



# ABRITES DIAGNOSTICS FOR VAG ONLINE

**User manual**  
version 1.3



## Important notes

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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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You, as a purchaser of Abrites hardware products, are entitled of a two-year warranty. If the hardware product you have purchased has been properly connected, and used according to its respective instructions, it should function correctly. In case the product does not function as expected, you are able to claim warranty within the stated terms. Abrites Ltd. is entitled to require evidence of the defect or malfunction, upon which the decision to repair or substitute the product shall be made.

There are certain conditions, upon which the warranty cannot be applied. The warranty shall not apply to damages and defects caused by natural disaster, misuse, improper use, unusual use, negligence, failure to observe the instructions for use issued by Abrites, modifications of the device, repair works performed by unauthorized persons. For example, when the damage of the hardware has occurred due to incompatible electricity supply, mechanical or water damage, as well as fire, flood or thunder storm, the warranty does not apply.

Each warranty claim is inspected individually by our team and the decision is based upon thorough case consideration.

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Abrites assumes no responsibility for any damage resulting from the use, misuse, or negligent use of the hardware or any software application.

## Safety information

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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 [support@abrites.com](mailto:support@abrites.com).**

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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
12.08.2022	5	Key learning	1.1
27.01.2023	4.4	Unlock BCM2	1.1
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

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“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.

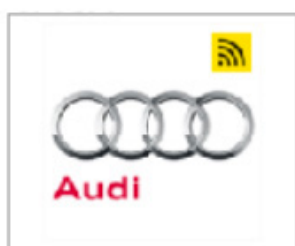
The functionality of your software depends on the purchased licenses for your interface. Please check the “License Viewer” installed on your computer for your unique interface ID number.

## 2. Installation

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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.

Scan	Address	Name	PartNum	Description	Protocol	Faults
Complete Scan	01	Engine Control Unit - Master	95860163707	P2ABUMSTOWS28	ISOTP	no faults
	02	Transmission Control Unit	0C8927769DN	AL1000 AISIN	ISOTP	
Clear Faults	03	ABS	7P0907378T	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	7P9907064KM	BCM_VORNE	ISOTP	no faults
Special Functions	10	Parallel parking assistant	958919475L	PAR80HLFE PDC	ISOTP	no faults
	15	Airbag	7P0959655G	VW10Airbag5.1H	ISOTP	no faults
	16	Steering column electronics	958953507AE	KL5M	ISOTP	no faults
	17	Dash Board			ISOTP	
	19	Gateway	958907530J	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	MBB2_amp_P	ISOTP	no faults
	53	Parking brake			ISOTP	1 fault
	5f	Information electronics 1	9P1035880L	MU-P-LMS-US	ISOTP	2 faults
	65	Tire pressure monitoring	7P9907273H	RD8BERL03	ISOTP	no faults
	6c	Rear view camera system	7P9907556AL	Anasview 2	ISOTP	no faults
	6d	Rear lid electronics	7P5959101AE	HDSG-Modul	ISOTP	no faults
	a5	Driver assistance systems front sensor system	7P99061033E	Frontkamera	ISOTP	no faults
	b6	Steering column electronic systems			ISOTP	

