

ABRITES DIAGNOSTICS FOR VAG ONLINE





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The Abrites software and hardware products are developed, designed and manufactured by Abrites Ltd. During the production process we comply to all safety and quality regulations and standards, aiming at highest production quality. The Abrites hardware and software products are designed to build a coherent ecosystem, which effectively solves a wide range of vehicle-related tasks, such as:

Diagnostic scanning Key programming Service Intervals Configuration and coding DSG Mileage Calibration MMI Functions

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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 <u>support@abrites.com</u>.**

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List of revisions

Date	Chapter	Description	Revision
29.04.2022	ALL	Document created.	1.0
12.08.2022	3	Basic settings, Adaptations	1.1
12.08.2022	3	Long coding	1.1
12.08.2022	4	MMI functions	1.1
12.08.2022	4	Wireless Carplay/Andr. auto	1.1
12.08.2022	4	Video in motion	1.1
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16.06.2023	4.4	VAG Immo V adaptation	1.1
12.07.2023	ALL	PCR2.1, Simos8.x, General revision	1.2
29.11.2023	4	Special Functions Update	1.3

1. Introduction

"ABRITES Diagnostics for VAG ONLINE" is one of the latest Abrites developments in terms of VAG diagnostics. With the help of this tool you can perform reading and clearing of diagnostic trouble codes as well as operations unsupported by other diagnostic tools with the electronic modules inside the vehicle such as replacement and coding of control units, programming keys, as well as mileage calibration.

The functionality of your software depends on the purchased licenses for your interface. Please check the "License Viewer" installed on your computer for your unique interface ID number.

2. Installation

The "ABRITES Diagnostics for VAG ONLINE" is installed together with the rest of the Abrites diagnostic software applications when the installation files are received.

You could easily identify and access it by entering the Audi, Volkswagen or Skoda buttons with the Internet connectivity symbol as shown below:







3. Using the Abrites diagnostics for VAG Online

When starting the software it is recommended to have the vehicle connected to an external power source in order to be sure that the vehicle does not lose power during the time spent working on it. When the software is started the vehicle will be automatically detected and General Diagnostics screen will be displayed and the scanning of the modules will automatically start.

Using the Abrites Diagnostics for VAG Online we have access to a multitude of functionality related to the MMI (Multi Media System), Basic settings, adaptations, and long coding. It is very important to know that Abrites Diagnostics for VAG is able to save a backup of everything you can change to a file on your computer which you can later use to restore the module or whole vehicle to the state in which you started. It is very important to save backups using the "save to file" option in order to be safe.

Please keep in mind that all of the functionality described below may require hardware changes or coding of multiple modules within the VAG vehicles in order to ensure full functionality. Research about each particular case must be conducted before performing any of the procedures.

3.1 General Diagnostics

The screenshot below shows the main diagnostics screen. The software will go through all available protocols and will identify all available modules in the vehicle you are working on. You could then enter each module and you will see all available options for it - identification, live/measured values, long coding, adaptations, basic settings and others.

C ABRITES Diag	nostics 34.0 N	ww.abrites.com					σ×
K Home	VAG						© ال
Enter Filter			General Diagnostics Scanning				٨
Scan	Address	Name	PartNum	Description	Protocol	Faults	
	01	Engine Control Unit - Master	95860163707	P2A8UM5T0WS28	ISOTP	no faults	
Complete Scan	02	Transmission Control Unit	0C8927769DN	AL1000 AISIN	ISOTP		
Clear Faults	03	ABS	7P0907379T	MK25A	ISOTP	1 fault	
Vehicle Report	08	A/C-/heater electronics	7P5907040CC	BKE_VORN	ISOTP	3 faults	
Key Learning	09	Electronic central electric system I	7PP907064KM	BCM_VORNE	ISOTP	no faults	
Special Functions	10	Parallel parking assistant	95B919475L	PARKHILFE PDC	ISOTP	no faults	
	15	Airbag	7P0959655G	VW10Airbag51H	ISOTP	no faults	
	16	Steering column electronics	958953507AE	KLSM	ISOTP	no faults	
	17	Dash Board			ISOTP		
	19	Gateway	95B907530J	zentr Gateway	ISOTP		
	34	Level control system	7P0907553AH	PASM	ISOTP	1 fault	
	3c	Lane change assistance (SWA)	8T0907566B	SWA Master	ISOTP	no faults	
	47	Sound system	4G5035223E	MIB2_amp_P	ISOTP	no faults	
	53	Parking brake			ISOTP	1 fault	
	5f	Information electronics 1	9P1035880L	MU-P-LNS-US	ISOTP	2 faults	
	65	Tire pressure monitoring	7PP907273H	RDKBERU30	ISOTP	no faults	
	6c	Rear view camera system	7PP907556AL	Areaview 2	ISOTP	no faults	
	6d	Rear lid electronics	7P5959104	HDSG-Modul	ISOTP	no faults	
_	аS	Driver assistance systems front sensor system	7PP930653E	Frontkamera	ISOTP	no faults	
ABRITES	b6	Steering column electronic systems	Getting LIDS modules Skin		ISOTP		10/

3.2 Basic settings

In order to enter the basic settings features you need to enter the module of interest from the main diagnostic menu, from there you will be able to see the basic settings button. Once you press it you will see all the basic settings available for the module in question.

This option is designed to return the settings to the factory preset settings for the specific vehicle.

The basic setting include features which are mostly used by service repair shops to setup a new module or re-calibrate an existing module, these functions are used for calibration of electronic components and setting them in such way to operate in the vehicle.

Example: Dirty throttle body has been cleaned and needs to be returned to its factory settings because it is no longer full of dirt.

For example basic settings are used for throttle body setup after cleaning, clutch calibration in DSG vehicles, even infotainment systems where you can renew the HDD and setup a multitude of other features and functionality within the car or steering angle position sensor calibration.

