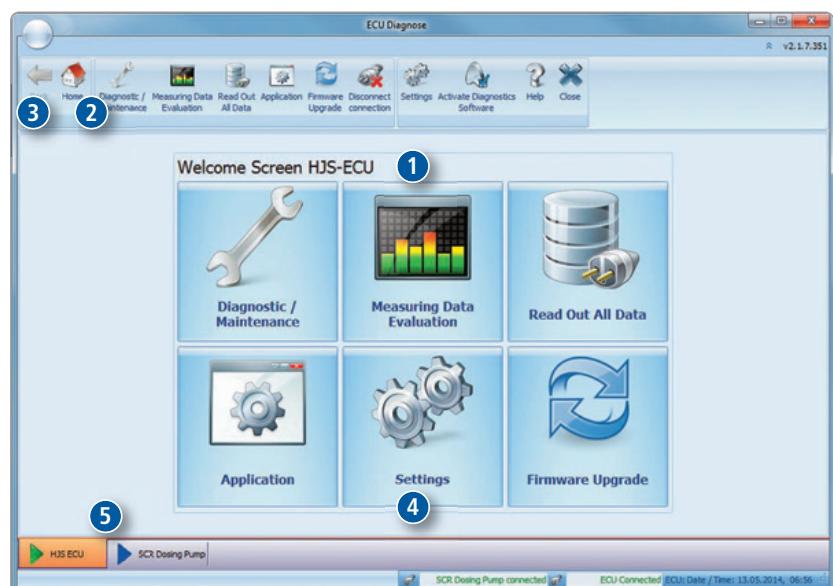


ECU Diagnostics Software

First steps

> When you start the ECU diagnostics software, the start screen of the user interface appears on the monitor (1). This start screen lets you reach all the software modules required. By clicking the [Home] button (2) in the top toolbar, you can return to this start screen whenever you want. Clicking the [Back] button (3) will display the last screen you used.

> Before you use the ECU diagnostics software for the first time, you have to make a number of basic settings via the [Settings] button (4). You can switch between the HJS ECU and SCR dosing pump diagnostics modules by means of the two tabs (5) at the bottom of the screen [HJS-ECU] and [SCR dosing pump].

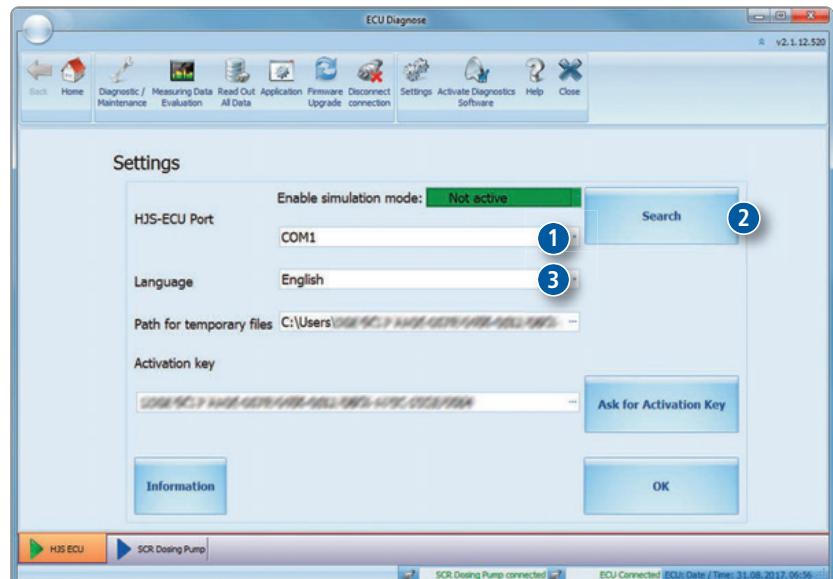


Port

> The first setting to make is to select the COM port (1) to be used. If the computer is already connected to the ECU by the HJS diagnostics cable and the vehicle's ignition is on, you can also use the automatic search function (2). If not, you have to select the COM port or virtual COM port of the USB-RS232 adapter.

Language

> The language used by the ECU diagnostics software is chosen automatically based on the system language set in your computer. Optionally, you can select a different language here (3).

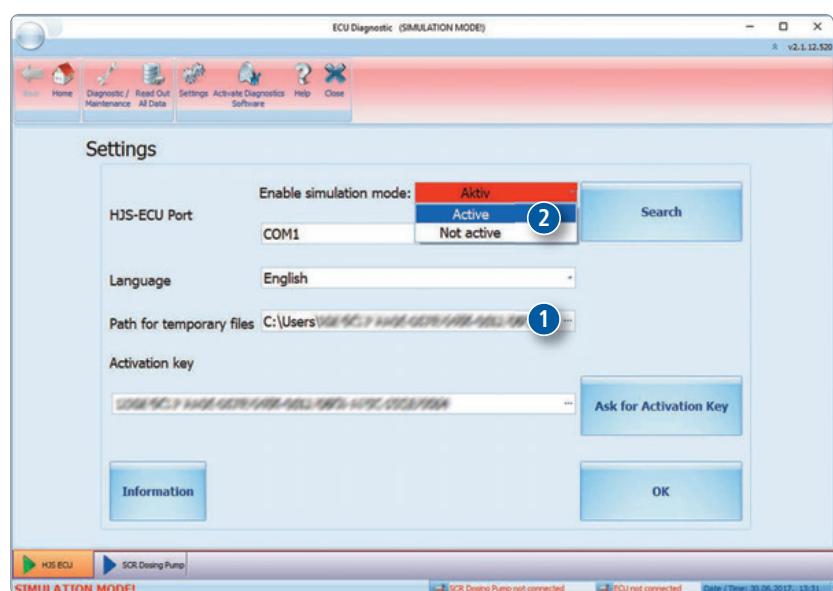


Path for temporary files

> All temporary files generated by the ECU diagnostics software are saved to this path (1). This path can be changed if necessary.

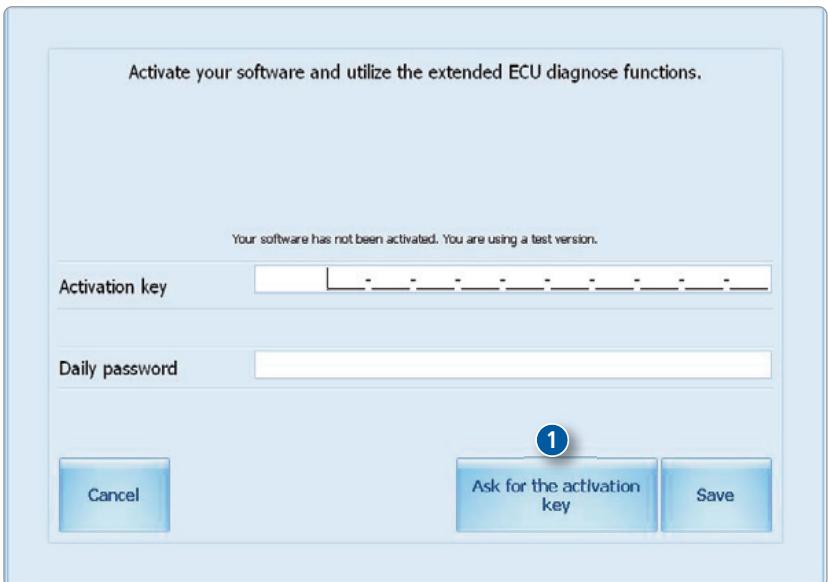
Simulation mode

> Under (2) the diagnostic software can be used in simulation mode.



Activation key, step 1:

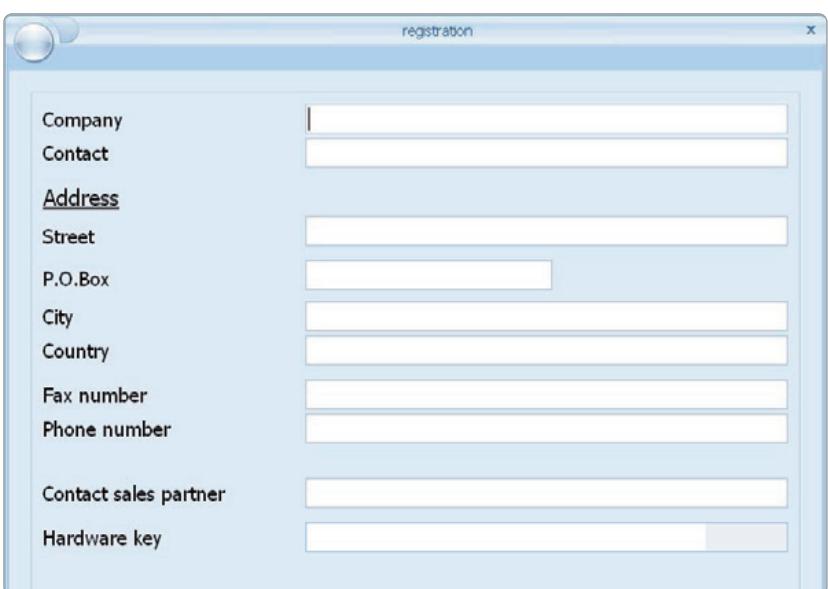
> For safety reasons, you can only access basic functions in the ECU diagnostics software if you have not registered it. Functions such as measured data evaluation and maintenance mechanisms are not supported until the software has been registered and activated. You register the software by clicking the [Ask for the activation key] button (1).



Activation key, step 2:

> All registration fields have to be filled in correctly for registration to be successful.