Getting UDS modules: Skip 1%



## 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.

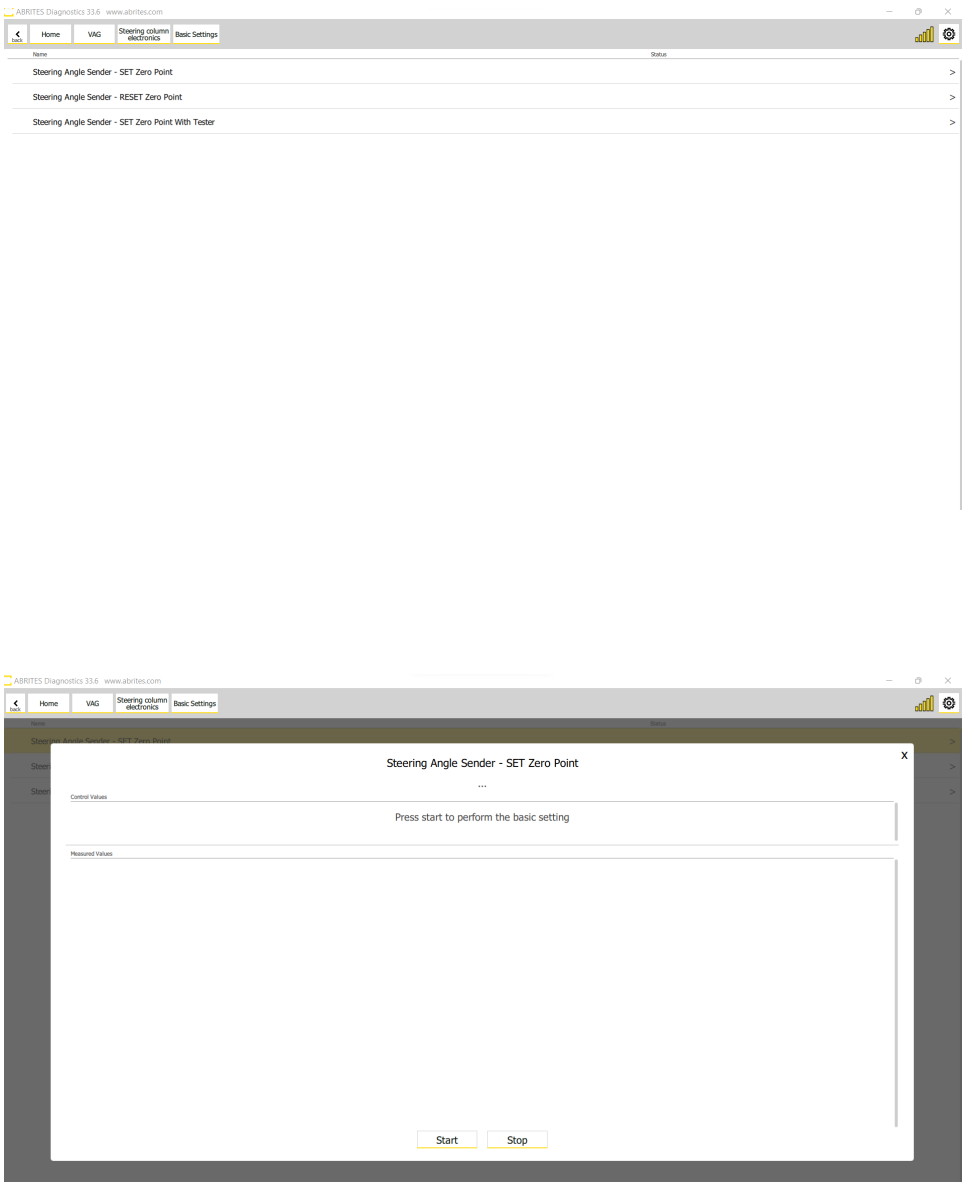
The basic setting include features which are mostly used by service repair shops to setup a new module or re-calibrate an existing module, these functions are used for calibration of electronic components and setting them in such way to operate in the vehicle.

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

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.



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



### 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.

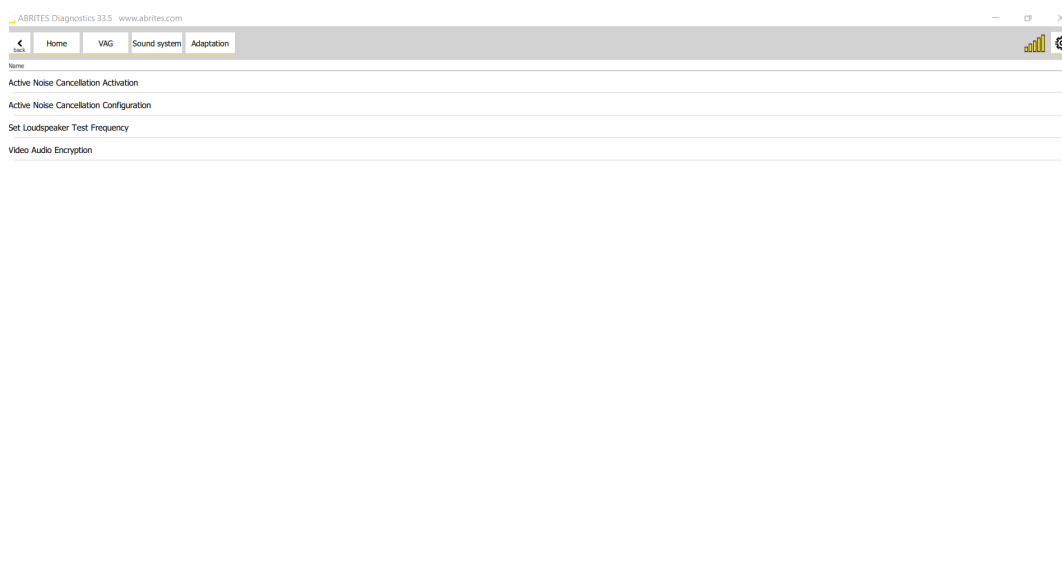
There are many examples of what can be done, including service intervals.

