

ABRITES DIAGNOSTICS FOR MERCEDES ONLINE



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Diagnostic scanning; Key programming; Module replacement, ECU programming; Configuration and coding.

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Safety information

The Abrites products are to be used by trained and experienced users in diagnostics and reprogramming of vehicles and equipment. The user is assumed to have a good understanding of vehicle electronic systems, as well as potential hazards while working around vehicles. There are numerous safety situations that cannot be foreseen, thus we recommend that the user read and follow all safety messages in the available manual, on all equipment they use, including vehicle manuals, as well as internal shop documents and operating procedures.

Some important points:

Block all wheels of the vehicle when testing. Be cautious when working around electricity.

Do not ignore the risk of shock from vehicle and building-level voltages.

Do not smoke, or allow sparks/flame near any part of the vehicle fuel system or batteries.

Always work in an adequately ventilated area, vehicle exhaust fumes should be directed towards the exit of the shop.

Do not use this product where fuel, fuel vapours, or other combustibles could ignite.

In case any technical difficulties occur, please contact the

Abrites Support Team by email at support@abrites.com.

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List of revisions

Date	Chapter	Description	Revision
21.02.2022	ALL	Document updated	1.1
11.04.2022	8	Chapter updated	1.2
31.01.2023	12	Chapter added	1.2

1. Introduction

The Abrites diagnostics for Mercedes Online is the next generation in the evolution of the Abrites Diagnostics for Mercedes. It provides dealer level diagnostics, live value and diagnostic trouble code monitoring, locating and clearing in order to assist the diagnostician to locate and resolve any issues with the vehicle at a dealer level in the environment of their own workshop. It can be installed on any Windows based system higher than XP and requires an AVDI interface to operate.

Using the Abrites diagnostics for Mercedes Online

The Abrites diagnostics for Mercedes is an online application and as such it requires the computer you have installed it on to be connected to the internet. We can suggest a connection to the internet via 3G/4G from a mobile device as well as a WI-FI network. Please ensure to have port 8443 allowed by your internet service provider in order to ensure the correct functionality of your Abrites diagnostics for Mercedes Online.

Using the icon in the top right of your software screen you will be able to see the internet connectivity and signal strength and the three horizontal lines will allow you to choose a language in which the software to operate:

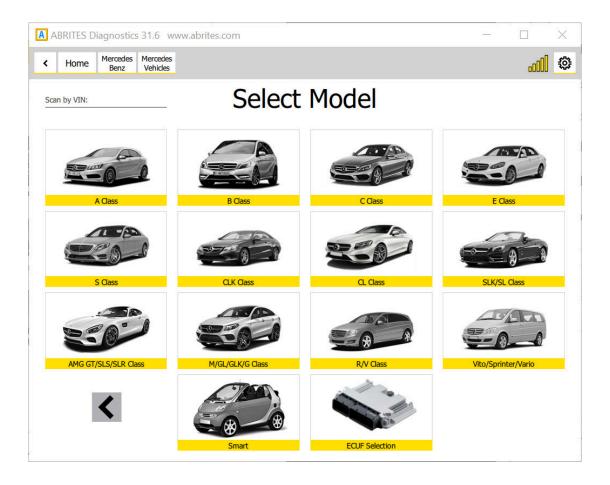


When you open the Abrites Quick Start you can select the Abrites diangostics for Mercedes Icon:



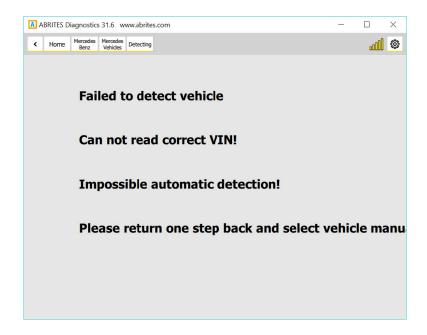
After clicking the Abrites diagnostics for Mercedes Icon you will see the software start up. The software will automatically start detecting the vehicle your AVDI is connected to. Once that is done you will see a list of modules. You will also have the ability to choose to select a car by the model as well as by the vehicle VIN number in order to assure correct vehicle selection of the software. It is customary for Mercedes-Benz vehicles to share modules throughout the vehicle models and shared platforms. For this reason we strongly suggest for you to select the vehicle by the VIN number so that the software best determines the vehicle in the best way possible. This means that the software will be able to get the full list of modules and this is preferred to be done by VIN. For example a vehicle like the W218 (CLS 2nd generation) uses many modules from the W212 (E class) on which the CLS is based. It is the same for the X (W)164 (ML 2nd generation) which shares many electronic components with the W221 (S class). This is

something we need to keep in mind while operating with Mercedes-Benz vehicle as a whole because sharing components is a strong part of the company's principle. For this reason we need to stress on selecting the vehicle by VIN.



There is also the option to select the particular ECU from the vehicle which allows operating specific modules in cases where a problem with the overall communication is present.