About 25 Diagnostics 55.5 Wirking Control 1	
tex Home VAG Information Basic Settings	© (h.
Name St	64
Navigation System Calibration Reset	>
MOST Ring Break Detection	>
Reset To Factory Setting	>
Media Region Code Counter Reset	>
Parental Management Level Reset	>
HDD partition format	>
Infotainment Recorder Data	>
Swap Function Delete	>
Bluetooth Paired Devices Delete	>
Swap Function Activate	>
SWDL Trigger Select Source	>
SWDL trigger start download	>
Prepare Feedback Documentation	>

Here is an example where we are setting the values of the steering angle position sensor to zero:

ABRITES Diagnostics 33.6 www.abrites.com	- 0 ×
Link Home VWG Seeing column electronics Basic Settings	a <u>n</u> 💿
Name Solus	
Steering Angle Sender - SET Zero Point	>
Steering Angle Sender - RESET Zero Point	>
Steering Angle Sender - SET Zero Point With Tester	>



3.3 Adaptations

The adaptations menu is designed to allow you to make changes which are related to the specific needs of the customer.

The example with the rear (boot or trunk) door is very clear because you can have a customer with a lower garage ceiling who needs to have their door open lower because it will hit the ceiling.

There are many examples of what can be done, including service intervals.

In the example below you can see a few adaptations, one of them relates to the enabling or disabling of active noise cancellation, setting desired values for the audio output of the sound system, etc.

You can also see that Abrites Diagnostics for VAG Online provides you with notifications in order to advise you to save the values before modifying them in order to have the option to return the module to the previous state.

Once the values have been changed you can simply press the "Write" button which will allow the software to make the changes you have set.

In order to enter the adaptations you have to enter the desired module from the diagnostic menu and press the "Adaptations" button.





ABRI	TES Diagnostics 3	1.5 www.abrites.com						
<	Home V	4G Sound system	Adaptation					
back			_					
Active						Set Loudspeake	r Test Frequency	
Active								
Set Lo	Current Value:	OF A0 03 E8 0	0 64					
Video	New Value:	OF A0 03 E7 0	0 64					
	Name				Value			Description
	Treble [Hz]				4000			Byte: 0, bit: 0~15
	Mid-range [Hz]				999			Byte: 2, bit: 0~15
	Bass [Hz]				100			Byte: 4, bit: 0~15
						Would you like to save o	urrent value to a file first?	
						(recom	nended)	
						Yes	No	

3.4 Long coding

Long coding allows you to change parameters pre-set within the modules, but not enabled. For example you can change the configuration of modules from US specification to EU and vice versa, you can enable lap timer on the instrument cluster, change the start-up animation in the dashboard and many other configurations which your customers may require.

Long coding essentially changes the byte string but it also allows you to see the values in plain text and select the needed changes via a drop down menu. Once you are satisfied with the desired configuration you can press the "Write" button and the Abrites diagnostics for VAG will apply the changes you want to the module.

ABRITES Diagn	ostics 33.6 www.abrites.com			- (0 X
¢ Home	VAG Driver assistance systems front se Long Coding			,	<u>. (</u> ©
Current Value: New Value:	04 07 03 06 00 00 04 04 02 20 23 A0 AD 00 00 B4 00 F0 C0 20 C 04 07 03 06 00 00 04 04 02 20 23 A0 AD 00 00 B4 00 F0 C0 20 C	2 80 2 80		Read Write	
Save to file	Name Brand	Value Audi		Description Byte: 0, bit: 0~7	
Load from file	Class	E.	-	Byte: 1, bit: 0~7	
	Generation	Generation 3		Byte: 2, bit: 0~7	
	Bodystyle	Suv	<u> </u>	Byte: 3, bit: 0~7	
	Expansion	Not Coded	~	Byte: 4, bit: 0~7	
	Production Region	EU	-	Byte: 5, bit: 0~7	
	Country Variant	Europe	<u> </u>	Byte: 6, bit: 0~7	
	Chassis	Air Chassi Smodell	<u> </u>	Byte: 7, bit: 0~7	
	Steering Bar	VA Steering Bar	<u>~</u>	Byte: 8, bit: 0~7	
	Windshield	Not Coded	<u> </u>	Byte: 9, bit: 1~4	
	Traffic Side	Right Traffic	<u>~</u>	Byte: 9, bit: 5	
	Steering Side	Left Hand Drive	<u> </u>	Byte: 9, bit: 6	
	Steering Translation	Constant Translation	<u> </u>	Byte: 9, bit: 7	
	PSD version	PSD 15	<u> </u>	Byte: 10, bit: 0~3	
	Navigation	MIB high	<u> </u>	Byte: 10, bit: 4~7	
	AAG	Not Coded	~	Byte: 11, bit: 0	
	SWA	Not Coded	<u> </u>	Byte: 11, bit: 1	
ABRITES	ACC	Not Coded	~	Byte: 11, bit: 2	

ABRITES Diag	nostics 33.6 www.abrites.com			- ø ×
K Home	VAG Head-Up Display Long Coding			l ©
Current Value: New Value:	2A 00 C0 2A 00 C0			Read Write
	Name	Value		Description
Save to file	Road Sign Detection	Not Available	<u> </u>	Byte: 0, bit: 0
Load from file	Navigation System	Available	-	Byte: 0, bit: 1
	Lane Departure Warning	Not Available		Byte: 0, bit: 2
	BAP radio	Available	-	Byte: 0, bit: 3
	Nightvision	Not Available		Byte: 0, bit: 4
	GRA ACC	GRA Available	~	Byte: 0, bit: 5~6
	seat memory	Not Available	~	Byte: 0, bit: 7
	model year	Model Year 1	<u> </u>	Byte: 1, bit: 0~5
	Brightness sensor	RLS Boost	<u> </u>	Byte: 1, bit: 6~7
	Traffic light info online	Not Available	<u> </u>	Byte: 2, bit: 5
	Speedimiter	Available		Byte: 2, bit: 6
	Predictive Efficiency Assistant	Available	<u> </u>	Byte: 2, bit: 7
A'B'R'I'T'E'S				