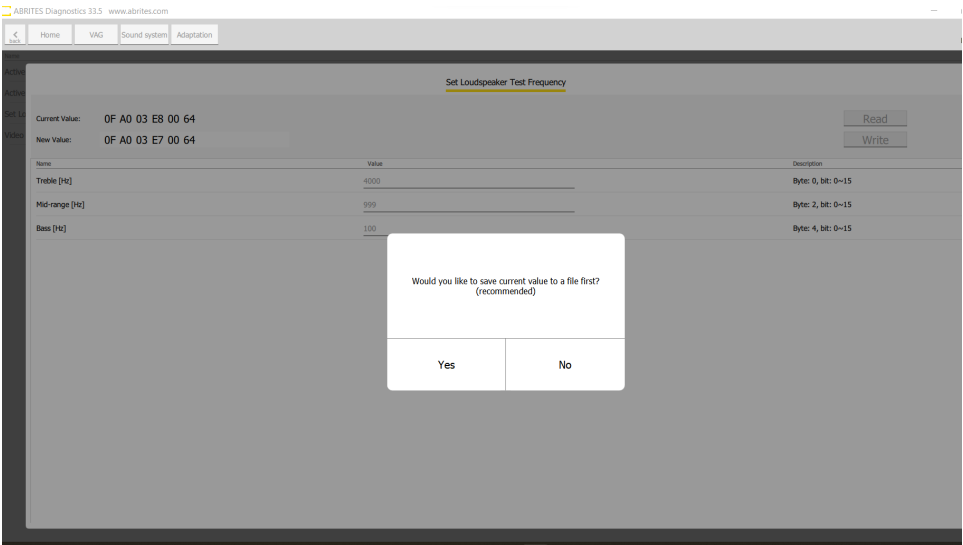
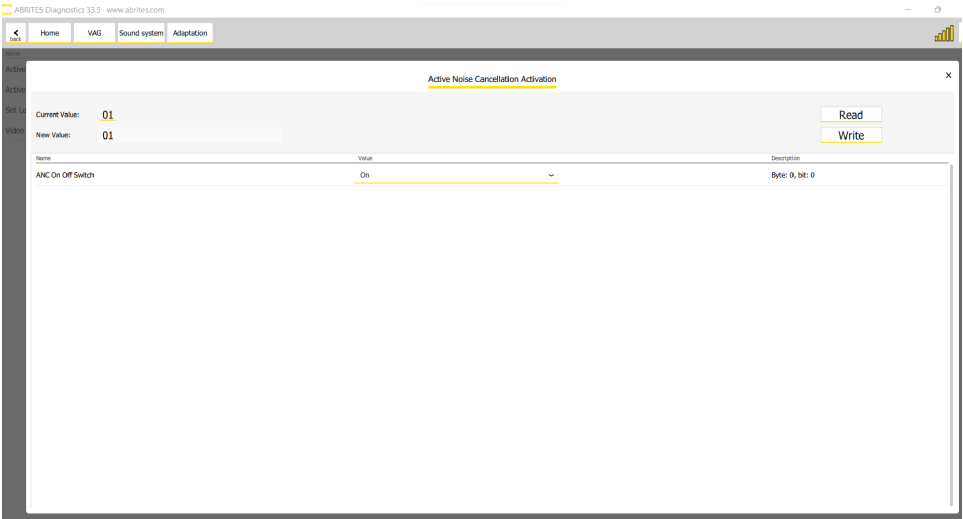
In the example below you can see a few adaptations, one of them relates to the enabling or disabling of active noise cancellation, setting desired values for the audio output of the sound system, etc.