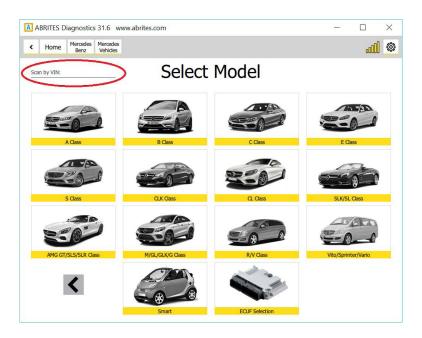
There can be different approaches to starting work with Mercedes-Benz vehicles via the Abrites diagnostics for Mercedes but we suggest to start by automatically allowing the software to determine the vehicle type and begin communication. Once that is done it will find out what the car is and will then populate the list of modules. If this is not possible the software will generate the following message:



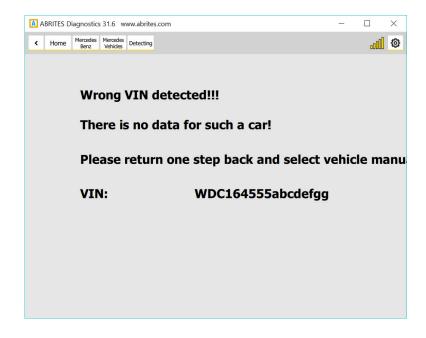
As mentioned above a reason for such message can be that the car is compiled from different modules or that the modules do not have VIN numbers inside them. In most of these cases the Abrites diagnostics for Mercedes Online will come up with a message saying that it cannot locate the vin. This is the "Can not parse VIN" case. In both of the cases described above we recommend the selection of the vehicle by VIN number. This is to be used in cases when the vehicle cannot be automatically detected when the software is started.

IMPORTANT: If the car is automatically detected by the software but the list of modules does not appear we have the same situation like described above(the "Can not parse VIN" case). This problem is often present with the US models due to the different VIN format which leads to wrong parsing. In such cases you will have to enter the VIN manually in the following format followed by the Enter button. Here is a simple example of a Mercedes Sprinter (W906, W221): xxx906xxxxxxxxxx , where 906 is the chassis number. When you are working on a W221 it is always recommended to enter the VIN manually in the same format as for the US models.

Searching the vehicle via its VIN number is done via the VIN search field in the top left of the screen:

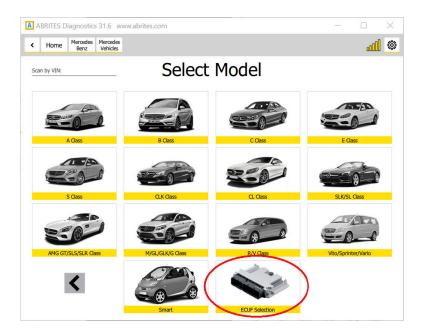


Here you can enter the VIN and determine the car which needs to be made of 17 digits. These VINs can be found in various places in the vehicle. The scan by VIN only starts after the "Enter" button is pressed. If an impossible VIN is selected you will see the following message:

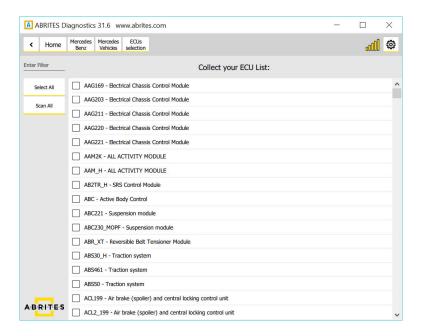


Only if all the previous methods fail do we suggest that you select the vehicle by chassis code.

If for some reason you see the error above or if you are unhappy with the results shown you can select from a full list of the electronic control modules installed in Mercedes vehicles worldwide.

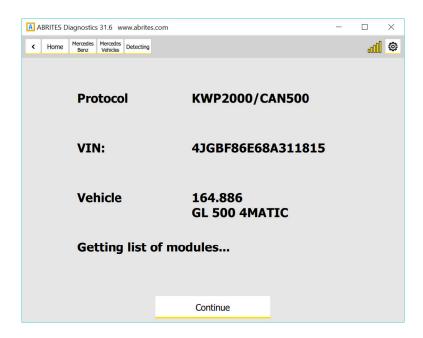


Once you reach this step you have a list of over 1300 separate electronic control modules which you can select from. We strongly suggest that you use the search option here in order to select the module you are looking for to avoid confusion.

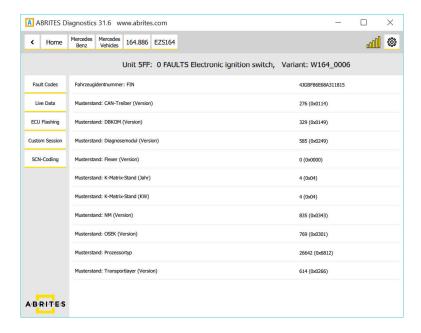


As you can see the list is large and you can search to select the unit you are looking for.

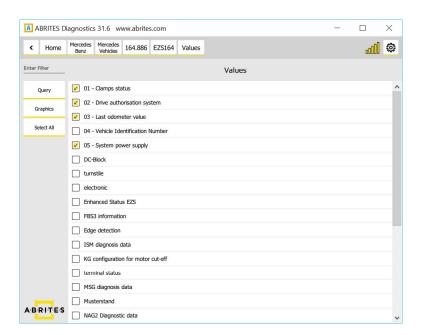
Once you have connected to the car you can see the following information:



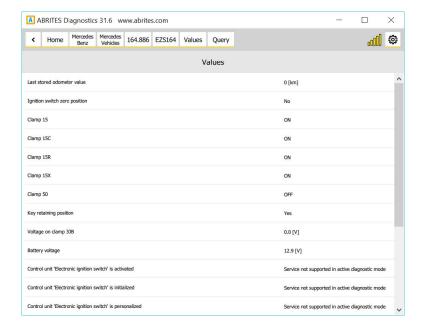
In the particular case we have a W (X) 164 which we can can start diagnosing. Press "Continue". Once you press continue you will see a list of the modules installed in this vehicle:



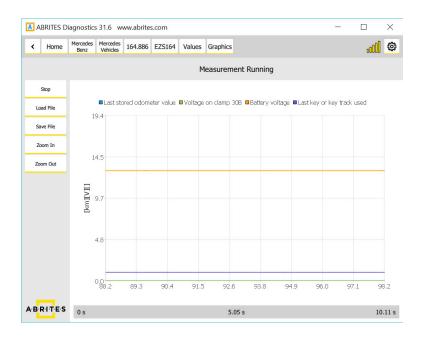
Each module has full identification and can be read with all the data included in it for diagnostics. As you can see we provide multiple languages and the identification is done in the language you find fits you best:



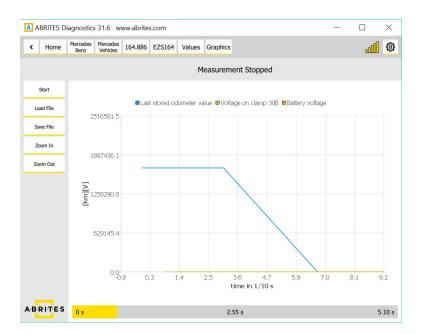
As you can see you can select multiple live values to monitor depending on the best way you find fit to diagnose the vehicle.



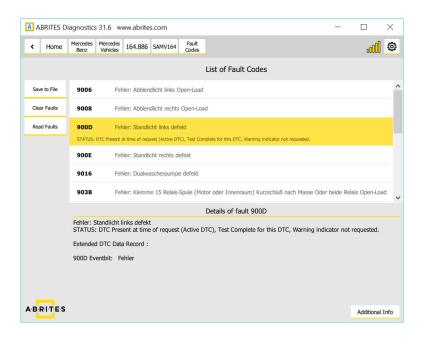
All the data can be viewed in the language that fits you best.



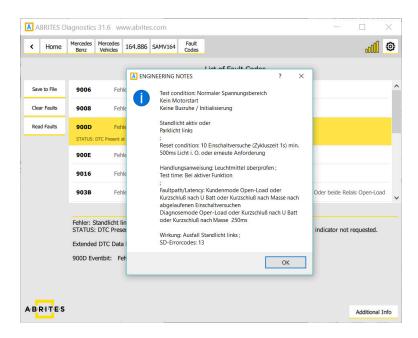
Live values can also be viewed as a table and saved in order to be used for later analysis.



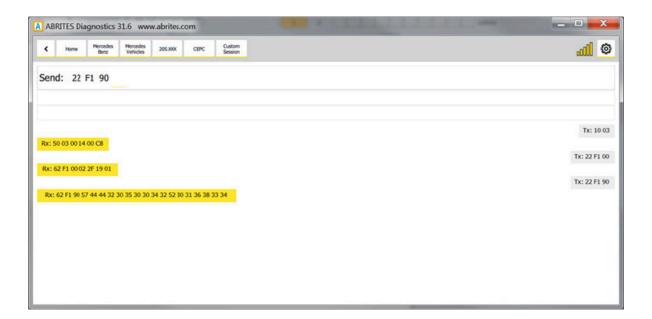
Using the fault code function allows to view the fault codes, read them, check all the details in regards to them and then clear them after the issue is resolved.



As you can see the level of details here is very high and is on par with the OEM diagnostics. Once again this is a complete solution ad provides multilingual support:



For advanced users we also provide the option to send custom requests to the electronic modules in the vehicles.

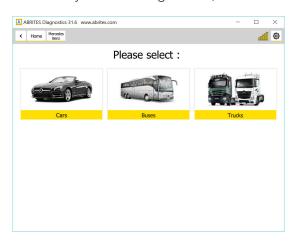


The current version of the manual describes just the beginning of the development of the Abrites diagnostics for Mercedes. We will continue the development of the software by adding special functions to assist our customers and provide them with an incomparable solution for Mercedes-Benz vehicles. In this manual we will continue adding information about the software itself as well as the philosophy of Mercedes-Benz diagnostics – old, current and new.

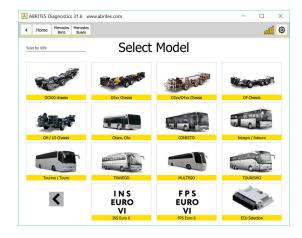
3. Abrites diagnostics for Mercedes Online Buses and Trucks

Using the Abrites diagnostics for Mercedes Online you can perform diagnostics for Mercedes-Benz buses and trucks. With the help of the Abrites online platform you can scan for units, observe the identification of the modules installed in these trucks and buses, read DTC (Diagnostic Trouble Codes), clear the DTCs and monitor live values. You can perform these features in the following way:

1. Select if you are working on a car, truck or bus:



2. Here is what the bus menu looks like:

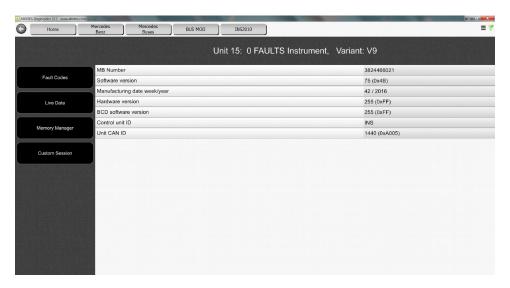


Here is the start scan of the buses:

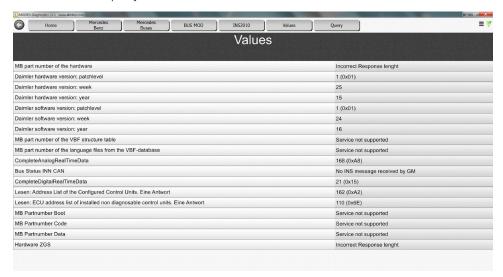
3. Full scan of the modules inside the buses and trucks including the number of fault codes registered in each of them:



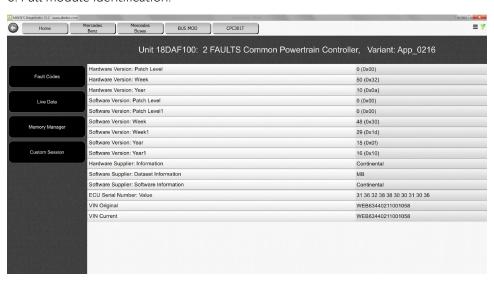
Once you enter a module you can see the identification of the module itself and on the left side of the screen you can see what options you have with each module:



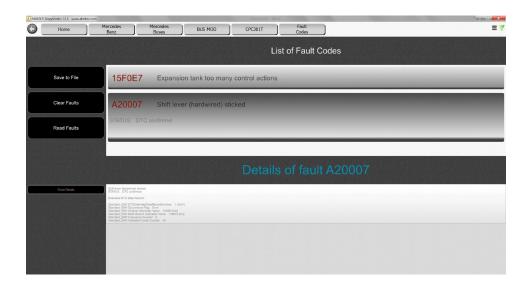
5. Live values in query mode:



6. Full module identification:

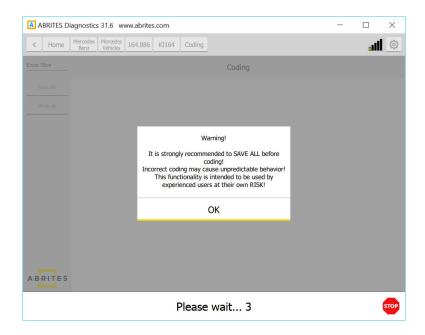


7. After scanning for faults you can enter each module and read the fault codes in full details as well as any possible solution where one is available. All of this is under the details menu – when the error occurred, what it is exactly and so on:



4. Mercedes Coding

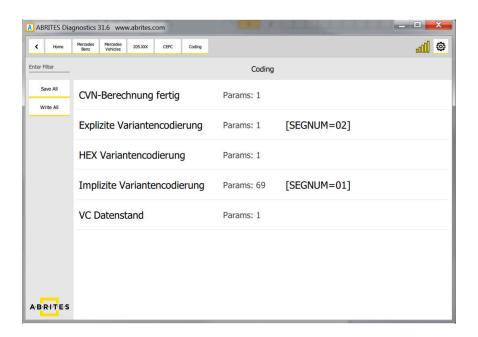
The coding in Mercedes will allow you to change different parameters related to functionality of an unit. It is important before making any changes in the coding groups, to save all current coding as backup. A warning will be displayed:



Some parameters cannot be edited and the software will display a message if such a parameter is changed:



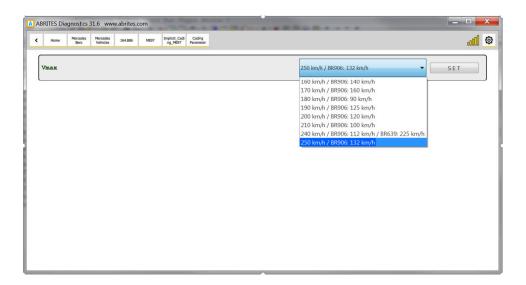
To enter the coding menu, please autodetect the car model or select it manually from the model list, enter the unit you want to code and enter the "Coding" option:



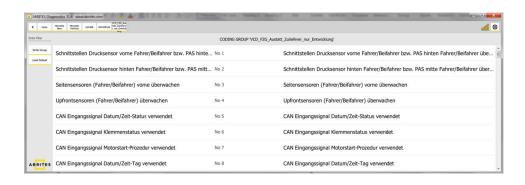
After the changes are made, you can write the coding using the "WRITE GROUP" button. You can change as many parameters as you want, followed by "WRITE GROUP":

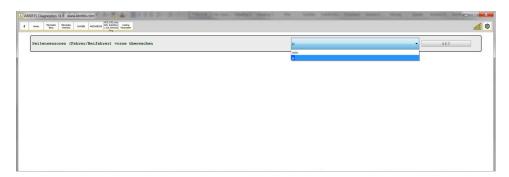


The following screenshot shows how to change the VMAX parameter responsible for the speed limit:



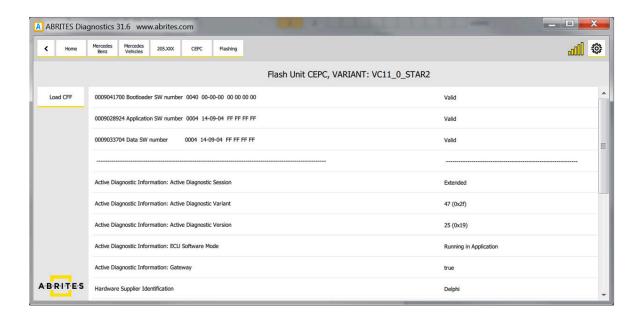
The next screenshots show what the menu for activating/deactivating side sensors looks like:

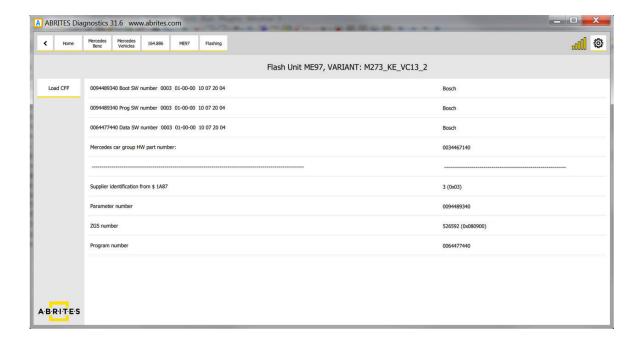


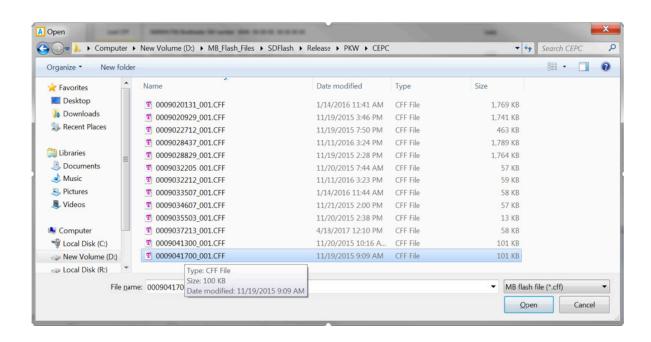


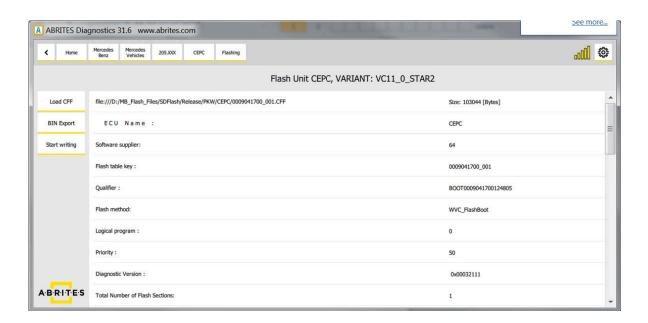
5. Mercedes ECU Flashing

The Mercedes ECU Flashing option will allow you to flash the control unit using a CFF file as shown in the screenshots below:







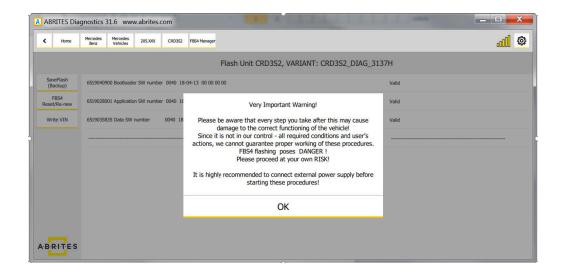


6. Mercedes FBS4 Manager

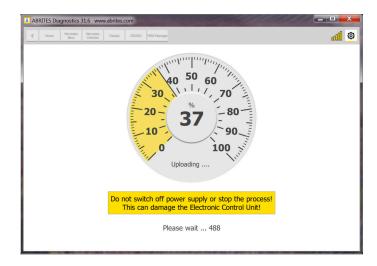
The Abrites Mercedes FBS4 Manager is a special function dedicated to the latest generation Mercedes-Benz FBS (DAS) related modules. It is where all the functions for FBS4 (around 2015+) vehicles will be developed. For the moment the focus of the function falls on its service related abilities. It allows the following for modules installed in Mercedes vehicles equipped with the FBS4 generation of DAS:

Renewal of FBS4 7G Tronic units 722.9 (VGSNAG2). ALL BY OBD or internal CANBUS. Renewal of FBS4 CRD 3.X Engine Control Units. ALL BY OBD or internal CANBUS.

The FBS4 Manager can be opened once you enter an FBS4 module and clicking the "FBS4 Manager" button on the left side of the screen. It is very important to follow the instructions as per the screenshot to avoid damage:



This is what the process looks like once the renew operation is started:



The FBS4 funcitonality offers the change of VIN in the supported units:

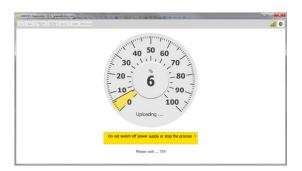
1. Writing the VIN



2. Reading Flash



3. Uploading the modified Flash

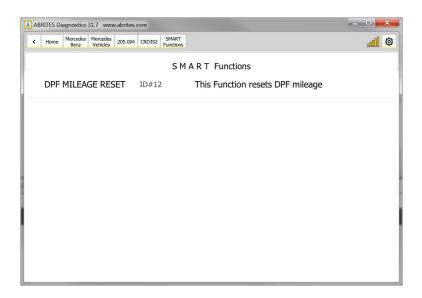


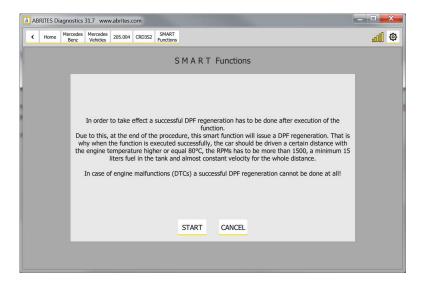
4. VIN writing has successfully finished



7. Smart Functions

DPF mileage reset smart function – this function will clear all the DPF distance history. Select the ECU from the diagnostics menu and select SMART functions. The following message will appear:



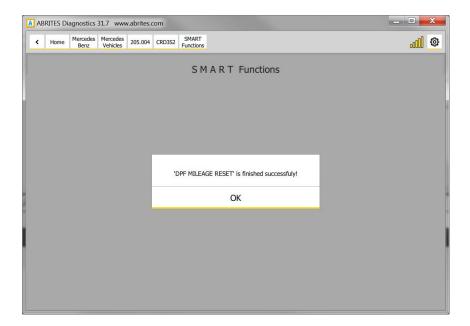


VERY IMPORTANT NOTE:

If the total distance of the car has been manipulated (total distance is decreased) even the fact that the function will finish successfully, this will immediately cause a DTC generation due to the fact that a DPF mileage distance more than 400km will be set (due to a negative calculated distance value).