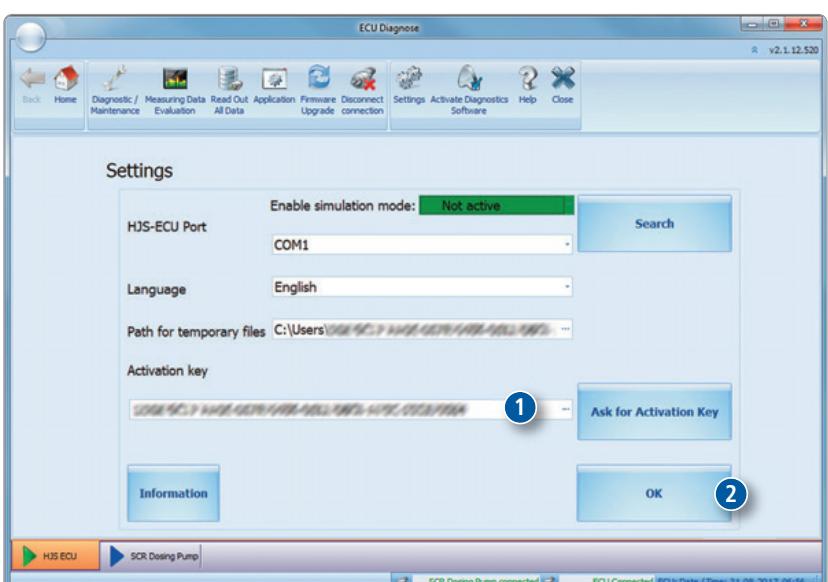
> After filling in the necessary details for registration, you then have to contact the sales partner responsible by e-mail, phone or fax in order to request an activation key.



Activation key, step 3:

> Once you have entered the activation key (1), all necessary functions the software offers are available for you to use.

> Click the [OK] button (2) to complete registration.



Diagnostics/Maintenance of the HJS ECU

! This section of the User's Manual relates to diagnostics/maintenance of the HJS ECU made by HJS Emission Technology GmbH & Co KG.

You can switch between the HJS ECU and SCR dosing pump diagnostics modules by means of the two tabs (1) at the bottom of the screen [**HJS-ECU**] and [**SCR dosing pump**].

> The [**Diagnostics / Maintenance**] module (2) is intended specifically for diagnosis and maintenance purposes.

! This module can only be used once the PC has been connected to an HJS ECU by means of the HJS diagnostics cable and the vehicle's ignition has been switched on.

Connecting the diagnostics software to the ECU

> The cable harness includes the diagnostics connector (1) for the ECU.

> Please refer to the User's Manual for the position of the connector in the vehicle.

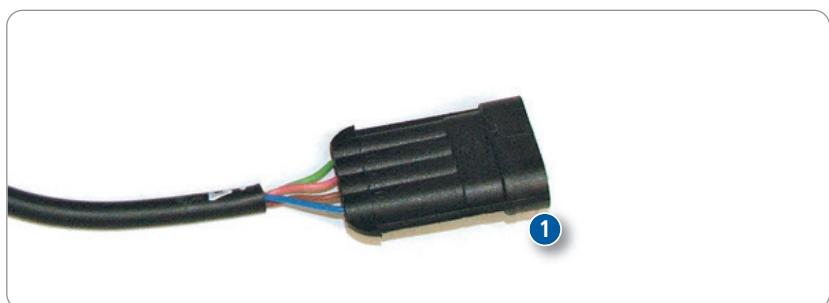
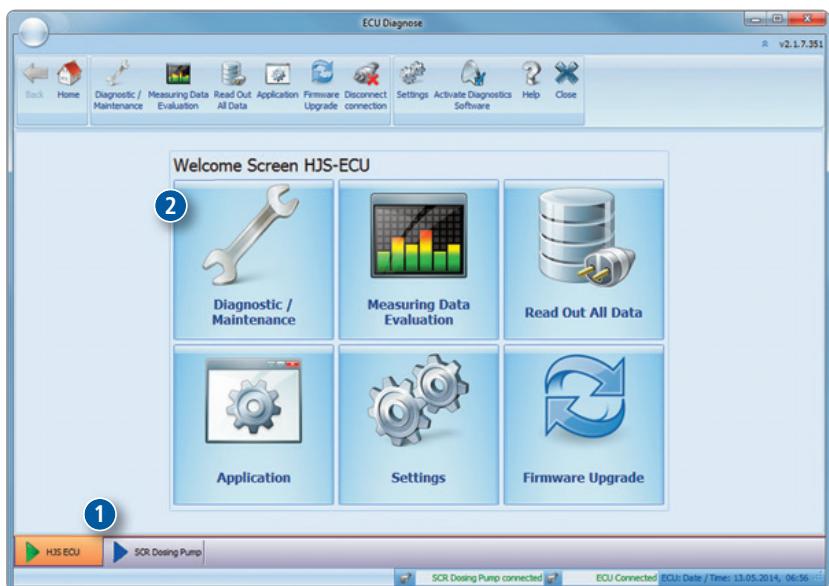
! In the case of the universal system, the 4-pin connector on the display module (2) also serves as the diagnostics connector.

> Make the connection between the PC and the diagnostics port using the diagnostics cable with serial connector (3) or USB connector (4).

> Make the connection between the ECU diagnostics software and the ECU.

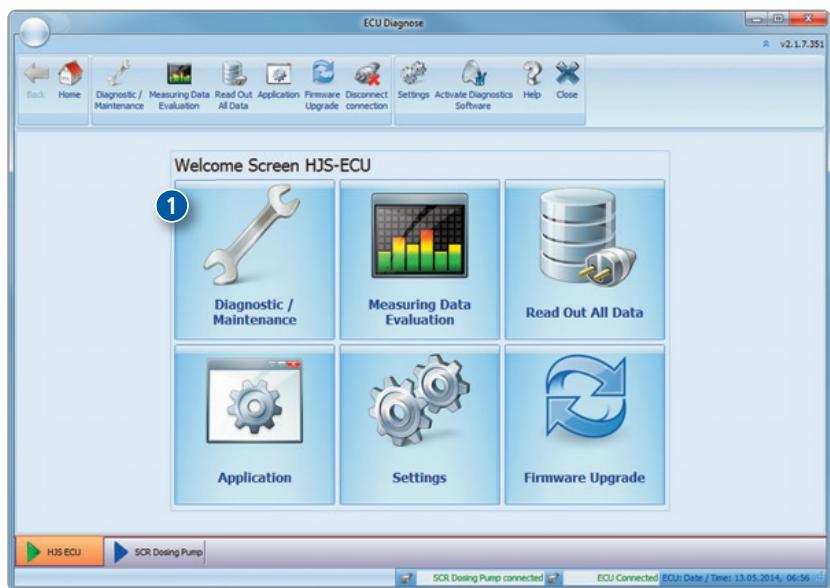
> Switch on the ignition of the vehicle and start the diagnostics program.

> In the case of systems with a display module integrated, the plug connection has to be disconnected first in order to connect the HJS diagnostics cable.



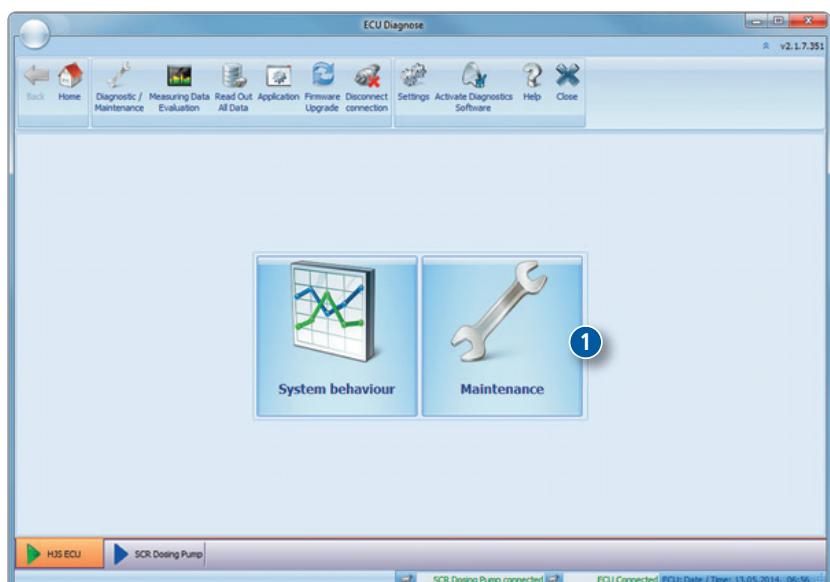


> Click the [Diagnose / maintenance] button (1). The software now connects to the HJS ECU. This step may take a few seconds.



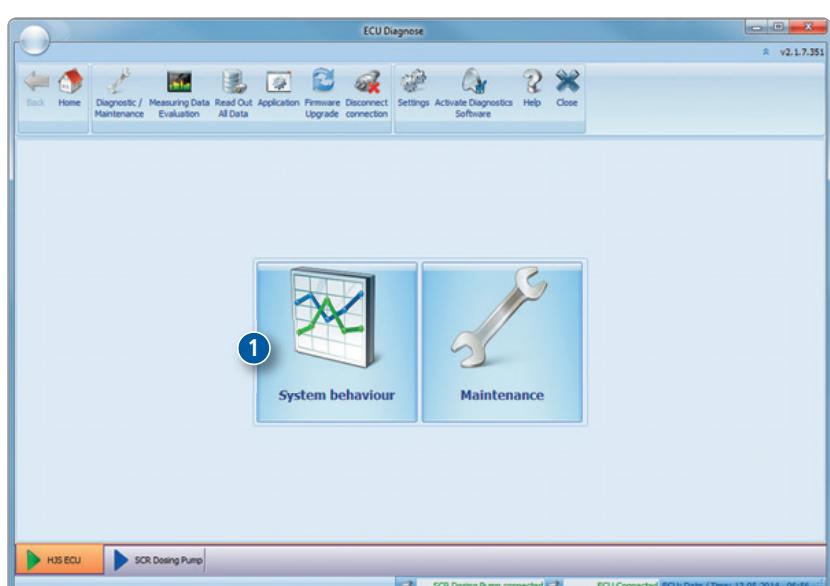
Maintenance

> The [Maintenance] module (1) lets you confirm that a filter cleaning operation or additive service has been carried out. The details of these operations are described in the maintenance documentation supplied with your system.



Diagnostics via "System Behaviour"

> The [System behaviour] module (1) enables you to analyse all aspects of your system's behaviour.