4. Special Functions

The Special Functions section in the Abrites Diagnostics for VAG ONLINE offers 3 main categories with the corresponding functionalities:

- 1. Component Security, Parts Adaptation (Key Learning by CS, Unlock BCM2, Read CS on Bench, Dump Tool, Immo V adaptation.)
- 2. Configuration (Video in motion, MMI Functions, Wireless Carplay/Google Auto, Guided Functions)
- 3. Other (DSG Mileage recalibration, Service Intervals)

ABRITES Diag	nostics 34.7 www	abrites.com			-		×
K Home VAG	Special Functions				AMS valid	until 09 Feb 202	• • • • • • • • • • • • • • • • • • •
		S	Special Function	ons			
Component Security, Par	rts adaptation						
R				(**			
Key learning by CS Configuration	Unlock BCM2	Read CS on bench	Dump tool	Immo V adaptation			
Video in motion	MMI	Wireless Carplay / Google Auto	Guided Functions				
Other							
DSG mileage recalibration	Service Intervals						

4.1 Special function "MMI functions"

In the MMI functions menu we have the ability to enable and disable features in the MMI system. This is done using toggle switches on the right hand side of the screen. On the left side is the feature itself and on the right side you can enable and disable a chosen feature. Examples of what can be enabled and disabled can be:

Wi- Fi Hotspot;
Offroad Menu;
Displaying of various modes (clock, etc.)
Trailer camera features;
Mirror Linking;
Three way calling;
Various other options

The button "Restart MMI" provides you with the option to test all the features you have modified almost immediately. It resets the MMI and you can check the modified features.

ABRITES Diagr	ostics 33.5 www.abrites.com	- 0 ×
K Home	V//G Special MM1 Rehotions Parctions	<u>. 1</u> ©
	MMI Configuration	
Restart MMI	WIFI hotspot	
	Support Second Phone	
	Support Of Threeway Calling	
	Mirror Link	
	Menu Display Ambient Illumination	
	Menu Display Exterior Illumination	
	Menu Display Windows	
	Menu Display Board Computer	
	Menu Display Offroad gauges	
	Menu Display Clock	
	Menu Display Side View	
	Menu Display Angle Of Slope	
	Menu Display Battery Management	
	Menu Display Rear Seat Entertainment	
	Menu Display Special Functions	
	Menu Display Trailer Assistant	
ABRITES	Menu Display TV Tuner	

4.2 Special function "Wireless Carplay / Google Auto"

Wireless Carplay and Android Auto can only be activated if the car already has Carplay or Android Auto enabled via cable.

Once you enter the "Special functions" section of the Abrites Diagnostics for VAG Online you can see that the Wireless Carplay and Android Auto is available as a separate special function.

The requirements for activation are displayed and you have a choice for the type of MMI and also the ability to choose if you want to have Apple Carplay, Android Auto or both activated for both.

ABRITES Diagnostics 33.5 www.abrites.com	- 0	×
kas Home VAG Special Punctions	.otO	۲
Wireless Carplay / Google Auto		x
Requirements: Janiban Ong, Engine Off Ogen the finor bonnet MMI Software vession should be above P2470 Wind Carphy/Golge Auto should be available Enable Wireless for: Bish Android Auto and Apple Carpiary ~		
Log Checking Infotaiment system Performing security access Security access Done. Operation finished with success. Unit is resetting		
Perform		

4.3 Video in motion

Video in motion allows you to activate the ability to use the video features of your MMI/MIB system while the vehicle is in motion. This means that you are able to view videos, TV, etc. while the car is moving. This is a very sought after function by the end customers and is available for MMI 2G/3G with both edition 1 and 2, as well as MIB. In order to enter the function you need to select "Special functions" from the diagnostics menu, followed by "Video in motion"





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4.4 Special function "Unlock BCM2"

The "Unlock BCM2" functionality is found in the "Special Functions" menu and by selecting "Unlock BCM2". It is available with VN020 license and included in VN003 license. This special function has the following capabilities:

Read the component security (CS) bytes from **locked BCM2** modules 2013-2018 For both A4/A5/Q5 and A6/A7/A8/Touareg platforms Use the CS bytes for key programming A4/A5/Q5 vehicles 2008-2016 - all keys lost A6/A7/A8/Touareg vehicles 2010-2018 - adding spare key (and all key lost programming, if CS of ECU/TCU can be read)

There are two methods that you can use, in order to complete this task:

- 1. Using the new ZN080 set a very convenient and fast method
- 2. Using the CB016 set requires soldering (outdated)

ABRITES Diagr	nostics 34.7 www	abrites.com			-		×
K Home VAG	Special Functions				AMS valid	l until 09 Feb 2025	all ©
		S	pecial Function	ons			
Component Security, Par	ts adaptation						
R				(* •_)			
Key learning by CS	Unlock BCM2	Read CS on bench	Dump tool	Immo V adaptation			
Configuration							
	MMI	Ŀ	=				
Video in motion	MMI functions	Wireless Carplay / Google Auto	Guided Functions				
Other							
ô	C s						
DSG mileage recalibration	Service Intervals						

2024 Abrites Diagnostics for VAG Online

4.4.1 Using the ZN080 set

The new development of our company ZN080 set, lets you work with locked BCM2, without the need of soldering, thus, making the proces much faster and with no mistakes on the points of connection. So far our team has identified 3 types of units (so 3 different connection types) and the ZN080 set contains of 3 different tools to connect to each type of unit:

- Adapter Type A is used to connect to BCM2 units for 8K models A4/A5/Q5
- Adapter **Type B** is used to connect to BCM2 units for **4H models** A6/A7/A8/Touareg with **software version above 800** (can be found on the label)
- Adapter **Type C** is used to connect to BCM2 units for **4H models** A6/A7/A8/Touareg with **software version below 800** (can be found on the label)

Connection:

The ZN080 set consists of a few adapters with instructions. A DB25 with an Abprog programmer connects to the AVDI DB15 slot. The DB09 connects to the desired adapter type (A, B, or C). The other DB025 is connected to the DB25 connector of the AVDI. Power supply needs to be provided to the dedicated connector of the set as well. (The ZN063 12V/1A DC Power adapter can also be used as power supply; any other power adapter with the proper connector is also applicable) The way the adapter is fitted to the BCM2 unit is very simple, you just need to screw it to the diagonal sides of the PCB of the BCM. Once this is ready, you can continue with the procedure, without the need of soldering, as the needles are designed to connect to the correct spots. After job is done, you just unscrew the adapter and the BCM2 units is ready to be put together and fitted into the vehicle. This is how the set-up looks like:



Procedure:

The procedure for unlocking the BCM2 unit and programming keys consists of the following steps:

1. Once you have connected the cables to your AVDI and the BCM2 unit and have supplied power, open the software, open the "Special Functions" menu and select the "Unlock BCM2" button

2. Click "Read Data"

3. You will be prompted to make sure you have connected the ABPROG (provided in the ZN080 set) where you will have to confirm with "OK"

4. The software will unlock the BCM2 unit, the process takes about 5 minutes.

5. You will see a message that the BCM2 unit has been successfully read and the BCM2 **installed in the** car.

6. If you wish to program a key, you need to connect a PROTAG programmer and click the "OK" button to proceed.

Note:

All keys lost on Audi A4/A5/Q5 can be done by making a dealer key by pressing the "Make a dealer key" button, followed by "Learn key(s).

All keys lost on Audi A6/A7/A8/Touareg is possible if the CS of the ECU/TCU could be read.

	BRITES Diagno	ostics 34.2 w	ww.abrites.con	n				-		\times
¢ back	Home	VAG	Special Functions	Unlock BCM2					OO	٢
Γ					Key Le	arning				x
		_								
	CS of Immobiliz	er:	5E FC FC) 42 84 1E 0A 85	5 08 3C 14 2F P	9 94 28 5F ₁₆				
	Log									
				Make a	dealer key	Learn key(c)			
				HIdke d	uedier Rey	Learn Key(5)			

Once the BCM2 unit is unlocked, you will be able to save the data to a file, and proceed to key learning from this screen. The procedure is guided, so you just need to follow the instructions.

N.B. BCM2 units should be installed in the vehicle for key learning procedure

C ABRITES Diagr	nostics 34.3 www.abrites.com	- 🗆 X
K Home	VAG Special Functions Unlock BCM2	all © ?
		Unlock BCM2
Wiring	Name	Value
diagrams		Diagnostic data
	VAG number:	8K0907064GH
Read	Version:	0621
Save immo data		Immo data
Learn a key	VIN:	WAUZZZ8T48A44444
	CS of engine:	26 33 D4 16 4C 67 AF 49 10 AC BE 92 21 7E 78 26
	CS of immobilizer:	5E FC F0 42 84 1E 0A 85 08 3C 14 2F F9 94 28 5F
Recovery	Remote control key:	00 00 00 00 00 00 00 00 00 00 00 01 18 63 31 F7
	Power class:	79
	Key count:	01
	Key 1:	CD DE 27 99 00 12 FF FF FF FF FF FF E9 05 10 75
	Key 2:	66 86 19 99 FF 12 FF
	Key 3:	BA CC 4A 96 FF 12 FF
	Key 4:	FFFFFFFFFFFFFFFFFFFFFFFFF
A'B'R'I'T'E'S	Key 5:	FF
	11 A-	

ABRITES Diagnostics 34.3 www.abrite	es.com		- 🗆 X
K Home VAG Spec	ial Unlock BCM2		 ?
	Key Le	earning	×
CS of Immobilizer: 5E	E FC F0 42 84 1E 0A 85 08 3C 14 2F	F9 94 28 5F ₁₆	
		_	
	Please, make sure the BCM is connected to	attached to the car and AVDI is	
	connected to		
	Confirm	Cancel	
	Make a dealer key	Learn key(s)	

4.4.2 Using the CB016 - outdated and replaced by ZN080

CB016 cable set is an outdated product.

For optimal performance, please use the <u>ZN080 - BCM2 Solder-Free Connection Set</u>

The functionality requires the user to use the ABPROG, CB162 together with the CB161 cables. CB161 requires a power adapter to be used in order to supply the BCM2 unit with +12V. The ZN063 12V/1A DC Power adapter can also be used as power supply (any other power adapter with the proper connector is also applicable).

The procedure requires the BCM2 unit to be disconnected from the car.

On the next pages you may find the connection diagrams for the different types of BCM2 units.

Below is an example of 4H BCM2 unit connected with the outdated CB016





*Depending on the software version of the unit, there might be very little differeces in the connection points' positions. For this reason we encourage you to use the ZN080 set.

Below you may find an example of connection to a $8 \mathrm{K} \ \mathrm{BCM2}$ unit





The procedure for unlocking the BCM2 unit and programming keys consists of the following steps:

1. Once you have connected the cables required to your AVDI and the BCM2 unit and have supplied power, click the "Unlock BCM2" button from the Special Functions menu

2. Click "Read Data"

3. You will be prompted to make sure you have connected the ABPROG where you will have to confirm with "OK"

4. The software will unlock the BCM2 unit, the process takes about 5 minutes.

5. You will see a message that the BCM2 unit has been successfully read and that the ABPROG wiring can be removed and the BCM2 installed in the car.

6. If you wish to program a key, you need to connect a PROTAG programmer and click the "OK" button to proceed.

Note:

All keys lost on Audi A4/A5/Q5 can be done by making a dealer key by pressing the "Make a dealer key" button, followed by "Learn key(s).

All keys lost on Audi A6/A7/A8/Touareg is possible if the CS of the ECU/TCU could be read.

4.5 Special Function "Read CS on bench"

This special function lets you read Component Security CS Bytes on bench for ECUs and TCU, more precisely, the following types of units:

- PCR 2.1 ECUs,
- Simos 8.x ECUs,
- Simos 1x.xx ECUs,
- DCM 6.2 ECUs,
- AL551 TCUs,
- DL501 TCUs,
- DQxxx TCUs (Immo V Generation)

Each section of this special function is guided, having all required details, connection methods, anything you may need in order to execute the required procedure.