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.





### 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.

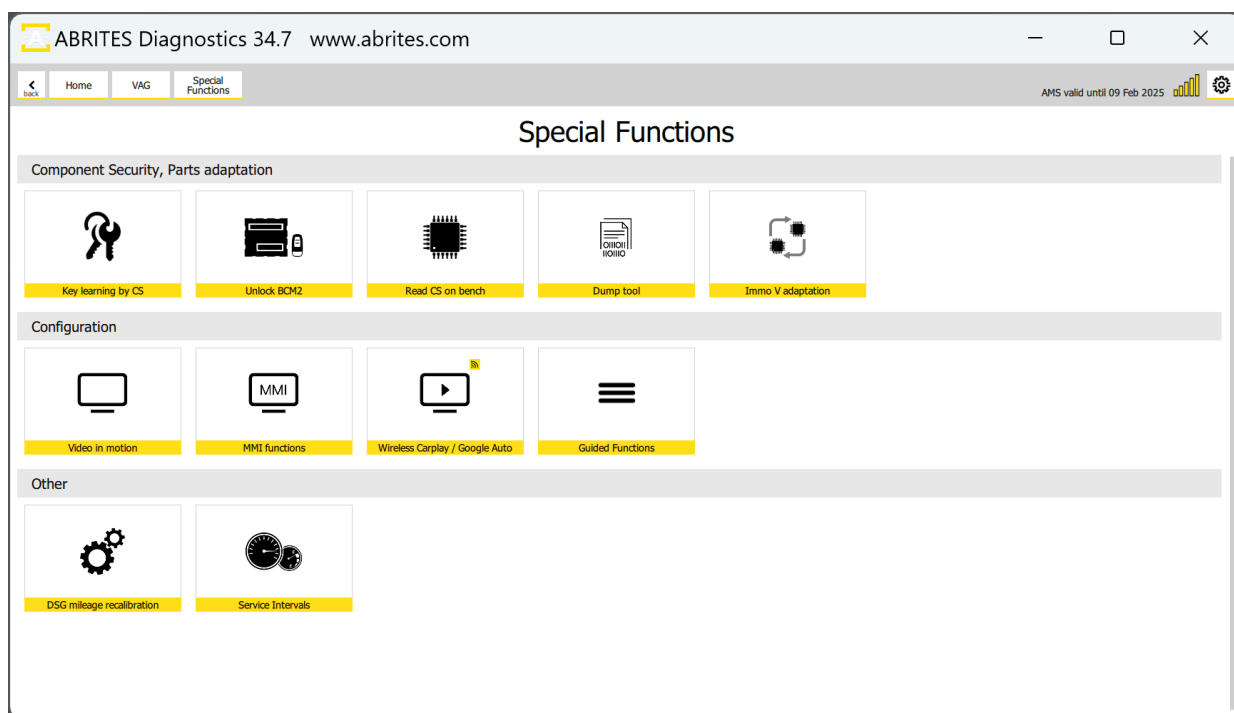
Name	Value	Description
Brand	Audi	Byte: 0, bit: 0-7
Class	E	Byte: 1, bit: 0-7
Generation	Generation 3	Byte: 2, bit: 0-7
Bodystyle	Suv	Byte: 3, bit: 0-7
Expansion	Not Coded	Byte: 4, bit: 0-7
Production Region	EU	Byte: 5, bit: 0-7
Country Variant	Europe	Byte: 6, bit: 0-7
Chassis	Air Chassis Smodel	Byte: 7, bit: 0-7
Steering Bar	VA Steering Bar	Byte: 8, bit: 0-7
Windshield	Not Coded	Byte: 9, bit: 1-4
Traffic Side	Right Traffic	Byte: 9, bit: 5
Steering Side	Left Hand Drive	Byte: 9, bit: 6
Steering Translation	Constant Translation	Byte: 9, bit: 7
PSD version	PSD 15	Byte: 10, bit: 0-3
Navigation	MSB High	Byte: 10, bit: 4-7
AAG	Not Coded	Byte: 11, bit: 0
SWA	Not Coded	Byte: 11, bit: 1
ACC	Not Coded	Byte: 11, bit: 2

