



# Diagnostics: System Overview Feature



This series of technical articles from Bosch focuses on how to get the best out of its ESI[tronic] 2.0 software, which is used in conjunction with the KTS range of diagnostic tools for vehicle fault diagnosis and service function procedures.

## ‘System Overview’ feature

We like to think of this great feature as a ‘complete vehicle diagnostic check’. In our opinion it is a good idea to perform this function on every vehicle that comes into the workshop for a service or repair. Firstly it could highlight any intermittent or pending electrical or mechanical problems in a system on the vehicle that the customer may not be aware of. Secondly it is a useful way to check that the vehicle has a clean bill of health when it is returned to the owner after any service or repair work is completed.

In ESI[tronic] 2.0, under the Diagnosis main tab, the System Overview can be performed by clicking on ‘System search’ F12 soft key in the ‘System Overview’ sub tab. The KTS will perform a full ‘Control unit search’ of all communicating systems fitted to the vehicle and then populate a list of ECU’s that are present and the number of fault codes (if any) in each one.

System	Number of errors
Engine control	2
ABS	1
Steering wh. angle sensor	0
Steering wh. angle sensor	0
Gear control	0
4WD electronics	0
Rear axle lock	0
Rear axle lock	0
Airbag	1
Central electronics system	6
Tire control system	6
Instrumentation	3
Parking aid	0
HVAC	0



# Diagnostics

Many newer vehicles will now support a fast CAN Bus search of all of the ECU's on the vehicle system communication network. The results of the system overview can vary from car-to-car due to some vehicle manufacturer differences and, as such, some full diagnostic scans are very fast. Certain vehicle brands can have up to 60 ECU's that can all be checked in less than a minute, which makes it really quick for the technician to be able to assess the diagnostic state of the vehicle. With some other cars the process may take a bit longer, as the KTS will have to check each ECU one by one for presence and fault status in each group.

When the system overview is complete you will see a list of all ECU systems that are communicating and an indication if any fault codes are present. This can be very useful when analysing a vehicle before any in-depth diagnostic testing as certain faults – such as traction control and ESP problems – can log a DTC in more than one ECU (engine and ABS).

The 'F3' save button can be used to store this complete list into the job report ('Protocol' – we'll talk about this later). Then, if the 'F5' fault details button is clicked, a specific list of DTC's and descriptions (where available) is then shown which again can be saved to the job protocol with the 'Save' F3 soft key. At this point the 'Delete all faults' F7 soft key can be used to see which trouble codes will clear and which ones are static faults at that moment.

Going back to the overview list, if required, any of the system names in the categories can be double-clicked for direct access to the ECU diagnostic functions for further investigation and testing. If the fault code is erased at this point, the overview list will refresh when you return to it, meaning that you can save a 'before' and 'after' status of the job that you're working on to show to the customer.

Using the protocol report (described in the next section), it is very simple to use the system overview to produce a professional and accurate vehicle report which can be used to justify any repairs that have been carried out in the workshop to the vehicle owner.

## 'Protocols' feature

This is another great feature in Bosch ESI[tronic] 2.0. Whilst using the diagnostic features of the KTS, if you see the 'Save' or 'Store' (F2 or F4 soft keys) along the bottom, any data on the screen at that time will be added to the job protocol. This report will show the whole process followed by the technician during any diagnostic fault finding work.

This could include a whole host of information, including the ECU system names and identification details, the number of trouble codes stored and descriptions, which trouble shooting (SIS) repair instructions have been followed and the results of any direct multimeter measurements made from the test plan. Other data includes the erase error memory function, actual value parameters in numerical format or time profile (this consists of a screen shot of the AV graphing) and also which actuators, function tests, adjustments/settings or special functions were performed.

ESI[tronic] 2.0  
ES[tronic] 2.0 Version 10.0.1741 21/10/15

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LAND ROVER GROUP,Discovery Sport (BS),Discovery Sport SD4,Diesel,2.2,140,0kw,09/2014 -  
ZZ40T,SALCAZNE9PH625206

System overview 21/10/15

System name	Number of errors
Dear EDC 110H2	0
Adapt ABS 0	0
Sas autom trans ZF 6HP48	1
Infotronic cluster 4.1	3
Service display 4.1	0
Tire pressure monitor 4.1	0
ESP parking brake 4.3	0
PA32 abs CU rear 4.1	0
DS abs CU front 4.1	0
DS abs CU rear 4.1	0
PA32 abs CU front 4.1	0
Steering angle sensor 4.0	0
Transmission control unit 0	0

1. Search result - Fault memory

System name	Internal fault
Sas autom trans ZF 6HP48	1
PT02 Transmission control system	1
Infotronic cluster 4.1	3
U0011 High-speed CAN bus	Missing message
U0011 Medium-speed CAN bus	Sequence number deviation
U0011 Medium-speed CAN bus	Missing message