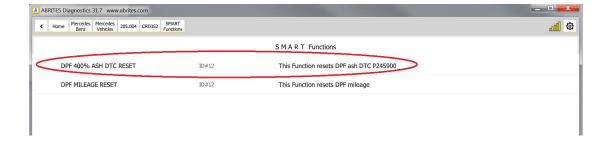
In this case, a successful DPF regeneration will never be done!

To solve this issue, there is a 15 minutes test in the official Mercedes diagnostic tool which has to be executed!



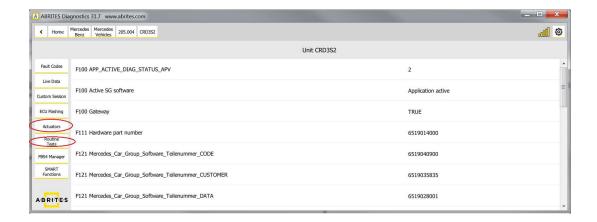
DPF 400% ASH DTC RESET – this function will allow the DPF regeneration and reset the DPF Ash DTC P245900. Select the ECU from the diagnostics menu and select SMART functions.

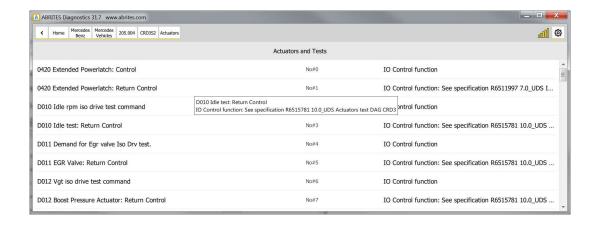
The following message will appear:



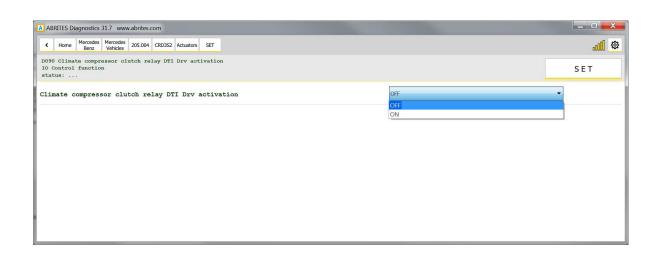
Actuators, Routine Tests, IO Controls, Adjustments/Calibrations added.

The "Actuators" and Routine tests" buttons will appear once you choose the module form the list and click on "Unit Info":









Here is a list with some other SMART functions:

"SEAT BELTS ALARM" - "Activate/Deactivate seat belts alarm warning"

- SupportedUnits: IC222

"MAX SPEED LIMIT" - "Set/Reset of speed limit to max value"

- SupportedUnits: MED177, MED40, ME97, CR6EU5, CR6BIN5EU6

"VIM" - "Activate/Deactivate video in motion"

- SupportedUnits: HU5, HU5_ENTRY, HU5S1, HU_204, HU45, HU221, HU221EVO - At the moment we support the older models only but we will have a solution very soon.

"AMG START UP DISPLAY" - "Activate/Deactivate AMG start up display"

- SupportedUnits: HU5, HU5_ENTRY, HU5S1, HU_204, HU45 HU221EVO, HU221 - At the moment we support the older models only but we will have a solution very soon.

"CAR ANDROID PLAYER" - "Activate/Deactivate car play android auto"

- SupportedUnits: HU5S1

"SUN ROOF CALIBRATION" - "Initiate sun roof calibration. WARNING: If runnig, anti-pinch detection will not be active!"

- SupportedUnits: TSSR166, TSSR176, TSSR_204, TSSR_212, TSSR_246

"360 DEGREE VIEW CALIBRATION" - "Calibrate ALL cameras of 360° suround view system", /FunctionDescription/

- SupportedUnits: "SVS207"

"SVS FRONT CAMERA CALIBRATION" - "Calibrate FRONT camera of 360° suround view sistem"

- SupportedUnits: "SVS207"

"SVS REAR CAMERA CALIBRATION" - "Calibrate REAR camera of 360° suround view sistem"

- SupportedUnits: "SVS207"

"SVS RIGHT MIRROR CAMERA CALIBRATION" - "Calibrate RIGHT mirror camera of 360° suround view sistem"

- SupportedUnits: "SVS207"

"SVS LEFT MIRROR CAMERA CALIBRATION" - "Calibrate LEFT mirror camera of 360° suround view sistem"

- SupportedUnits: "SVS207"

"DPF MILEAGE RESET" - "This Function resets DPF mileage"

- SupportedUnits: CRD3, CRD3S2, CRD3H

"ADDLUE EMERGENCY START" - "Allow engine start in case of remaining 0km of ADBLUE"

- SupportedUnits: "CR60LS"

IMPORTANT:

ScanAll == Connect

'ECU Selection' is intended to be used for collecting of a custom car's device list.

For example if the modules cannot be identified when performing diagnostics in the car, the user can collect a list of units which corresponds to the car and to start 'Scan All' of all those units.

That is why using of button 'Connect' (instead of ScanAll) is confusing due to the fact that if you have collected a list of 100 devices, it is impossible to connect with them in parallel.

When the list with the selected devices is done, clicking on 'ScanAll' button will start the procedure for scanning of every selected unit.

When scanning process is finished, every existing and detected unit from the list will be shown on the screen as it is done after automatic detection and scanning of a normal car.

Of course, there is no limitation about the number of the selected devices - it could be from 1 to thousands, so you can use it also for testing of a module on your desk, by selecting of only this module in the shown list and just pushing 'Scan All' button after that - if the device is connected and works properly, you will see it after scan process and you can continue with your work. If the device is defective or not connected properly you will see an empty list (blank page).