Name	Value	Description
Road Sign Detection	Not Available	Byte: 0, bit: 0
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	Byte: 1, bit: 0-5
Brightness sensor	RLS Boost	Byte: 1, bit: 6-7
Traffic light info online	Not Available	Byte: 2, bit: 5
Speedlimiter	Available	Byte: 2, bit: 6
Predictive Efficiency Assistant	Available	Byte: 2, bit: 7

## 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)

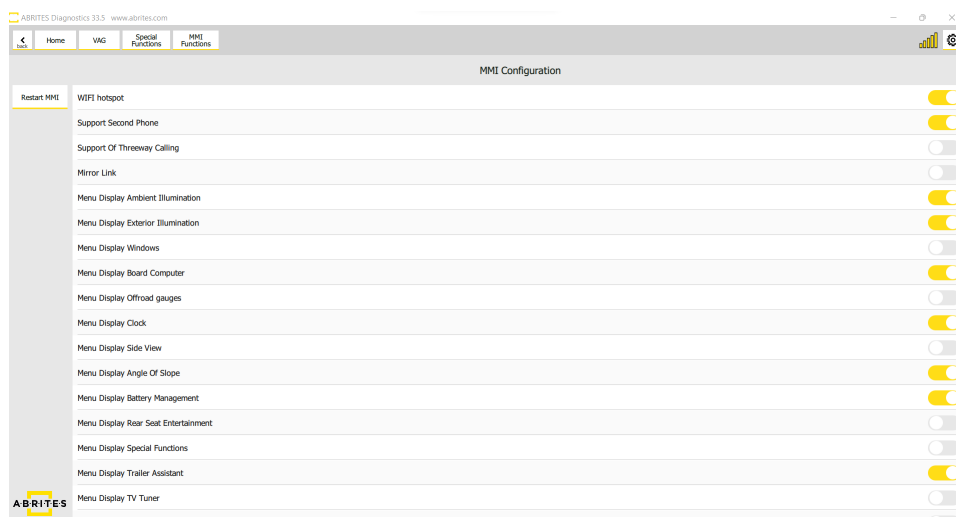


## 4.1 Special function “MMI functions”

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.

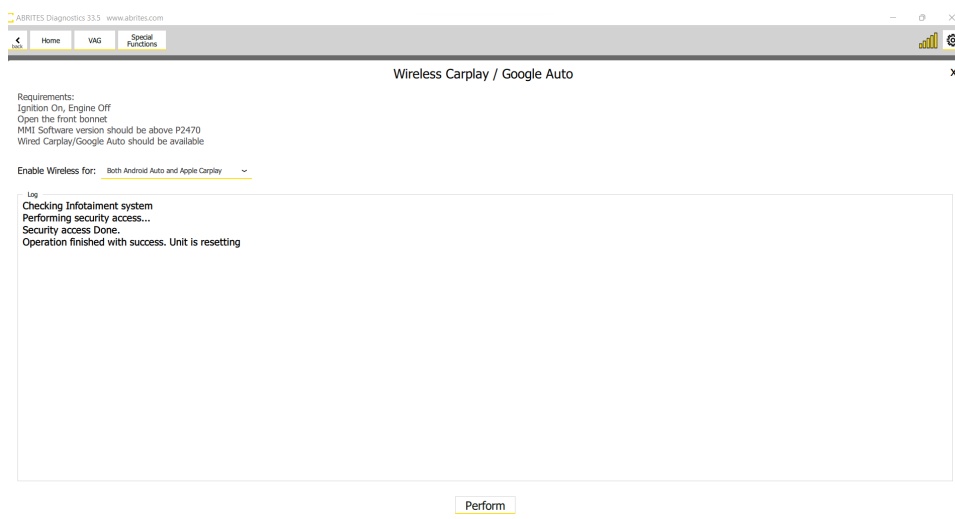


## 4.2 Special function “Wireless Carplay / Google Auto”

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.