Diagnostics/Maintenance of the HJS ECU

System behaviour ①

Actual value	Production date	Serial number	HW Version	SW Version	CFG Version	KF Version
Operating voltage 24,260 V	19.8.2015	6011742	1.36a	1.17.009	21089.10.009	21089.10.009
Differential pressure 0 mBar						
Temperature before f 13,9 °C						
Air mass short						
D+/r.p.m. signal 0 /20						
Tank fuel content missing						
Revolutions per minut 0 rpm						
Additive consumption 1 ml						
Additive in filter 0 ml						
Additive concentration 0,000 ppm						
Additive consumption 20,000 ppm						
Last regeneration before missing						
Heating capacity - hez 0,0 W						
Heating capacity - hei 0,0 W						
Heating status 0x0000						
Electricity - heater 1 0,0 A						
Electricity - heater 2 0,0 A						
Status of metering system 0x04D4						

Error ②

Drag a column header here to group by that column

ID	Event name	Status	First a...	Last ap...	Appear...	Quantity
2	Error: tank senso...	Active	19.08.2...	20.08.2...	20.08.2...	5403
7	Error:metering s...	Active	19.08.2...	19.08.2...	19.08.2...	63
10	Error:metering s...	Active	19.08.2...	25.08.2...	24.08.2...	63
32	Error:Mass air fl...	Active	19.08.2...	19.08.2...	19.08.2...	65535
63	Error:No Configu...	Inactive	13.07.2...	13.07.2...	13.07.2...	0

Behaviour ③

Behaviour

- > Regeneration requirement
- Continuous metering
- Dose increase
- Warning light red

Start of regeneration

10 dosing pulses

Delete error log

Pressure sensor calibration

Export / printing

Guided troubleshooting

④

⑤

⑥

⑦

Operating voltage (V)

Temperature

HJS ECU SCR Dosing Pump

SCR Dosing Pump connected ECU Connected ECU: Date / Time: 25.08.2015, 09:25

- > How the various commands function depends on the HJS system connected. With some systems, certain commands may be inactive.
 - > The following real-time information is displayed:
 - (1) Instantaneous system data (actual values that are displayed graphically when selected)
 - (2) Instantaneous error (or errors that were active) in HJS system
 - (3) Instantaneous system behaviour
 - > The button on the right-hand side (4) can be used to send specific system commands to the HJS ECU.
 - > The [Export / printing] function (5) lets you generate an overview of the system's behaviour (as a PDF). This information is necessary in order, among other things, to be able to offer the best possible support in the case of a complaint or a request for support.
 - > For all shown errors further information to the possible root causes as well as recommendations for counter actions can be found at the (6) guided troubleshooting.
- > The configuration number (7) can be used to determine the set exhaust gas aftertreatment technology and the additive used. Numbers outside this range are customer-specific configurations.
- > Pressing the [Home] button in the top toolbar will take you back to the start screen.

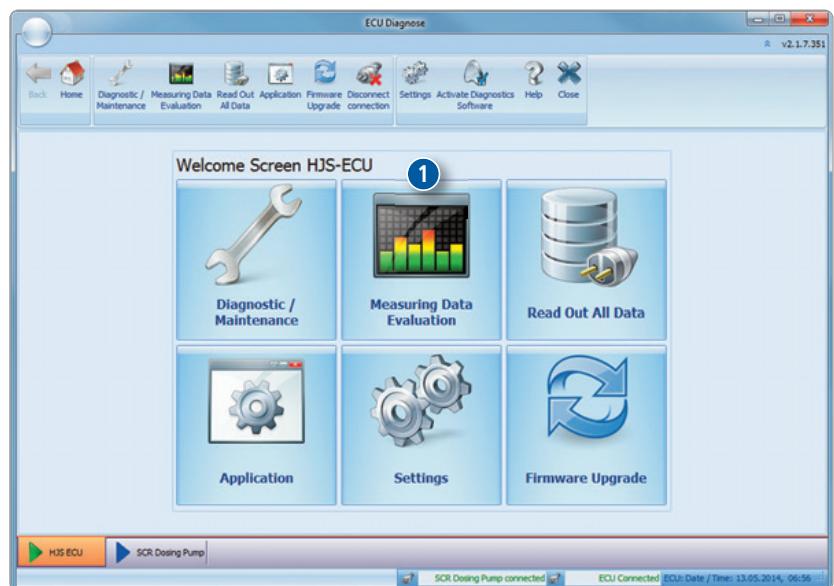
Technology	Additive type	CFG-No.-area
SMF-AR/ IKD	F51	1000 - 1999
	DT8	20000 - 22000
	DT8i	18000 - 19999
FBC	F51	253 - 254
	DT8	353 - 354
	DT8i	475 - 476

Measured Data Evaluation of the HJS ECU

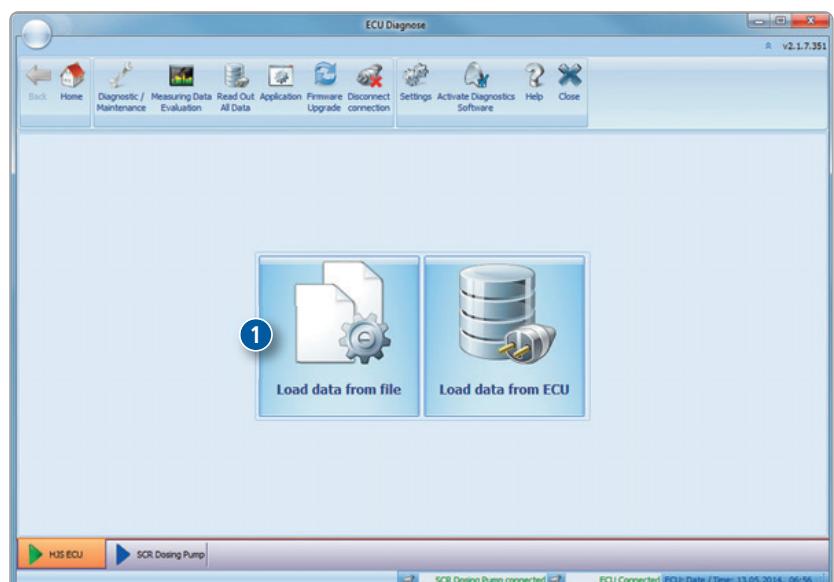
! This section of the User's Manual relates to measured data evaluation of the HJS ECU made by HJS Emission Technology GmbH & Co KG.

> The [Measured Data Evaluation] module (1) lets you read and evaluate the system data stored in the HJS ECU (logger function).

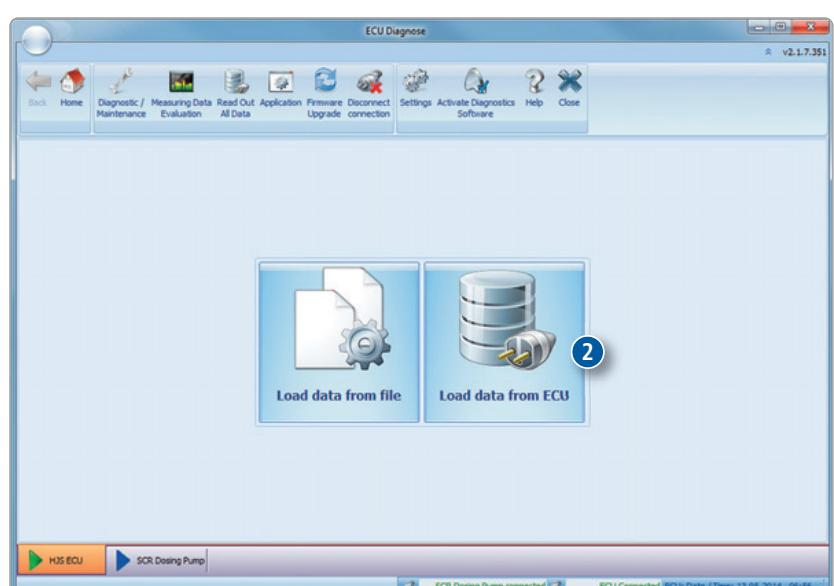
! You require an activation key to be able to select and use this function.



> By clicking the [Load data from file] button (1), you can retrieve data stored on the PC and display the evaluation of these data.



> The [Load data from ECU] button (2) enables you to load the measured data from the HJS ECU connected. The vehicle's ignition must be switched on for this function. This procedure can take up to 15 minutes



Measured Data Evaluation of the HJS ECU

The screenshot shows the 'Measuring Data Evaluation' screen of the HJS ECU software. The interface is organized into several sections:

- Top Toolbar:** Includes icons for Back, Home, Diagnostic / Maintenance, Measuring Data Evaluation, Read Out All Data, Application Firmware Upgrade, Disconnect connection, Settings, Activate Diagnostics Software, Help, and Close.
- Left Panel (Acquisition):** A list of system parameters with checkboxes:
 - Differential pressure MIN (mBar)
 - Differential pressure AVG (mBar)** (selected)
 - Differential pressure MAX (mBar)
 - Temperature before filter AVG (°C)
 - Revolutions per minute AVG (rpm)
 - Air mass AVG (kg/h)
 - Heating capacity - heater 1 AVG (W)
 - Heating capacity - heater 2 AVG (W)
- Central Table:** System parameters table with columns: Production date, Serial number, HW Version, SW Version, CFG Version, and KF Version. The table shows the following data:

Production date	Serial number	HW Version	SW Version	CFG Version	KF Version
05.08.2011	6000653	1.36a	1.06.008	466.1.008	466.1.008
- Middle Section:** An error log table with columns: Date/Time, E..., Error name, Error / event, Status, and various status codes. The table lists numerous entries from December 2011 to January 2012, such as 'Login', 'order', 'Regeneration', etc.
- Right Side:** Buttons for Save (7), Print (8), and Guided troubleshooting.
- Bottom Graph:** A line graph showing 'Differential pressure AVG (mBar)' over time from December 2011 to January 2012. The Y-axis ranges from 0 to 100 mBar. A red vertical line highlights a specific event labeled 'Error ring'. The graph also shows 'Differential pressure AVG (mBar)Missing' data points.
- Status Bar:** Shows 'HJS ECU' and 'SCR Dosing Pump' status indicators, 'SCR Dosing Pump connected' and 'ECU Connected' messages, and the date/time 'ECU: Date / Time: 25.08.2015, 09:26'.

> This screen has a similar setup and layout to the "System Behaviour" screen. The various tabs in the centre section allow you to view the following system parameters:

- (1) Instantaneous error in the HJS system
- (2) Fault memory (error history)
- (3) Instantaneous system behaviour

> You can sort the order in which the entries are displayed by selecting one of the columns in the area above the table marked blue.