ABRITES Diagnostics 34.8 www.abrites.com -	-	
k Home V//G Special Functions		ii ©
Special Functions		
Component Security, Parts adaptation		
Please select	×	
Example for the second se	_	
Configuration Pe21 read CS Simositx read CS Simositx xeed CS TCJ AL551/DL501/DQxxx CS DCM6.2 read CS	_	
Video in motion		
Other		
or or a state of the state of		
DSG introductional Cancel		

4.5.1 PCR 2.1 read CS

Below you may find the screen you see in the PCR 2.1 read CS special function. It fives you all connection details (PIN OUT), and you cal also see the connection diagram as well.

ABRITES Diagnostics 34.8 www.abrit	es.com	- 0	×
Home VAG Special PCR2.1			() ©
	Read component security of PCR2.1 ECUs		
ATTENTION: This function requires direct connection to the ECUI Use Distribution box and connect ECU pins to CB401 as follows: - PIN 5 to CB4 - PIN 5 to CB4 - PIN 67 to CAN-61 - PIN 67 to CAN-61 - PIN 67 to CAN-61 - PIN 67 to T2 -			
	Perform		



4.5.2 Simos 8.x read CS

Below you may find 2 versions of PIN outs (connections) for the Simos 8.x ECU for bench connection. You need to make this connection in order to be able to read the unit's Component Security.

Home V/AG Special SIMOS ECUs Tool	
	Read component security of SIMOS8.x ECUs
ATTENTION: This function requires direct connection to the ECUI Use Distribution box and connect ECU pins to CB401 as follows: - PIN 1 to 'GNU' - PIN 3 to 'GNU' - PIN 3 and PIN 92 to 'IGN' - PIN 3 to 'CAN' of - PIN 18 to 'T1' (On connector T60) - PIN 23 to 'T2' (On Connector T60) - Log	
	Perform
T60	
T60	T94

4.5.3 Simos 1x.xx read CS

This special function lets you read the CS bytes of Simos ECUs of the following types:

- Simos 10.22,
- Simos 10.24,
- Simos 12.x,
- Simos 16.11,
- Simos 18.1/18.2/18.3/18.6/18.10

You will see a drop down menu, where you have to select the type of unit you are working with. On the left hand side you will see a "Wiring diagram" button, which will open the connection methods and diagrams for the selected unit, in the example we are using the Simos 18.1 with the use of CB403

ABRIT	TES Diagnostics 34.8 www.abrites.com		- C	x ı
K Home	VAG Special SIMOS ECUs Functions Tool			. di
		Read component security of SIMOS 1x.xx ECUs		
<u>Hitting</u>	ATTENTION: This function requires direct connection to the ECUI Check	Simos 10.22/10.24 Simos 10.22/10.24 Simos 12.x Simos 16.11 Simos 18.1/18.2/18		
A BRITES		Perform		



4.5.4 DCM6.2 read CS

This special function allows reading of CS (Component Security) from DCM6.2 on bench.

Obtaining the Component Security bytes will help you in the following situations:

- Engine Control Unit replacement
- Key Programming (All Keys Lost situation)

Most of the vehicles equipped with DCM6.2 engine control units use a manual transmission and blade keys. Considering this, obtaining of the Component Security (CS) and reading the Instrument cluster by using the ZN085 may help in All Keys Lost situation. The procedure is executed through the VAG Online > "Special Functions" > "Read CS on bench" menu and click on "DCM6.2 Read CS".

ABRITES Diagnostics 34.7 www.abrites.com	-		×
ses Home V/AG Special Functions	AMS valid u	until 09 Feb 2025	. II ©
Special Functions			
Component Security, Parts adaptation			
Please select	×		
Energy Constant and Constant			
Configuration Por21 read CS Simos 1x.xx read CS TOJ ALS51/DLS01/DQxxx CS DCM6.2 read CS			
Video in motion			
Other			
DBG milege resolvation			

Connections

Below you may find the required connections for reading the DCM6.2 ECU

There are 2 ways you can perform the connection.

Important:

ZN051 DS Box should be version 2.4! Versions 2.2 and 2.3 would not working for this procedure.

1. Connection using CB401 cable and ZN051 DS Box:

The white wire coming from the CB401 cable should be bridged as there are 2 boot pins and only one boot wire at this cable set.

Connector T60: PIN 52 – Boot (White Wire) PIN 41 – Boot (White Wire)

Connector T94: PIN 2 – GND (Black Wire) PIN 6 – 12V+ (Yellow Wire) PIN 67 – CAN L (Blue Wire) PIN 68 – CAN H (Red Wire) PIN 75 – T1 (Brown Wire) PIN 87 – IGN (Orange Wire)

Connection using CB403 cable and ZN051 DS Box:
 Connector T60:
 52pin – Boot (white wire)
 41pin – Boot (white wire)

Connector T94: 6pin – B+ (Yellow) 2pin – GND (black) 87pin – IGN (orange) 68pin – CAN H (red) 67pin – CAN L (blue) 75pin – T1 (brown) Below you may find picture from the software, with guidelines for the connection and the PIN OUT connection diagram of the DCM6.2. Once all connections are made, please press the "Perform" button to execute the procedure, it may take up to 5 minutes, once done the CS will be displayed.

ABRITES Diagnostics 34.7 www.abrites.com	-		×
Las Home V/AG Special Red DCM6.2 Functions CS	AMS valid	until 09 Feb 2025	<u>al</u> ©
Read Component Security of Delphi DCM6.2			
ATTENTION: This function requires direct connection to the ECU! Use Distribution Box and connect ECU pins to CB401 or CB403 as follows: - PIN to to B*/ - PIN to To G*/ - PIN to To G*/ - PIN to To CAN+L' - PIN to To CAN+L' - PIN to To C1*- - PIN to To 1*- - PIN to To 1*			
Perform Copy CS			



4.5.5 Read CS of AL551, DL501, DQxxx

This special function has the following functionalities for VAG Immo V Transmission Control Units:

- Create backup
- Restore from backup
- Mileage Calibration

You have to work on bench, using the ZN051 DS box, in order to perform mileage calibration procedure.