8. Odometer correction using MN030 FBS4 instrument cluster calibration and EM008/EM014/EM018 (old EM009)

With the use of MN030, the correction of the odometer in W205/W222/W213 and related models is now possible.

For W213 (up to 2018) and related models the procedure is done with the designated EM014 emulator, For W205, W222(up to 2018) and related models, the EM008/EM018 (old EM009) should be used.

There are two types of FBS4 instrument clusters:

IC222 – fitted in W205, W222 (up to 2018) IC213

IC213 (up to 2018) – W213 (up to 2018) and related models IC213 (2018+) - W213 (2018+), W222 (2018+), W463 (with IC213) and related models

Models with dashboard IC222 type require emulator EM008/EM018 (old EM009)/EM014 to be installed to block the synchronization with the EZS.

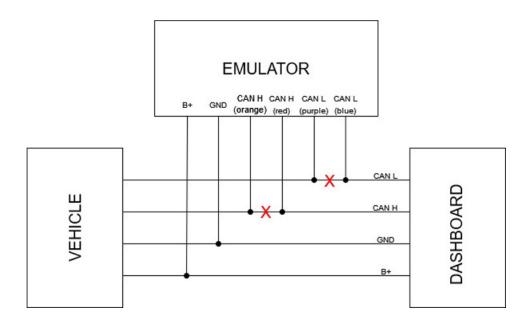
Models with dashboard IC213 (up to 2018) type require emulator EM014 to be installed to block the synchronization with the EZS.

Models with dashboard IC2013 (2018+) do not require an emulator to be installed as the MN030 license disables the dashboard synchronization with the EZS.

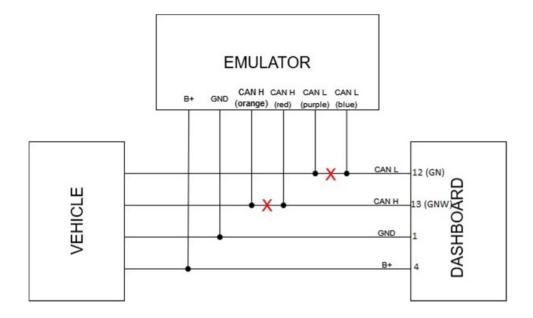
EM014 emulator is required only if MN029 license is used.

MN030 is also used to replace IC213 (2018+) instrument clusters – make them virgin and then adapt.

Here is the connection diagram for IC213:



Here is the connection diagram to the Powertrain (green) CAN-BUS for all other instrument clusters which have 2 CAN H-CAN L pairs:



EM008:

Supported models:

W204 and related models
W212 and related models
W117/W176/W246 and related models
W166 and related models
W205 and related models
W222 (up to 2018) and related models
W447



EM009:

It comes equipped with a cable set (jumper) which is used to connect to the cluster directly.

Supported models:

W204 and related models W212 and related models W117/W176/W246 and related models W166 and related models W205 and related models W222 (up to 2018) and related models W447



EM014:

Supported models:

W204 and related models
W212 and related models
W117/W176/W246 and related models
W166 and related models
W205 and related models
W222 (up to 2018) and related models
W447
W213 (up to 2018)
W463 (with IC213) (emulator is not required if MN



EM018

The ABRITES EM018 emulator is designed to assist the odometer calibration when this cannot be done by diagnostics.. It comes equipped with a cable set (jumper) which is used to connect to the cluster directly.

Supported models:

- A-class/GLA-class (2012-2019) W176, W117, X156 and related models based on the same platform
- B-class (2011-2019) W246 and related models based on the same platform
- C-class/GLC-class (2007-2021) W204, W205, X256 and related models based on the same platform
- E-class (2009-2016) W212, W207 and related models based on the same platform
- M-class/GL-class/GLE-class (2011-2018) W166/X166 and related models based on the same platform
- S-class (2013-2018) W222 and related models based on the same platform
- Vito (2014+) W447 and related models based on the same platform





Red - 12V+ Brown - GND



Dashboard connector legend:

Purple/White - CAN H Purple - CAN

9. Exhaust flaps - adjusting air flow through the exhaust

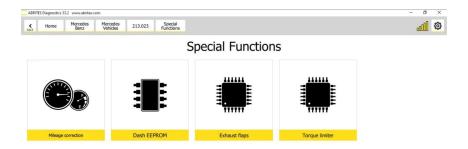
Most modern Mercedes-Benz performance cars are equipped with Mercedes-Benz exhaust flap technology for adjusting air flow through the exhaust, affecting sound, performance, and comfort.

Mercedes-Benz flap technology works in conjunction with DYNAMIC SELECT Driving Modes. When a mode is selected, the exhaust flaps, located inside the exhaust near the rear bumper, allow more or less air through the exhaust piping. By allowing more air through, the engine will sound more aggressive and can possibly add a little bit of power, sacrificing efficiency and noise reduction.

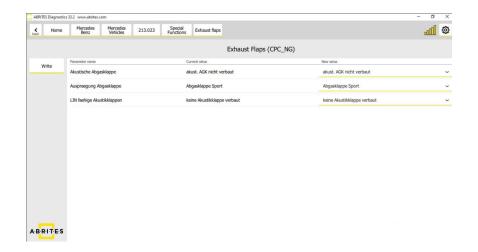
Actually, the exhaust flaps have more to do with sound than actual performance. If you are driving an AMG SL65, you might notice more of a power gain than if you are driving a CLA45, but in reality, it is only a few horsepower. That being said, the sound change is like magic and gives driving a really fun twist.