> The left-hand section of the screen lets you select the system data recorded by the HJS ECU (4) and display them in the form of a graph. You can choose from a number of options on which to base how the data are visualised, e.g. according to time.

> The bottom section (5) of the screen contains the graph or graphs you select. The [Statistics] tab (6) also enables you to display characteristic values, such as a mean value or frequency distribution, in addition to the system data selected. A zoom function also allows you to analyse the data more closely.

> Clicking the [Save] button (7) on the right-hand side saves the measured data to a file. This information is necessary in order, among other things, to be able to offer the best possible support in the case of a complaint or a request for support.

> The [Print] button (8) lets you generate an overview of the system's behaviour (as a PDF).

> Pressing the [Home] button in the top toolbar will take you back to the start screen.



Other buttons

[Read-out all data] (1)

> This button executes a function that reads out all data from the ECU and the SCR dosing pump. A corresponding warning appears if no SCR dosing pump is connected.

[Applications] (2)

> The [Applications] module (2) is required for setting up modular DPF® systems. Instructions on how to use this module can be found in the respective system documentation.

[Firmware Upgrade] (3)

> This wizard can be used to install a firmware upgrade for the HJS ECU. The wizard guides the user through the HJS ECU software update.



Notes

> All modules can also be started at any time via the icons in the toolbar. You require an activation key to be able to select and use these modules.

> Many of the functions of the software are explained on the screen by a tooltip that appears when you hold the mouse over the button or icon for a few seconds.

FAQ

Why does the software have to be activated?

> The software is capable of making changes to the HJS ECU and the exhaust-gas aftertreatment system. In extreme cases, this could lead to malfunctioning of the system. To ensure that only appropriately trained persons perform such actions, these functions can only be used once the software has been activated.

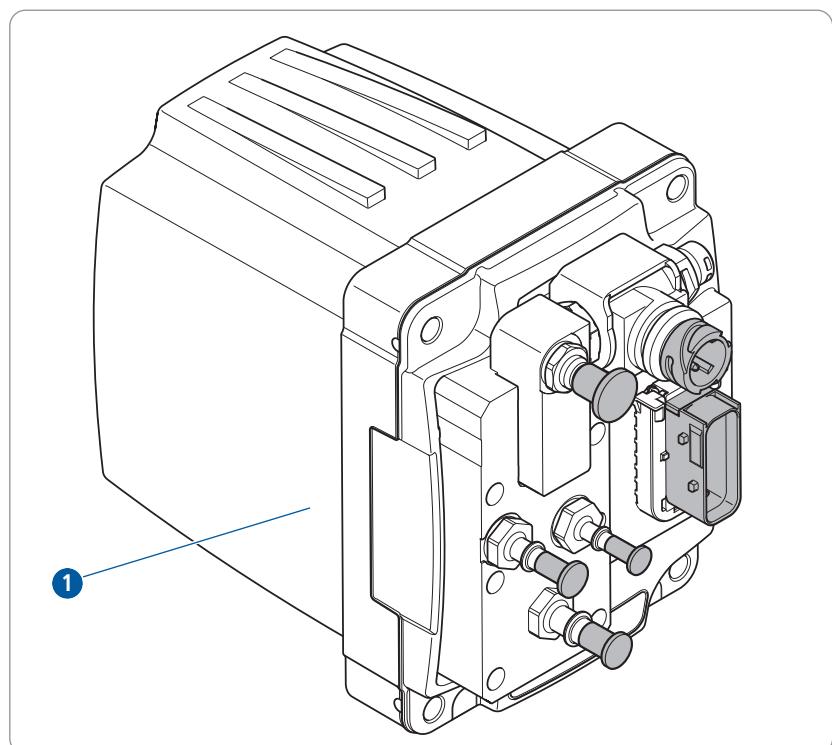
How do I know which COM port I have to use?

> The easiest way is to connect your computer and to use the automatic COM port search function in the "Settings" module. If this doesn't work, please check whether the USB adapter is properly installed and connected to the right USB port, or whether a different application has been assigned to the COM port.



Diagnostics/Maintenance of the SCR dosing pump

! This section of the User's Manual relates to diagnostics/maintenance of the SCR dosing pump (1) of SCR/SCRT® systems made by HJS Emission Technology GmbH & Co KG.

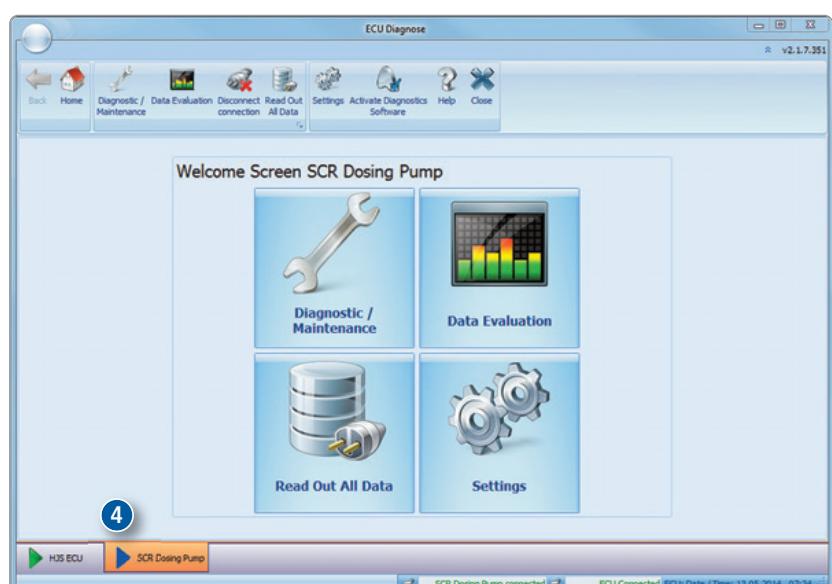


The software is to be put to use whenever the yellow indicator lamp (3) lights up constantly and "SCR error" appears on the display of the HJS ServiceCheck display module (2).



You can switch between the HJS ECU and SCR dosing pump diagnostics modules by means of the two tabs (4) at the bottom of the screen [HJS-ECU] and [SCR dosing pump].

! This module can only be used once the PC has been connected to an HJS ECU by means of the HJS diagnostics cable and the vehicle's ignition has been switched on.

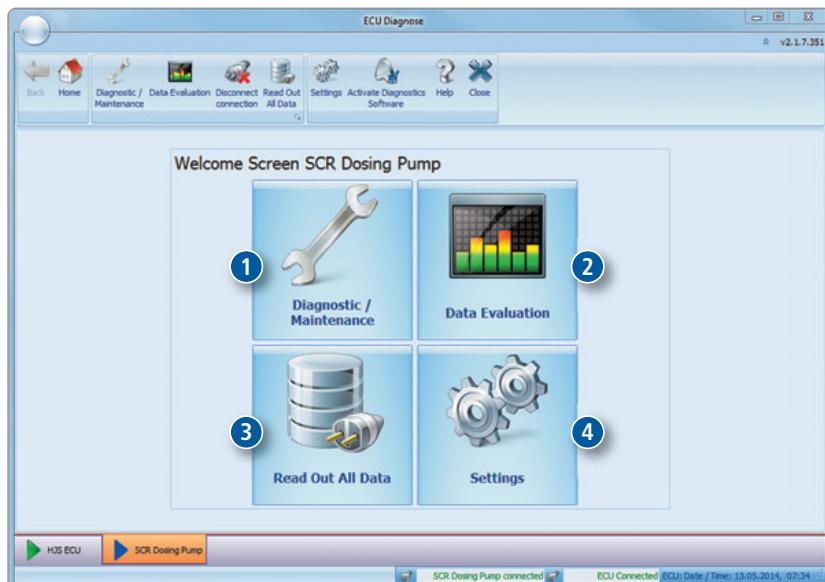


Overview of functions



A corresponding warning appears if no SCR dosing pump is connected.

- > Simple command control during maintenance or diagnostic [Diagnostic / Maintenance] (1)
- > Simple evaluation function for the internal fault memory [Data Evaluation] (2)
- > By clicking [Read Out All Data] (3), you can read out all relevant HJS ECU and SCR dosing pump data in order, for example, to provide assistance and technical support quickly.
- > [Settings] (4)



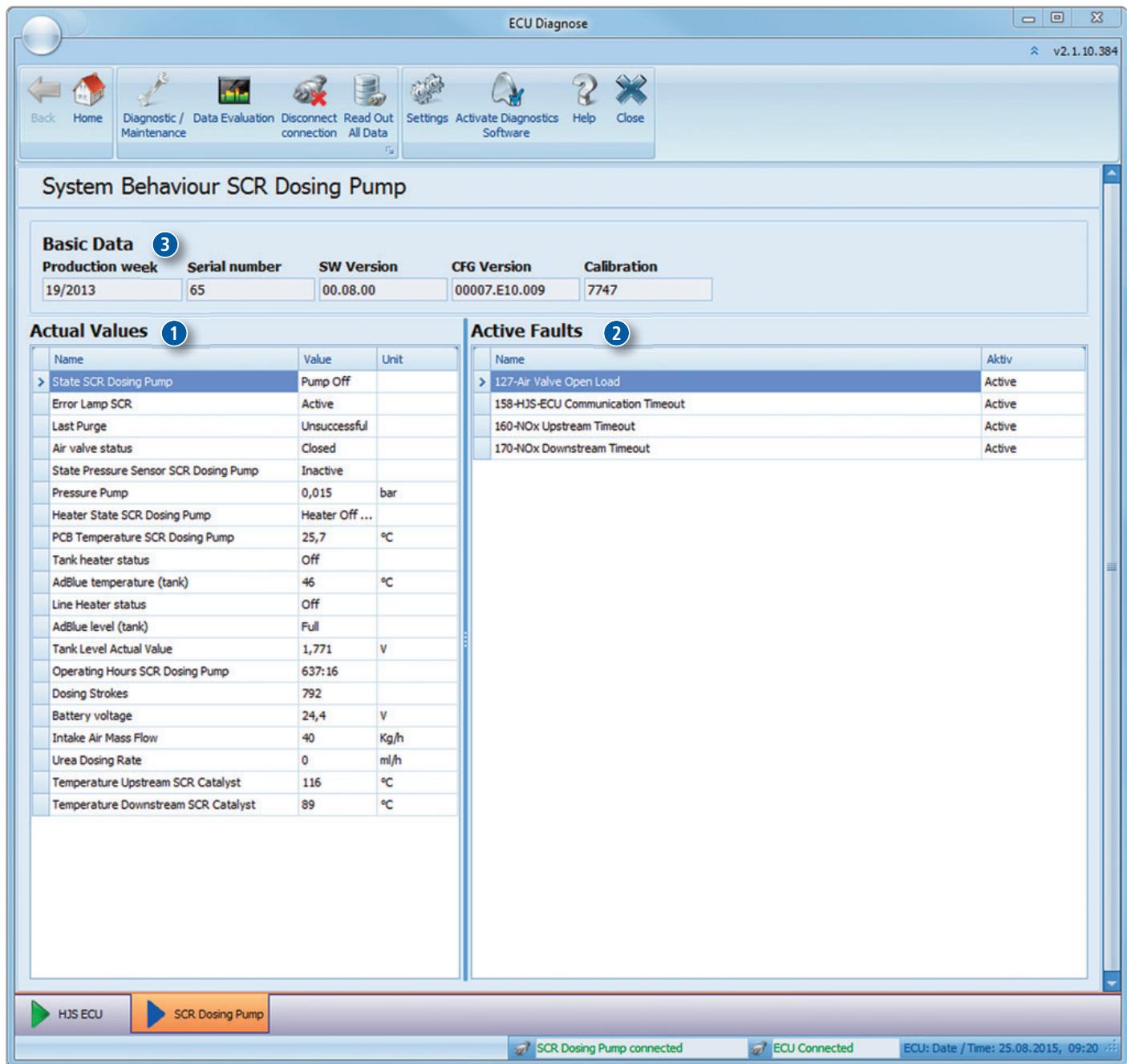
Connecting the diagnostics software to the SCR dosing pump