In order to perform any operations with TCU, you need to press "Perform" button first. Once this procedure is executed, the other buttons will no longer be grayed out. It is advisable to first save a back up, before performing further actions.

ABRITES Diagnostics 34.8 www.abrites.com –		×
Home W/G Special Read TCU/CS		
Read Component security of AL551 / DL501 / DQxxx transmissions		
ATTENTION: This function require direct connection to the TCUI This means it should be not connected through gateway! It is possible to read TCU also in the car (without dismounting it) For that purpose find the orange/black and orange/brown CAN wires and make the following connection of the AVDI: - orange/black <> ON+H (PIN6 of the COBDI)		
- orange/brown <>> CAN-L (PIN14 of the 06b11) - ground <>> CM0 (PIN4 of the 06b11) - 12V <> 12V (PIN16 of the 06b11)		
Checking for a DSBox device		
Create backup Restore from Mileage Backup Recalibration	Pe	erform

4.6 Guided Functions

This special function presents a list of guided functions, available for many different vehicle models. Once you select the guided function you wish yo execute, you will see the prerequisites, and the supported models list.

ABRITES Dia	agnostics 34.8 w	ww.abrites.com					-	
K Home VAG	Special Functions							 ٥
			Special	Functions				
	Parts adaptation							
0			Pleas	se select			×	
1						_		
Key learning by CS	A)	(鳥)	(I)	\bigcirc	≣Ø>			
	Auto start-stop	Seat belt warning	High speed warning	Navi/compass in dash	High beam assist	Display fan speed	- 1	
O								
DSG mileage recalibration			C	Cancel				
					_			
Video in motion Other D50 million reality accord			C	iancel]			



4.7 DSG Mileage Recalibration

This special function will let you read mileage information in the DSG TCU, however, it has limited functionality. For proper mileage calibration, please use Special Functions > Read CS on Bench > TCU AL551/ DL501/DQxxx, and refer to the corresponding section in this user manual for guidelines.



4.8 Service Intervals

This special function will let you read the update the service intervals of VAG vehicles.



4.9 Programing

This special function lets you flash electronic control units with the use of .frf files.



4.10 Special Function "Dump Tool"

This special function lets you upload a dump file and extract immo data from various modules.

Functionalities:

- TCU Immo Off
- Checksum correction
- Get CS: DQ200/DQ250/DQ381/DQ500/AL551 (8HP)/DL501/Simos PCR2.1/Simos xx.xx/ELV
- Get CS/PIN: EDC17/Kessy

ABRITES Dia	gnostics 34.8 w	ww.abrites.com	I				-		×
Home VAG	Special Functions						AMS valid u	ntil 09 Feb 2026	
			Special	Functions					
Component Security, I	Parts adaptation								
Q			Pleas	se select			×		
X									
Key learning by CS	O	CONCENT NONIO	1010	1000	(CHICH)	1010			
Configuration	TCU immo off	Checksum correction	Transmission DQ200: get CS	Transmission DQ250: get CS	Transmission DQ381: get CS	Transmission DQ500: get C	3		
	CONC.								
Video in motion	Transmission AL551 (8HP):	Transmission DL501: get CS	Simos PCR2.1: get CS	Simos Benzin xx.xx: get CS	Gateway: get keys	ELV: get CS	•		
Other									
	EDC17: get CS/PIN	Kessy: get CS/PIN							
O ^o									
DSG mileage recalibration			C	ancel					
	_	_				_			

RITES Diagnostics 34.9 www.abrites.com	- 0
Home VAG Special Functions Immo Kessy	-000 ₀
Kessy	
Kessy data CS	
C8 E9 22 F1 C8 20 E4	
Pin	
2046	
Immo number	
VWZ3Z0F1549363	
VIN	
WVGZZZ7LZ7D060666	
C8	
E922F1C8	
	Type of Kessy
20E4	New Kessy (2008+)
	0
08	Old Kessy
C2BDEF	

5. Key Learning

The "Key learning" functionality is available with VN003 license.

With the Abrites Diagnostics for VAG Online you can program keys to the following car/platforms:

EZS-Kessy (e.g Audi A6 4F) BCM2 (e.g. Audi A4/A5/Q5/ 2008+) MQB (spare key programming for VDO MQB immobilizer (dashboard) Immo 3/4 vehicles Immo V key learning by CS

In order to program keys, a ZN003 (or ZN002) PROTAG will be required. All Keys Lost situations, additional cables produced by Abrites might be required (please check <u>https://abrites.com/shop</u>)

To start the procedure, click the "Key Learning" button in the main diagnostics menu:

ABRI	ITES Diagnostics 34.8 www.abrites.com		-	
K Home	VAG			al ©
Enter Filter	Ger	neral Diagnostics		8
Scan	Address Name P	artNum Description	Protocol	Faults
Complete Scan				
Clear Faults	Please	e select Immo type:	X	
Vehicle Report		EZS		
Key Learning				
Programming		BCM2		
Special Functions				
		MQB		
		IMMO34		
	Im	no5 keylearning by CS		
A'B <mark>'R'I'T</mark> E'S				

All procedures are "guided" for all available cars/platforms and you just need to follow the on-screen instructions:



6. VAG Immo V adaptation

6.1 Supported modules

BCM2 4H0, 8K0 (Audi A4/A5/Q5 2008-2017, Audi A6/A7/A8 2010-2018, Touareg 2010-2018); MQB Dashboard ECU TCU ELV

Normally it is possible to adapt all the modules if you know the Component Security (CS) bytes of the original and the replacement module. The only exception is the Bosch ECUs after 2015 since they have crypto-kernel inside the MCU.