2. Search result - Fault memory

System name	Internal fault
Sas autom trans ZF 6HP48	1
PT02 Transmission control system	1

Instrument cluster 4.1 3  
U0011 High-speed CAN bus Missing message  
U0011 Medium-speed CAN bus Sequence number deviation  
U0011 Medium-speed CAN bus Missing message

9-ax.autom.transm.ZF 6HP48 21/10/15

1. Error memory

2. Error memory

PT02 Transmission control system  
Internal fault  
error location

3. Actual values

Voltage supply control units 14.6 V  
Actuator supply voltage 14.6 V  
Choked back value 83.0 %  
Relative accelerator position 13.8 %  
Transmission input torque 3.7 Nm

4. Adjustments / settings

5. Reset transmission adaptation values

6. Error memory

7. Erase error memory  
Error memory auto erase

Remarks: Road test O.K.

Date \_\_\_\_\_ Signature \_\_\_\_\_

The amount of information that is saved in the protocol can be defined to suit your preference under 'User settings' in the main menu, along with your garage details that will appear on the report. One of these features is an operation time stamp which could be useful if you're justifying a lengthy repair process, or it can be turned off, if not needed.

ESI[tronic] 2.0

User settings

Language settings Protocol  
Company data  
Messages  
Proxy settings  
Print settings  
Protocol  
Maintenance  
Units  
Vehicle Identification  
Asanetwork  
Product enhancement

Control unit diagnosis operations performed in the protocol  
 Show time stamp for operations performed in protocol.  
 Activation of SIS/CAS operation logging

Selection for data logging

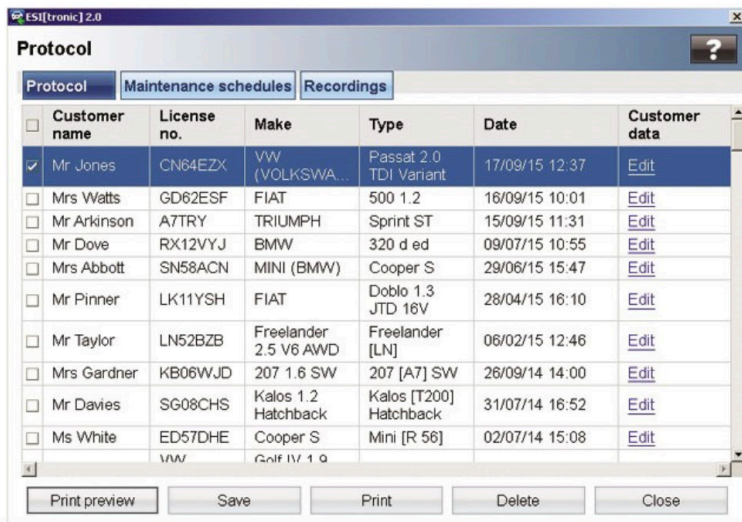
Error numbers  
 Current values  
 Actuators  
 URI  
 Procedures

OK Cancel

Under 'Main menu', 'Protocols' the list of stored reports can be accessed and, by clicking on 'edit' the customer details, job number, technician's name and vehicle info can be added, along with any advisory comments to be reported to the customer.



# Diagnostics



At any point the protocol file can be previewed and saved in .pdf format to another folder or to be printed. The printed protocol report looks extremely smart (especially if printed in colour) and is great to attach to the invoice of a job that involved any diagnostic interaction so that the customer can see what was found and subsequently repaired (if necessary) to solve the problem.

Every time a different vehicle is selected and some information is saved a new protocol report will be generated with the relevant details. This is then added to the list in the main menu. A new feature in ESI[tronic] 2.0 is that you can now continue saving data to a previous protocol in the 'last 30 vehicles' list if you return to an unfinished job after working on other vehicles.

By Description	VIN identification	Last 30 Vehicles	RB key	KBA key (D)	Type certificate no. (CH)	Type-Mine/Cnit no (F)	Kentekenplaat(NL)	Numme
RB key	Make	Type	Internal Model Range	Liters	kW	Year of manufacture	Engine code	Protocol
MB5148	MERCEDE...	ML 350 BlueTec 4MATIC	166	3.0	190.0	06/2011 -	OM 642.826	-
LRG181	LAND ROVER GROUP	Discovery Sport SD4	B5	2.2	140.0	09/2014 -	224DT	
NIS2880	NISSAN	Qashqai+2 1.5 dCi	JJ10	1.5	81.0	01/2010 -	K9K	<small>Select to continue with the stored log</small>

We hope that these short explanations help you with these great Bosch ESI 2.0 features and if you're not using them already, what are you waiting for?