> To be able to use the diagnostics software for the SCR dosing pump, the PCAN-USB (1) must be connected to the computer. Using the adapter cable (2) SCR Logger CAN Diagnostics, connect the PCAN-USB to the CAN bus diagnostics connector in the HJS cable harness (5-pin connector; see cable harness diagram in the vehicle-specific Installation Instructions manual).

> The vehicle's ignition must be switched on before diagnostics can begin.



Diagnostics/Maintenance of the SCR dosing pump



> A clear display of the measured values, active faults, production parameters of the pump and of the internal fault memory, with integrated report function.

> How the various commands function depends on the HJS system connected. With some systems, certain commands may be inactive.

> The following real-time information is displayed:

- (1) Instantaneous system data
- (2) Instantaneous error (or errors that were active) in HJS system
- (3) Basic data of the AdBlue® dosing pump 2013



Diagnostics/Maintenance of the SCR dosing pump

Maintenance

> The entering of commands during maintenance work is prompted by means of simple wizards.

The following control element tests are available:

Valve Test (air valve)

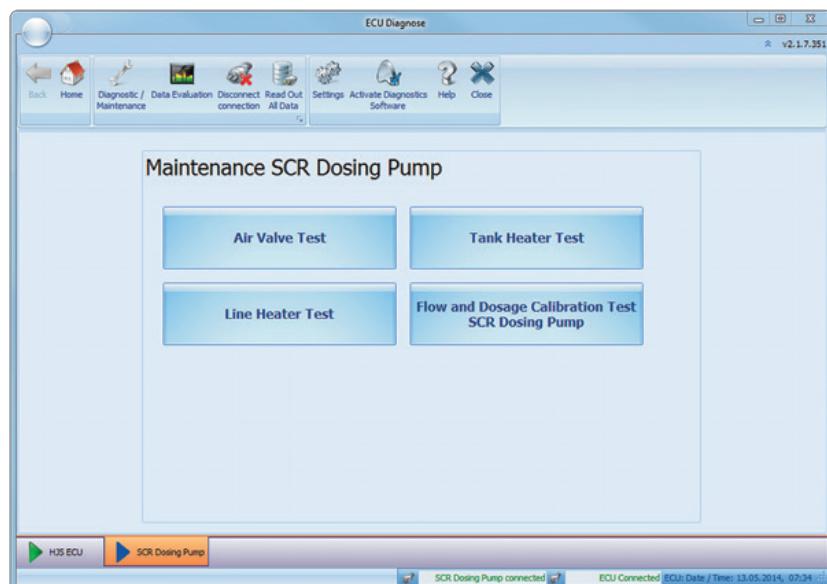
Tank Heater Test

Line Heater Test

Flow Test (pump)

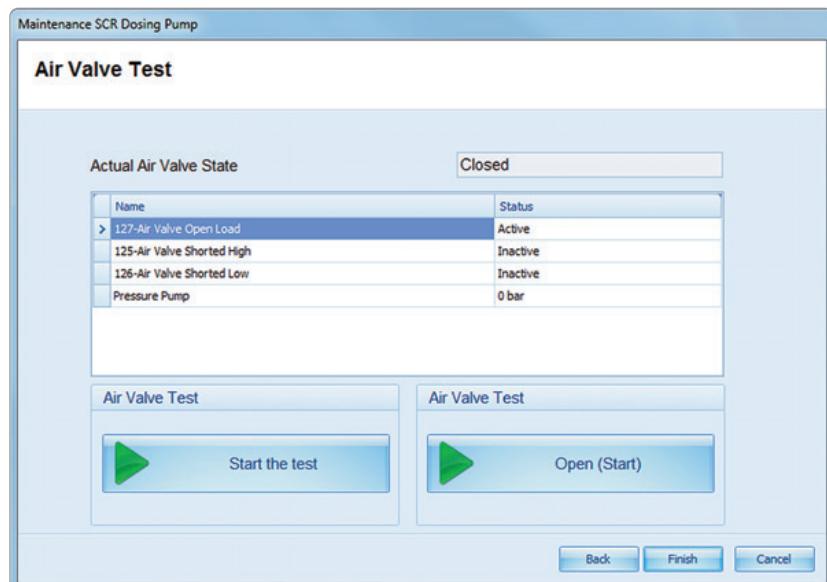
NO_x Test

Dosing Test



For example:

Valve Test (air valve)





Measured Data Evaluation of the SCR dosing pump

ECU Diagnose v2.1.10.384

Basic Data ②

Production week	Serial number	SW Version	CFG Version	Calibration
19/2013	65	00.08.00	00007.E10.009	7747

Actual Values ①

Name	Value	Unit
State SCR Dosing Pump	Pump Off	
Error Lamp SCR	Active	
Last Purge	Unsucc...	
Air valve status	Closed	
State Pressure Sensor SCR Dosing Pump	Inactive	
Pressure Pump	0,015	bar
Heater State SCR Dosing Pump	Heater ...	
PCB Temperature SCR Dosing Pump	25,6	°C
Tank heater status	Off	
AdBlue temperature (tank)	46	°C
Line Heater status	Off	
AdBlue level (tank)	Full	
Tank Level Actual Value	1,771	V
Operating Hours SCR Dosing Pump	637:14	
Dosing Strokes	792	
Battery voltage	24,4	V
Intake Air Mass Flow	40	Kg/h
Urea Dosing Rate	0	ml/h
Temperature Upstream SCR Catalyst	116	°C
Temperature Downstream SCR Catalyst	89	°C

Active Faults **Fault log** ③

Name	Quan...	Battery voltage	Fault active (...)	Fault inactive...
DTC SPN=3242 FMI=20	127	Not available	Not available	Not available
127-Air Valve Open Load	17	24	0000637:05	Active
170-NOx Downstream Time...	18	24	0000637:05	Active
160-NOx Upstream Timeout	20	24	0000637:05	Active
> 158-HJS-ECU Communicatio...	20	24	0000637:05	Active

Save ④

Print

Refresh ⑤

HJS ECU **SCR Dosing Pump**

SCR Dosing Pump connected ECU Connected ECU: Date / Time: 25.08.2015, 09:20

> A clear display of the measured values, active faults, production parameters of the pump and of the internal fault memory.

> How the various commands function depends on the HJS system connected. With some systems, certain commands may be inactive.

> The following real-time information is displayed:

- (1) Instantaneous system data
- (2) Basic data of the AdBlue® dosing pump 2013

> You can switch between the active errors and the internal fault memory by means of the two tabs (3).

> You can generate a report by clicking button (4) and update the contents by clicking button (5).

HJS ECU Fault List

SMF-AR*	FBC	CRT	SCR	SCRT**	No.	Task No.	Run.No.	Description	Possible Cause of Fault	Test Steps	Fault Rectification
x	x				1	2	3	Fault: Tank sensor signal	1) Short circuit to ground 2) Tank sensor short-circuited to ground 3) Open circuit in wiring 4) Loose contact or poor contact at connector for tank sensor signal from vehicle	1) Test wires to ground. Disconnect connectors from ECU and tank sensor 2) Check tank sensor 3) Disconnect connectors from ECU and tank sensor and check wire for continuity 4) Check connectors/wiring of tank sensor	1) Test wire and repair if nec. 2) Repair tank sensor in acc. w. manufacturer's specifications 3) Test wire and repair if nec. 4) Replace plug connectors if nec.
x	x				2	2	4	Fault: Tank sensor signal	1) Short circuit to ground 2) Tank sensor short-circuited to ground 3) Open circuit in wiring 4) Loose contact or poor contact at connector for tank sensor signal from vehicle	1) Test wires to ground. Disconnect connectors from ECU and tank sensor 2) Check tank sensor 3) Disconnect connectors from ECU and tank sensor and check wire for continuity 4) Check connectors/wiring of tank sensor	1) Test wire and repair if nec. 2) Repair tank sensor in acc. w. manufacturer's specifications 3) Test wire and repair if nec. 4) Replace plug connectors if nec.
x	x				3	2	5	Fault: Tank sensor signal	1) Short circuit to ground 2) Tank sensor short-circuited to ground 3) Open circuit in wiring 4) Loose contact or poor contact at connector for tank sensor signal from vehicle	1) Test wires to ground. Disconnect connectors from ECU and tank sensor 2) Check tank sensor 3) Disconnect connectors from ECU and tank sensor and check wire for continuity 4) Check connectors/wiring of tank sensor	1) Test wire and repair if nec. 2) Repair tank sensor in acc. w. manufacturer's specifications 3) Test wire and repair if nec. 4) Replace plug connectors if nec.
x	x				4	5	1	Fault: Air metered	1) Additive tank empty 2) Supply line between additive tank and pump defective 3) Fault in ECU	1) Check fill level of additive tank 2) Check lines between additive tank, additive filter and dosing pump 3) Ascertain serial number and software/configuration versions and contact HJS	1) Top up additive and vent line (using ECU diagnostics software or ServiceCheck) 2) Check lines and filter and repair if nec. Top up additive and vent lines using ECU diagnostics software or ServiceCheck 3) Replace ECU if nec.
									1) Short circuit in dosing wire 2) Short circuit in pump 3) Electrical defect in pump	1) Check wires between HJS ECU and dosing pump for continuity 2) Connect replacement pump, implement 20 dosing pulses and check whether fault still present 3) Check resistance of dosing pump With a 12V dosing pump, resistance must be between 4 and 10 ohms. Implement dosing pulses manually by means of ECU diagnostics software (min. 30 pulses) and check dosing pump is functioning properly	1) Test wire and repair if nec. 2) Install new dosing pump 3) Replace dosing pump if nec. 4) Replace ECU if nec.
x	x				5	5	2,12	Fault: Dosing system	4) Fault in ECU	4) Ascertian serial number and software/configuration versions and contact HJS	