For the Immobilizers (BCM2 or dashboard) you will need also the Component Protection (CP) of the original and the replacement module. For adapting the Immobilizer you need to know also the power class of the car. All the information (CS and CP) you can get in different ways:

for MQB dashboards you can get the data by OBDII (if you have a working key for the dash), or with the RH850 programmer.

for BCM2 you can get the data bye OBDII or using VN020

for ECUs you can read the info in some cases on bench (e.g. Simos ECUs)

for TCUs you can read the data on bench.

for ELV for BCM2 cars you can extract the data from the MCU dump.

If you don't have the CS of both replacement and original module, the procedure cannot be performed.

6.2 Immo V adaptation of ECU/TCU/ELV

- 1. Open VAG->Special Functions and click on "Immo V adaptation
- 2. Select a module to adapt.

K Home VAG F	Special Functions			al 🌣
	Spe	cial Functions		
Component Security, Part	ts adaptation			
Key learning by CS	Unlock BCM2	Pcr21 read CS	Simos8.x read CS	
	O °	\$ 0		
Simos 1x.xx read CS	TCU immo off	TCU AL551/DL501/DQxxx CS	Dump tool	
Checksum correction	Immo V adaptation			
Configuration				

¢ back	Home	VAG	Special Functions	Immo V adaptation	• i ii.
Г				Plea	ase select a module to adapt.
E	ngine Control L	Init 1 (ECU1)			
E	ngine Control L	Init 2 (ECU2)			
E	ngine Control L	Init 3 (ECU3)			
Т	ransmission (TO	CU)			
E	lectronic Steerir	ng Lock (ELV)			
Ir	mmobilizer (Das	sh/BCM2)			
					Continue

IMPORTANT: In case you are working on an ECU - Please make sure you save the coding before begining the procedure explained in this section. The coding could be lost during the procedure, and you need to have a back-up in order to avoid risks. 3. Set the following data:

CS (Component Security) of the replacement module CS (Component Security) of the original module Power class of the original module CS (Component Security) of the immobilizer

K Home	VAG	Special Functions	Immo V adaptation]	. II 💿
CS:	nent modu	ıle:		Immo V adaptation Original module: CS: Power class: CS (immobilizer): Get VIN number from the immobilizer Load	
				Chang	e

If you want to get the VIN (Vehicle Identification Number) from immobilizer, then check "Get VIN number from the immobilizer". If not checked, the module will remain with its original VIN.

You can load replacement and original modules data (json file format generated by RH850 programmer) with the "Load" buttons.

Home VA	AG Special Functions a	Immo V daptation			II ©
CS:	nodule: 9d 4b 2c 7c 7a 55 e4 00	Immo V 00 00 00 00 00 00 00 00 Load	adaptation Original module: CS: Power class: CS (immobilizer): Set VIN number	10 BA D7 1A 56 22 C6 9 9c 9D 4B 2C 7C 7A 55 E4 9 er from the immo	6 66 04 55 73 A9 63 CE 10 6 66 04 55 73 A9 63 CE 10 bbilizer Load
					Change

4. Click on "Change" button to adapt the module.

If procedure finished successfully, then the following screen will appear:



6.2.1 Troubleshooting

1. "Can't connect to the module."



Make sure you have a connection to the module that you want to adapt. It should appear as a result of "Scan all" function.

2. "Failed to set the component security!"



Double check the CS (Component Security) of the replacement module. It usually happens when the CS of the replacement module is not correct.

6.3 Immo V adaptation of an immobilizer module (Dashboard/BCM2)

- 1. Navigate to "Immo V adaptation" special function.
- 2. Select "Immobilizer (Dash/BCM2)" option.

¢ back	Home	VAG	Special Functions	Immo V adaptation	
				Ple	ase select a module to adapt.
Enç	gine Control U	nit 1 (ECU1)			
Eng	gine Control U	nit 2 (ECU2)			
Eng	gine Control U	nit 3 (ECU3)			
Tra	Insmission (TC	ນ)			
Ele	ctronic Steerin	ig Lock (ELV)			
Im	mobilizer (Das	h/BCM2)			
					Continue

- 3. Set the following data:
 - CS (Component Security) of the replacement module
 - CP (Component Protection) of the replacement module
 - CS (Component Security) of the original module
 - Power Class of the original module
 - CP (Component Protection) of the original module

Check the modules that are available in the car. Typically there is always a ECU1. TCU is available for automatic transmissions cars, and ELV is available if the car is keyless (typically for MQB, but for BCM2 cars – later BCM2 cars don't have ELV even cars are keyless). ECU2 is available for some high performance cars (like S8 for example, while ECUs is typically available in the e-cars (like Audi E-Tron or E-Golf). It's important to check all available modules to synchronize with the immobilizer for successful adaptation. If this synchronization is not made, the respective module won't work.

¢ back	Home	VAG	Special Functions	Immo V adaptation				••••
					Immo	/ adaptation		
Re	placeme	ent mo	dule:			Original modu	ıle:	
CS:		9	D 4B 2C 7C 7A 5	5 E4 96 66 04 55	73 A9 63 CE 10	CS:	9D 4B D7 1A 56 22	2 C6 96 66 04 55 73 A9 63 77 FF
CP:		9	C 29 C4 CD C4 5	3 89 9B 9F 39 01	08 FE 72 02 11	Power class:	9c	
~ Mo	odules to	o synch	ronize:		Load	CP:	11 75 51 83 E8 BD	2D 42 69 C3 F3 81 54 CB 91 3C
	ECU	1				-		Load
	ECU	2						
	ECU	3						
	🗹 TCU							
	ELV							
								Change

4. When you are ready click on "Change" button.

5. You must connect a PROTAG programmer and put a working key in it. Click "OK" when you are ready.

K Home	VAG	Special Functions	Immo V adaptation			
			Please	connect a PROTAG	programmer and put a	
			workin	g key from the orig progran	nmer!	
				ОК	Cancel	

6. It will start to read the key.



6.1 If the car is A4/A5/Q5 (8K0 platform), then it will appear the following screen:



Please set the CS (Component Security) of the original ECU and click on "Continue" button.