To make the Exhaust flaps coding, you can follow the steps below:

1. Enter the **Special Functions** menu



2. Enter "Exhaust Flaps" and make the desired changes



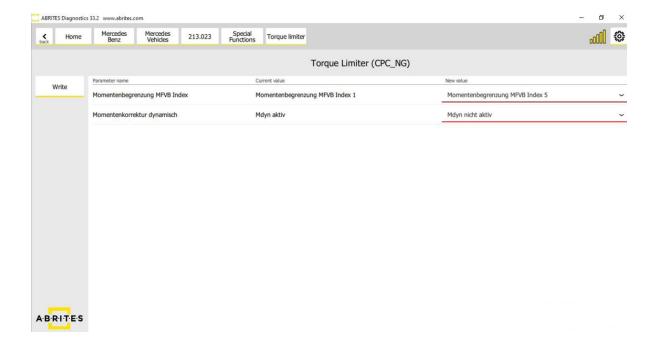
After making all of the desired changes, click the "Write" button to save the changes in the car.

10. CPC Torque limiter - limit the torque output of the ECU

The CPC Torque limiter functionality allows the user to limit the torque output of the ECU, so even if a tuner manages to achieve higher, more efficient toque curve figures, the ECU will still be hindered by the CPC. There are built-in limitations and the ability AVDI ofers is to reach said limits. Here is an example: Mercedes W206 C180. The car comes with a torque capacity of 250 N m (184 lb ft) at 1,800–4,000 rpm but a tuner can achieve 500 Nm of torque The CPC of this car in its factory form is set to a maximum of 300 Nm (just to be safe for overboost applications) and the maximum capacity the CPC can be unlocked to is 420 Nm, so the tune applied to the ECU must be created with that in mind, it will not be able to spread to its full potential.

To make the desired changes, you enter the Special Functions menu after selecting the model you're working on and them select the "Torque Limiter" option. Make the desired changes and then click the "Write" button to save them:

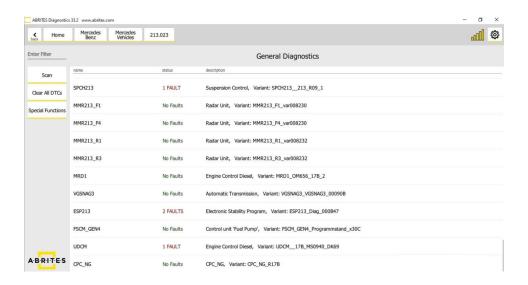
1. Torque Limiter screen in the CPC unit (CPC_NG):



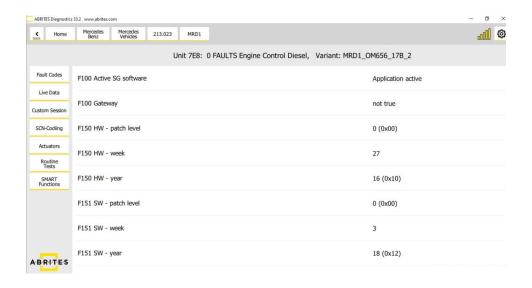
11. VMax calibration - Speed Limiter

The speed limiter is again managed by the same two modules and once again we need to have in mind that the CPC has pre-defined values for that too and we can reach the maximum so do not expect 330 km/h+ from the same C180 from the example above. Let us take the C217 C63 AMG as an example – the earlier version, equipped with a 5.5 litre twin turbocharged engine can reach a maximum speed of 310 km/h in "de-restricted" form while the facelifted model (4.0 litre twin turbocharged) is forced to make due with just 300 km/h. Both are a great improvement over the stock 251 km/h. To make the desired changes, you can follow the steps below:

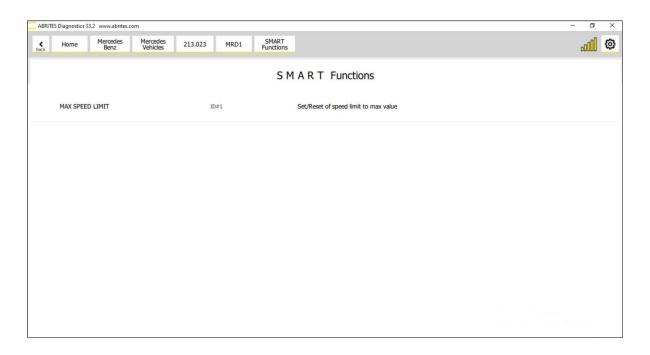
1. Enter the diagnostics screen and do a Scan



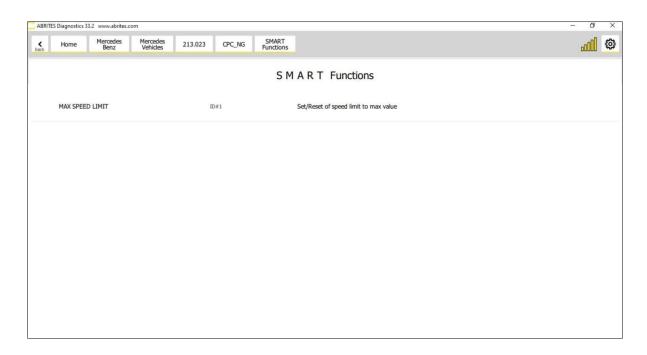
2. Enter the ECU



3. Enter the Smart Functions menu and set the limit values:



4. You can also make the changes in the CPC unit (CPC_NG):



12. Special Function "Speed Limit Calibation"

The new development of our company is focused on Speed Limiter Calibration for Mercedes eVito 447 - electric vehicle. This functionality lets you change the pre-set speed limiter of the vehicle with both higher or lower value. In order to use it, you need to open the Special Functions Menu and open Speed Limit Calibration icon. As seen in the screenshots below, there is a dropdown menu, which gives you possible speed limits, and also the current speed limit is shown. You need to choose the speed limit of your preference, and click the "Write" button, and the procedure is complete.