HJS ECU Fault List

SNIF-AR®	FBC	CRT	SCR	SCRT®	No.	Task No.	Run.No.	Description	Possible Cause of Fault	Test Steps	Fault Rectification
x	x				6	5	4	Fault: Dosing system	1) Additive line from pump to T-piece has blockage 2) Additive pump defective 3) Additive pump connected to fuel supply line	1) Check whether line from pump to T-piece is blocked 2) Remove connecting hose between additive pump and T-piece on pump. Make sure additive is delivered by dosing manually by means of HJS ECU 3) Connect dosing pump to fuel return line	
x	x				7	5	5, 6	Fault: Dosing system	1) Electrical defect in pump 2) Try using an incorrect dosing pump (12V instead of 24V, or vice versa)	1) Replace dosing pump if nec. 2) Replace dosing pump if nec.	
x	x				8	5	10	Event: Additive on reserve	Additive tank is almost empty	Visual check on additive level in additive tank Carry out maintenance work as described in User's Manual	
x	x				9	5	8	Fault: Dosing system	1) Electrical defect in pump	1) Replace dosing pump if nec. With a 12V dosing pump, resistance must be between 4 and 7 Ohms. With a 24V dosing pump, resistance must be between 17 and 25 Ohms. Implement dosing pulses manually by means of ECU diagnostics software (min. 30 pulses) and check dosing pump is functioning properly	
x	x				10	5	9	Fault: Dosing system	2) ECU defective	2) Ascertain serial number and software/configuration versions and contact HJS	
x	x				11	2	6, 7	Fault: Tank sensor signal	1) Fault in wiring to dosing pump 2) Defective dosing pump	1) Check wires between ECU and dosing pump for continuity 2) Check dosing pump for continuity using multimeter	1) Replace ECU if nec. 2) If no continuity, replace dosing pump
x	x				12	9	2, 3		1) Short circuit to ground 2) Tank sensor short-circuited to ground 3) Open circuit in wiring 4) Loose contact or poor contact at connector for tank sensor signal from vehicle	1) Test wires to ground. Disconnect connectors from ECU and tank sensor 2) Check tank sensor 3) Disconnect connectors from ECU and tank sensor and check wire for continuity 4) Check connectors/wiring of tank sensor	1) Test wire and repair if nec. 2) Repair tank sensor in acc. w. manufacturer's specifications 3) Test wire and repair if nec. 4) Replace plug connectors if nec.
x									1) Contact problem/short circuit/open circuit in CAN bus connection from vehicle to HJS ECU. 2) Wiring faulty: CAN high/CAN low mistakenly swapped over (pin 66 yellow/white and pin 86 yellow) 3) Contact problems/short circuit/open circuit in CAN bus connection Aftertreatment CAN Bus of EPFS to HJS ECU. Wiring faulty: CAN high/CAN low mistakenly swapped over (pin 1 orange/white and pin 2 orange)	1) Check connection between ECU and CAN terminal, including plug connection 2) Check plausibility of actual values. Speed and/or tank level depending on system 3) Check whether 2 terminating resistors (2-pin connector with red closure cap) are connected to ECU and in vicinity of sensor	1) Test wire and connector and repair if nec. 2) Install terminating resistors
x											
x											
x											



HJS ECU Fault List

SMF-AR*	FBC	CRT	SCR	SCRT*	No.	Task No.	Run.No.	Description	Possible Cause of Fault	Test Steps	Fault Rectification
x					15	18	9	Event: Regeneration interlock	Filter monitoring event No fault		
					1			Fault: Charge-air pressure open circuit/short circuit		1) Check wiring for short circuit/open circuit or replace sensor if nec.	
			x	x	16	26				If reading for charge-air pressure is "short" or running number of error = 2, there is probably a short circuit in wiring. If reading for charge-air pressure is "open" or running number of error = 1, there is probably an open circuit (wire break) in wiring.	
x					2						
x					17	17	6	Event: DPF	Filter monitoring event No fault		
								Fault: Heater		1) On-board supply voltage DOW 2) Voltage dip in on-board supply system when starting engine (starter).	
					18	15	17				
x											
			x	x	19	25	7	Event: SCR dosing system active	Filter monitoring event No fault		
x					20	10	12	Event: Filter heating	Filter monitoring event No fault		
x					21	10	3, 8	Event: SMF²-AR systems: Pressure sensor	Filter monitoring event No fault		
								CRT systems: Fault:: Pressure sensor		1) Fault averaging differential pressure sensor itself. Use ECU diagnostics software to check plausibility of differential pressure value	
			x	x	21	19	10, 21				
x						22	14	3	Event: Regeneration	Filter monitoring event: regeneration is has been carried out No fault	1) Replace wiring and/or replace sensor if nec.
x					23	10	1	Event: Monitor averaging	Filter monitoring event No fault		
x					24	10	4	Event: Filter loading	Filter monitoring event No fault		



HJS ECU Fault List

SNIF-AR®	FBC	CRT	SCR	SCRT®	No.	Task No.	Run.No.	Description	Possible Cause of Fault	Test Steps	Fault Rectification
x									1) Missing or defective earthing strap 2) Heater circuits defective	1) Check whether earthing strap is fitted. Check for good contact to filter and vehicle bodywork. 2) Carry out manual regeneration (password is required for ECU software version 0.10.173 and lower), monitor heating output and heating current of the two heater circuits at rated speed by means of ECU diagnostics software and check plausibility (current of heaters should be between 28A and 54A with a 12V on-board supply system (33A to 60A with 24V on-board supply system) and roughly the same for both heating circuits). If this error is set with running no. = 7, heating circuit A is affected (wiring colour red); in case of running no. = 14, heating circuit B is affected (wiring colour blue)	1) Install earthing strap. Check contact resistance to filter and bodywork 2) Replace filter module if nec.
					15	7, 14		Fault: Heater		1) Heater fuse (100A) defective 2) Open circuit/short circuit in heater power lead	1) Replace fuse. If lead is defective, replace cable harness 2) If lead is defective, replace cable harness
	x				25					1) Open circuit/short circuit in heater power lead 2) Defective heater	1) Check earthing strap at filter. Check power lead between ECU and heater or short circuit and continuity 2) Replace filter module if nec.
					27	15	8, 9, 11, 12	Fault: Heater			1) Check earthing strap at filter. Check power lead between ECU and heater or short circuit and continuity 2) Carry out manual regeneration (24-hour password is required for ECU software version 0.10.173 and lower), monitor heating output and heating current of the two heater circuits at rated speed by means of ECU diagnostics software and check plausibility (current of heaters should be between 28A and 54A with a 12V on-board supply system (33A to 60A with 24V on-board supply system) and roughly the same for both heating circuits) Running number: 8: heating circuit A (red wire) current too high 11: heating circuit B (blue wire) current too high 9: heating circuit A (red wire) current too low 12: heating circuit B (blue wire) current too low
	x									1) Sporadic: term. 15 has loose contact on wire to EGR valve open- or short-circuited 2) Delete fault memory three times and check whether fault is still present	1) Check fuse and wire at term. 15 2) Replace ECU

HJS ECU Fault List

SMF-AR*	FBC	CRT	SCR	SCRT*	No.	Task No.	Run.No.	Description	Possible Cause of Fault	Test Steps	Fault Rectification
					18			1) Fault in wiring or sensor defective (Short circuit temperature sensor 1)	1) Check operation using ECU diagnostics software. A plausible temperature value must be displayed in "Actual Values" tab. If reading for temperature is "short", there is probably a short circuit in wiring. If reading for temperature is "open", there is probably an open circuit (wire break) in wiring. If nec., check plausibility of temperature sensor resistance using multimeter (200 to 600 ohms).	1) Check wiring for short circuit/open circuit or replace temperature sensor if necessary	
					19			2) Fault in wiring or sensor defective (Open circuit temperature sensor 1)		2) Check wiring for short circuit/open circuit or replace differential pressure sensor if necessary	
					23			3) Fault in wiring or sensor defective (Short circuit temperature sensor 2)			
					24			4) Fault in wiring or sensor defective (Open circuit temperature sensor 2)			
					4			5) Fault in wiring or defective differential pressure sensor (short circuit running no. 2 open circuit running no. 3) 6) Differential pressure hose HI blocked.	2) Check operation using ECU diagnostics software. A plausible differential pressure value must be displayed in "Actual Values" tab. If reading for differential pressure is "short", there is probably a short circuit in wiring. If reading for differential pressure is "open", there is probably an open circuit (wire break) in wiring. Furthermore, a plausible backpressure (>1 mbar) must be displayed when engine idling, which must increase as revs/cad increases 3) Check hose	2) Check wiring for short circuit/open circuit or replace differential pressure sensor if necessary	
x	x	x	x	x	30	2,3		7) Fault in the wiring or the secondary element of the EFS. There may be a short circuit open circuit.	4) Check the function with the ECU diagnostics software. Under the tab actual values a plausible mass flow value should be entered. With no load governed speed as x engine performance. The value must increase with the engine speed. If the measured value for the air mass is "missing", there is probably a fault in the wiring or the sensor.	3) Check if at the same time the error 12 "CAN-BUS" is present, then check CAN bus and power supply (5V to ground) of the sensor.	
x	x	x	x	x					Fault must be rectified by specialist workshop within 500 km / 6 hours.		
x	x	x	x	x				1) Fault in wiring or sensor defective. Possible short circuit or open circuit in air mass flow meter sensor	1) Check operation using ECU diagnostics software. A plausible air mass flow value must be displayed in "Actual Values" tab. If reading for air mass flow is "short", there is probably a short circuit in wiring. If reading for air mass flow is "open", there is probably an open circuit (wire break) in wiring. Furthermore, a plausible air mass flow (>0 kg/h) must be displayed when engine idling, which must increase as revs/cad increases		
x	x	x	x	x				2) Fault: Air mass flow meter sensor			
x	x	x	x	x				3) Fault: T sensor	1) Incorrect installation position of temperature sensor 2) If fault occurs sporadically, it may possibly be owing to operating profile	1) Adjust installation position if nec. 2) -	