7. Adaptation will start.



8. If the adaptation is successful, then a similar screen will appear:



IMPORTANT: When you've message that the "Component security" or "Component protection" are set successfully, the new values are accepted. So if you want by some reason the repeat the procedure (e.g. to repeat the MAC synchronization or the Key-Learning), now the replacement module CS (respectively CP) is like in the original module.



You have to learn a key with the new dash or BCM2.

If the module is BCM2, then connect a PROTAG device and put the key in the PROTAG device.

If the module is MQB dash, then put the key in the ignition lock (no keyless) or hold the key to the reader coil (keyless).

9. Click on "Continue" button to learn a key. The following screen will appear:

	Key Learning	
CS of Immobilizer:	9D 4B 2C 7C 7A 55 E4 96 66 04 55 73 A9 63 CE 10 16	
Log		
	Make a dealer key Learn key(s)	

Click on "Learn key(s)" button to learn a key.

10. After the key learning procedure is finished, turn the ignition off and after that turn the ignition on.

6.3.1 Troubleshooting

1. Can't connect to module(s) that should be synchronized with the immobilizer.



Double check the connection with the modules. They should appear as a result of "Scan all" function.

2. "Current key is not precoded to the car. Put the WORKING key in the Protag"



This message can appear when PROTAG is trying to read a working key (step 6 of the procedure). Possible reasons for this message are:

The CS (Component Security) of the original module is not correct. Please double check the CS of the original module.

The key is not a working key. Please put a working key in the PROTAG device.

3. MAC of some of the checked "Modules to synchronize" (step 3 of the procedure) are not synchronized with the immobilizer.

¢ back	Home	VAG	Special Functions	Immo V adaptation		<u>al</u> 💿
					Procedure has been finished.	
				Compor MAC MAC	ent security has been set successfully. of ECU1 is NOT SYNCHRONIZED. of TCU is NOT SYNCHRONIZED.	
				Compone	int protection has been set successfully.	
				Resta	rt the procedure with the right data.	
						Finish

This usually appears when CS of the original ECU (step 6.1 of the procedure) is not correct. Please double check the CS of the ECU.

Other reason might be that some module are already in sleep mode, so you've to wake up them and repeat the procedure.

4. "Failed to set component protection."



This message usually appears when the CP (Component Protection) of the original module (step 3 of the procedure) is not correct. Please double check the CP (Component Protection) of the original module.

5. "Failed to set the component security!"



Double check the CS (Component Protection) of the replacement module (step 3 of the procedure). It usually happens when the CS of the replacement module is not correct.

6. It is possible that by some reason the key-learning procedure is not completed successfully – e.g. because the key was not placed on the reader coil, or the is a mechanical problem with the reader coil) – in such case you've to repeat the key-learning procedure.

7. Appendixes

7.1 MQB/MLB CAN blocker

Our new development has the main task of filtering the communication between your vehicle and its dashboard, and is dedicated to vehicles from the MQB and MLB platforms. To elaborate on that, the car sends data to the dashboard and the filter modifies the data that reaches the dashboard unit, thus the dashboard unit displays the modified data.

The filter can pass the data through with coefficient of 20%, 30%, 40% or 50%, so if the true data value is 100 units, the filtered data that would reach the dashboard unit is correspondingly 20, 30, 40, or 50 units.

It is installed behind the dashboard with the following guidelines: Blue – CAN L to Dashboard Red – CAH H to Dashboard Purple – CAN L to Vehicle Orange – CAN H to Vehicle Black – GND Yellow – 12v+

Below you can see the way it needs to be connected and on the next page you can read the details about the installation and colors of wires in the vehicle that you are looking for.



Below you may read about the different types of connectors you will find in the vehicles the emulator works for. PIN connections and wires' colors are described:

MQB 18 PIN Connector

PIN 1 - 12V (+) or "terminal 30 " - black and yellow wire PIN 10 - GND (-) or "terminal 31" - brown wire PIN 17 - CAN L - orange and brown wire PIN 18 - CAN H - orange and green wire

Only on Audi Q3 you can find a difference, here are the details: 32 PIN Connector PIN 16 - GND (-) or "terminal 31" - brown wire PIN 28 - CAN H - orange and blue wire PIN 29 - CAN L - orange and brown wire PIN 32 - 12V (+) or "terminal 30" - red and black wire

MLB: 32 PIN Connector

PIN 3 - CAN L - orange and brown wire
PIN 4 - CAN H - orange and blue wire
PIN 30 - GND (-) or "terminal 31" - brown wire
PIN 31 - 12v (+) or "terminal 30" - yellow and red wire

Setting the device – you can set the reducing coefficient of the device trough the buttons of the steering wheel of your vehicle. We advise that you do the setting when the engine is turned off, and you have the Ignition ON.

There are 3 types of steering wheels and button sets, so check the picture to figure out which buttons you need to work with.

"Button 1" – press and hold for 6 sec. to enter settings mode. Once in this mode, your signal (hazard) lights will start blinking, and this will continue until you exit the setting mode.

"Button 2" and "Button 3" (or scroll up and scroll down) change the percentage setting that you want to be displayed on the dashboard. Ex. 2000 rpm = 20%, 5000 rpm = 50%. If the dashboard points to Ready (for cars with Start/Stop system) or off - it mean that the filter is turned off.

To exit the settings mode, you need to press "Button 1" or leave it for 3 sec. or more and it will exit automatically. Upon exit, the last stored percentage setting will be saved. Setting is not lost if the car is left with not battery.

N.B. The calculated fuel consumption will be affected from the filter's setting, accordingly.



7.2 Update ABprog ZN080 set BCM2 unlock

Any time you need to use the ZN080 set to unlock a BCM device, you might need to update the ABProg's firmware version. In order to do that, you just need to have it connected to the AVDI and open the AB-Prog Upgrade software, the update will happen automatically, and you can than close the software and continue with the BCM2 unlock procedure.