HJS ECU Fault List

SNIF-AR®	FBC	CRT	SCR	SCRT®	No.	Task No.	Run.No.	Description	Possible Cause of Fault	Test Steps	Fault Rectification
x	x	x	x	x	34	4	4	Fault: T sensor profile	1) Incorrect installation position of temperature sensor 2) If fault occurs sporadically, it may possibly be owing to operating profile	1) Check installation of temperature sensor 2) -	1) Adjust installation position if nec. 2) -
		x	x	x	35	19	4	Event: CRT temperature profile	Efficiency of CRT filter not within optimum range.	You may continue to operate the vehicle. -> For more information, see "Fault Rectification"	The motor must be run in the required temperature range (see Diesel Particulate Filter User's Manual), because the particulate filter may otherwise be overloaded.
	x				35	15	21	Event: FBC temperature profile	Internal event of ECU No fault		
x				x	36	18	8	Fault: Filter damaged	1) Differential pressure hoses connected incorrectly or defective 2) Filter defective	1) Check differential pressure hose: - Check connections at sensor and filter => Hi connection on sensor must be connected to filter inlet. => REF connection must be connected to filter outlet - Check hose lines are not blocked 2) Check values using ECU diagnostics software. A) Plausible backpressure (>1 mbar) must be displayed under "Actual Values" when engine idling. Actions: measure opacity, remove filter in acc. w. installation instructions and visually inspect filter for damage	1) Connect hoses correctly and replace if nec.. Check whether measured values in diagnostics software are plausible 2) Remove filter, check and replace if nec.
	x			x	36	19	1	Fault: Filter damaged	1) Differential pressure hoses connected incorrectly or defective 2) Filter defective 3) Engine running detection cable not connected to D+ but to term. 15	1) Check differential pressure hose: - Check connections at sensor and filter => Hi connection on sensor must be connected to filter inlet. => REF connection must be connected to filter outlet - Check hose lines are not blocked 2) Check values using ECU diagnostics software. A) Plausible backpressure (>1 mbar) must be displayed under "Actual Values" when engine idling. Actions: measure opacity, remove filter in acc. w. installation instructions and visually inspect filter for damage 3) Check wiring	1) Connect hoses correctly and replace if nec.. Check whether measured values in diagnostics software are plausible 2) Remove filter, check and replace if nec. 3) Change wiring
x	x	x	x	x	37	7	1	Fault: Filter pressure too high	Differential pressure of filter too high	Have filter serviced	Have filter serviced
x	x	x	x	x	38	7	2	Fault: Filter pressure high	Differential pressure of filter high	Vehicle can continue to be operated, but appointment must be made for filter to be serviced. "Fault 37" message will be displayed soon	Have filter serviced
x	x	x	x	x	39	-	-	Fault: Short circuit	Short circuit in EV supply of differential pressure sensor or air mass flow sensor or diagnostics cable.	Check entire wiring for short circuit	Connect wires correctly and replace if nec.



HJS ECU Fault List

SMF-AR®	FBC	CRT	SCR	SCRT®	No.	Task No.	Run.No.	Description	Possible Cause of Fault	Test Steps	Fault Rectification
		x	x	41	25	4		Fault: SCR fault	Internal fault in SCR dosing pump	Follow user's manual of SCR dosing pump	Follow instructions in "Software for SCR Dosing Pump" User's manual
x				41	14	62		Fault: regeneration critical	New regeneration request due to load detection within lockout period. This indicates, that the previous regeneration has not been successful.	Check of system behaviour with ECU diagnostic software, i.e. heating power and currents of fast regenerations.	Read all data of the HJS-ECU if necessary, run filter service, replace heating module and/or HJS-ECU.
x	x	x	x	x	44	10	9	Event: Filter maintenance	Filter requires servicing	Event: Filter loading	Filter monitoring event No fault
	x	x	x	x	45	19	6	Fault: CRT pressure drop too high	Downward deviation (drop) of hourly averaged differential pressure not within valid range	After no more than 500 km (300 miles) / 6 operating hours, vehicle must be taken to specialist workshop in order to have filter serviced	Carry out filter service
	x	x	x	x	46	19	7	Fault: High CRT pressure rise too high	Upward deviation (rise) of hourly averaged differential pressure not within valid range	After no more than 500 km (300 miles) / 6 operating hours, vehicle must be taken to specialist workshop in order to have particulate filter checked	Carry out filter service
x	x	x	x	x	47	3	1	Event: Login	Internal event of ECU	Event: Login No fault	Internal event of ECU
	x	x	x	x	48	25	3	Event: AdBlue tank empty	AdBlue tank empty. No fault present		Fill AdBlue tank
x					48	14	1	Fault: Operating profile	1) Operating profile not enough to be able to trigger electric regeneration. This can be promoted by stop go traffic or by on-board supply voltage being too low	1) Take vehicle for regeneration run. When yellow indicator lamp flashes, regeneration run must be carried out as described in User's Manual	
	x	x	x	x	49	25	2	Event: AdBlue tank on reserve	AdBlue tank level low. No fault present		
x					49	14	2	Event: Regeneration suppression	ECU event: Regeneration suppression has been activated by driver (function not available)	ECU event: Regeneration suppression has been activated by driver (function not available) No fault	
x	x	x	x	x	50	6	3	Event: Dosing	ECU event: Change in tank sensor signal No fault	ECU event: Change in tank sensor signal No fault	
x	x	x	x	x	51	6	4	Event: Dosing	ECU event: Additive dosing has been conducted by ECU No fault	ECU event: Additive dosing has been conducted by ECU No fault	



HJS ECU Fault List

SMF-AIR®	FBC	CRT	SCR	SCRT®	No.	Task No.	Run.No.	Description	Possible Cause of Fault	Test Steps	Fault Rectification
x	x	x	x	x	53	1	2	Fault: Red fault lamp	1) Short circuit or open circuit in wiring of red fault lamp 2) Lamp 'bulb' defective 3) Lamp bulb defective 4) Faulty connection to ground	1) Check wire from ECU to red fault lamp for continuity and short circuit using multimeter 2) Check lamp 'bulb' for continuity using multimeter 3) Check lamp bulb for continuity using multimeter 4) Check ground pins/contacts	1) Test wire and repair if nec. 2) Replace lamp 'bulb' if nec. 3) Replace lamp bulb if nec.
x	x	x	x	x	54	1	3	Fault: Yellow indicator lamp	1) Short circuit or open circuit in wiring of yellow indicator lamp 2) Short circuit or open circuit in wiring of yellow indicator lamp 3) Lamp bulb defective	1) Check lamp test following system start (term. 15 activation) 2) Check wire from ECU to yellow indicator lamp for continuity and short circuit using multimeter 3) Check lamp 'bulb'	1) Test wire and repair if nec. 2) Replace lamp 'bulb' if nec. 3) Replace lamp bulb if nec.
					55	1	4	Fault: MIL3	1) Short circuit or open circuit in wiring of yellow indicator lamp 2) Lamp bulb defective	1) Check wire from ECU to yellow indicator lamp for continuity and short circuit using multimeter 2) Check lamp bulb	1) Test wire and repair if nec. 2) Replace lamp bulb if nec.
x	x	x	x	x	56	7	9	Fault: Temperature high	Temperature of filter high	Vehicle can continue to be operated, but appointment must be made for filter to be serviced. "Fault 57" message will be displayed soon	Have filter serviced
x	x	x	x	x	57	7	10	Fault: Temperature too high	Temperature of filter too high		Have filter serviced
x	x	x	x	x	58	4	21	Fault: Engine running detection	Speed signal or D+ signal not active or pressure sensor defective	Check wiring, check pressure sensor	Connect wires correctly and replace if nec.
x					59	-	-	Event: Loading stable	Filter monitoring event No fault		
x					60	14	4, 6	Event: Regeneration log	Filter monitoring event: regeneration is/has been carried out No fault		
					61	26	4, 5	Fault: Charge-air temperature open circuit/short circuit	1) Fault in wiring or sensor defective. Possible short circuit or open circuit in wire to charge-air temperature sensor (running no. 4 = open circuit, running no. 5 = short circuit)	1) Check wiring for short circuit/open circuit or replace sensor if nec. A plausible charge-air temperature value must be displayed in "Actual Values" tab while engine is running. If reading for charge-air temperature is "Short", there is probably a short circuit in wiring. If reading for charge-air temperature is "open", there is probably an open circuit (wire break) in wiring.	1) Check wiring for short circuit/open circuit or replace sensor if nec.
x					61	-	-	Event: Internal	Internal event of ECU No fault		
x	x	x	x	x	62	3	dv.	Event: order	Internal event of ECU No fault		
x	x	x	x	x	63	1	12	Fault: Missing configuration	Fault in uploading the configuration (parameter file)	Test the configuration (CFG) in the system behavior, it must not begin with "0".	Upload the configuration again.

SCR dosing pump Fault List

No.	Description	Possible Cause of Fault	Test Steps	Fault Rectification
102	Software error	Internal software error affecting pump	–	Pump must be replaced
103	Invalid configuration	Internal software error affecting pump	–	Pump must be replaced
104	Missing Origo SCR Dosing Pump	Pump speed sensor or speed receiver defective	–	Pump must be replaced
105	Internal Heater Unable To Defreeze	No defrosting possible after 30 min	–	Inform HJS if fault has occurred repeatedly
106	Internal Heater Shorted Low	Internal heater defective	–	Pump must be replaced
107	Internal Heater Shorted High	Internal heater defective	–	Pump must be replaced
108	Internal Heater Open Load	Internal heater defective	–	Pump must be replaced
109	Internal Heater Urea Frozen	No fault: pump is frozen	–	Pump will defrost during operation, no need for action
110	5 V supply shorted to ground	Internal voltage error; can go hand in hand with on-board supply voltage problems	–	If this is the only fault that is active: pump must be replaced; otherwise rectify other faults first
111	5 V supply open-circuited	Internal voltage error; can go hand in hand with on-board supply voltage problems	–	If this is the only fault that is active: pump must be replaced; otherwise rectify other faults first
114	Supply voltage low	Supply voltage at pump lower than 18 V	Check supply voltage and wiring	Rectify fault in on-board supply system or supply lead
115	Supply voltage high	Supply voltage at pump higher than 32 V	Check supply voltage and wiring	Rectify fault in on-board supply system or supply lead
116	Bad power supply	On-board supply voltage fault: 12-V and 24-V components mixed up	Check whether 24-V pump is connected to 12-V system or vice versa	Install components that match on-board supply voltage
117	Nozzle blocked	Blocked AdBlue nozzle or pump	Check whether nozzle and hoses to nozzle are clear	In the event of a blockage, flush out and replace components if necessary
119	PCB-Temperature Out Of Range Low	Internal sensor fault	–	Pump must be replaced
120	PCB-Temperature Out Of Range High	Internal sensor fault	–	Pump must be replaced
121	PSU voltage low	Internal voltage error; can go hand in hand with on-board supply voltage problems	–	If this is the only fault that is active: pump must be replaced; otherwise rectify other faults first
122	PSU voltage high	Internal voltage error; can go hand in hand with on-board supply voltage problems	–	If this is the only fault that is active: pump must be replaced; otherwise rectify other faults first
125	Air Valve Shorted High	Lead to air valve shorted to ground	Check wiring	Repair faulty component
126	Air Valve Shorted Low	Lead to air valve shorted to 24-V supply	Check wiring	Repair faulty component
127	Air Valve Open Load	Cable break or lead to air valve shorted	Check wiring	Repair faulty component
128	Blocked return line	Return line from pump to tank is blocked.	Check that return line and pump are clear (not blocked)	Follow flushing procedure
129	Missing Air Or Urea	Inadequate AdBlue or compressed air supply	Check whether problems with compressed air supply system in vehicle Check whether AdBlue lines and connectors are tight If everything is tight, suction capacity may be affected by soiling or drying-out	Rectify compressed air system fault Repair leak Follow flushing procedure
130	Pump Head Temperature Out Of Range Low	Internal sensor fault	–	Pump must be replaced

SCR dosing pump Fault List

No.	Description	Possible Cause of Fault	Test Steps	Fault Rectification
131	Pump Head Temperature Out Of Range High	Internal sensor fault	-	Pump must be replaced
132	IntPS PSU6V Out Of Range Low	Internal voltage error; can go hand in hand with on-board supply voltage problems	-	If this is the only fault that is active: pump must be replaced; otherwise rectify other faults first
133	IntPS PSU6V Out Of Range High	Internal voltage error; can go hand in hand with on-board supply voltage problems	-	If this is the only fault that is active: pump must be replaced; otherwise rectify other faults first
134	Pressure Sensor SCR Dosing Pump Out Of Range Low	Internal sensor fault	-	Pump must be replaced
135	Pressure Sensor SCR Dosing Pump Out Of Range High	Internal sensor fault	-	Pump must be replaced
136	Invalid dataset	Internal software error affecting pump	-	Pump must be replaced
137	Missing Air	Inadequate compressed air supply identified during operation	Check compressed air supply system in vehicle and compressed air components of HJS system	Rectify fault in compressed air supply
140	Temperature Upstream SCR Catalyst Out Of Range Low	Short circuit in cable harness, connector or sensor	Fault is indicated when resistance is less than 160 Ω. Check sensor and cable harness for short circuit	Repair faulty component
141	Temperature Upstream SCR Catalyst Out Of Range High	Open circuit in cable harness, connector or sensor	Fault is indicated when resistance is higher than 980 Ω. Check sensor, connector and cable harness for open circuit	Repair faulty component
142	Temperature Downstream SCR Catalyst Out Of Range Low	Short circuit in cable harness, connector or sensor	Fault is indicated when resistance is less than 160 Ω. Check sensor and cable harness for short circuit	Repair faulty component
143	Temperature Downstream SCR Catalyst Out Of Range High	Open circuit in cable harness, connector or sensor	Fault is indicated when resistance is higher than 980 Ω. Check sensor, connector and cable harness for open circuit	Repair faulty component
144	Urea Level Out Of Range Low	Short circuit in cable harness, connector or sensor	Fault is indicated when resistance is less than 110 Ω. Check sensor and cable harness for short circuit	Repair faulty component
145	Urea Level Out Of Range High	Open circuit in cable harness, connector or sensor	Fault is indicated when resistance is higher than 35 Ω. Check sensor, connector and cable harness for open circuit	Repair faulty component
146	Urea Temperature Sensor Out Of Range Low	Short circuit in cable harness, connector or sensor	Fault is indicated when resistance is less than 220 Ω. Check sensor and cable harness for short circuit	Repair faulty component
147	Urea Temperature Sensor Out Of Range High	Open circuit in cable harness, connector or sensor	Fault is indicated when resistance is higher than 110 Ω. Check sensor, connector and cable harness for open circuit	Repair faulty component
158	HJS-ECU Communication Timeout	Requirement: HJS ECU is fault-free Open circuit between HJS ECU and pump System relay is active although terminal 15 is inactive HJS ECU activates system relay although term. 15 is inactive	Use diagnosis for HJS ECU and rectify active faults Check CAN wiring between HJS ECU and pump for continuity and short circuit Check system relay Diagnose HJS ECU	HJS ECU sends MAF value and activates system relay when term. 15 is active (ignition for pump) Rectify defect in cable harness or connector Repair faulty component
159	HJS-ECU Invalid Data	HJS ECU defective	MAF value greater than 13005 kg/h	Replace HJS ECU



SCR dosing pump Fault List

No.	Description	Possible Cause of Fault	Test Steps	Fault Rectification
160	NOx Upstream Timeout	Open circuit between NOx sensor and pump Defective sensor	Check CAN wiring between NOx sensor and pump for continuity and short circuit No communication despite fault-free wiring	Repair faulty component
161	NOx Upstream Heater Short Circuit	Internal sensor fault	–	Replace NOx sensor
162	NOx Upstream Heater Open Wire	Internal sensor fault	–	Replace NOx sensor
163	NOx Upstream NOx Short Circuit	Internal sensor fault	–	Replace NOx sensor
164	NOx Upstream NOx Open Wire	Internal sensor fault	–	Replace NOx sensor
165	NOx Upstream O2 Short Circuit	Internal sensor fault	–	Replace NOx sensor
166	NOx Upstream O2 Open Wire	Internal sensor fault	–	Replace NOx sensor
170	NOx Downstream Timeout	Open circuit between NOx sensor and pump Defective sensor	Check CAN wiring between NOx sensor and pump for continuity and short circuit No communication despite fault-free wiring	Repair faulty component
171	NOx Downstream Heater Short Circuit	Internal sensor fault	–	Replace NOx sensor
172	NOx Downstream Heater Open Wire	Internal sensor fault	–	Replace NOx sensor
173	NOx Downstream NOx Short Circuit	Internal sensor fault	–	Replace NOx sensor
174	NOx Downstream NOx Open Wire	Internal sensor fault	–	Replace NOx sensor
175	NOx Downstream O2 Short Circuit	Internal sensor fault	–	Replace NOx sensor
176	NOx Downstream O2 Open Wire	Internal sensor fault	–	Replace NOx sensor
180	Urea Level Indication Low	Low urea level. System is still active	–	AdBlue must be topped up
181	Urea Level Indication Empty	Urea level too low. Dosing has been stopped	–	AdBlue must be topped up
182	NOx Conversion Low	Urea is not dosed correctly SCR catalyst defect	Check whether AdBlue lines and connectors are tight SCR catalyst may be damaged mechanically or thermal	Repair faulty component
183	NOx Conversion Too Low	Urea is not dosed correctly SCR catalyst defect	Check whether AdBlue lines and connectors are tight SCR catalyst may be damaged mechanically or thermal	Repair faulty component
206	Urea Temperature Low	No Error. Dosing possible when warmer.	–	Inform HJS if fault has occurred repeatedly
207	Urea Temperature High	No Error. Dosing possible when colder.	–	Inform HJS if fault has occurred repeatedly



HJS Emission Technology GmbH & Co. KG is a medium-sized company based in Menden in central Germany and has many years of experience and expertise in the field of exhaust-gas aftertreatment. Some 500 employees are engaged in the development, production and marketing of modular systems for reducing pollutant emissions. These innovative environmental protection technologies can be used either as original equipment or for retrofitting in passenger cars, commercial vehicles as well as a wide range of non-road mobile machinery and stationary applications.

In addition to systems for spark-ignition engines, HJS today focuses on solutions for diesel engines – especially for reducing the emissions of soot particles (PM) and nitrogen oxides (NO_x). With extensive patents for DPF® (diesel particulate filter) and SCRT® (Selective Catalytic Reduction Technology) systems, HJS sets benchmarks.



HJS technology portfolio for OE and retrofitting

- > Diesel Particulate Filters (DPF®)
Reduction of soot-particle emissions (PM)
- > SCR-Systems
Reduction of nitrogen-oxide (NO_x) emissions
- > SCRT®-Systems
Simultaneous reduction of soot-particle (PM) and nitrogen-oxide (NO_x) emissions
- > Thermal Management
For DPF®-regeneration and SCR-functionality
- > Electronic Control Units and Software
Monitoring and controlling of all system functions

A clean future with HJS!

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