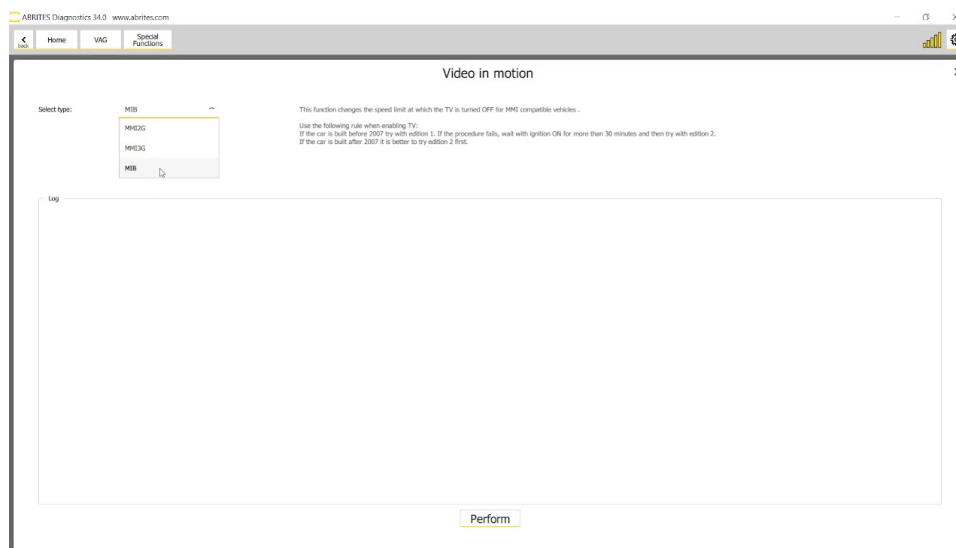
### 4.3 Video in motion

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”





ABRITES Diagnostics 34.0www.abrites.com

HomeVAGSpecial Functions

Video in motion

Select type:MBB

This function changes the speed limit at which the TV is turned OFF for MMB compatible vehicles .  
Use the following rule when enabling TV:  
If the car is built before 2007 try with edition 1. If the procedure fails, wait with ignition ON for more than 30 minutes and then try with edition 2.  
If the car is built after 2007 it is better to try edition 2 first.

Log

Start  
Trying : 'Information electronics 1' on TP20  
Trying : 'Information electronics 1' on ISO15765  
Performing security access (03/04)...  
Security access Done.  
Operation finished with success

Perform

#### 4.4 Special function “Unlock BCM2”

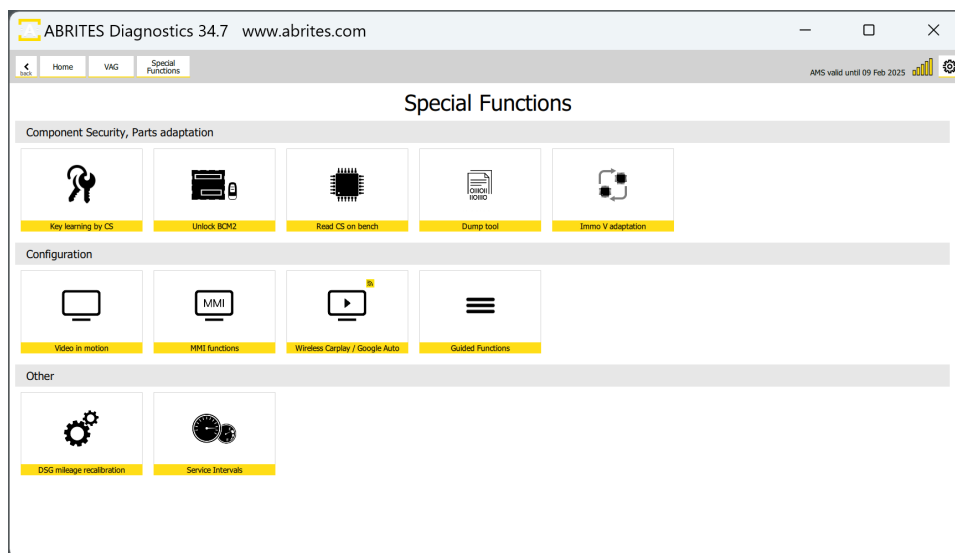
The “Unlock BCM2” functionality is found in the “Special Functions” menu and by selecting “Unlock BCM2”. It is available with VN020 license and included in VN003 license.

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)



#### 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:



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**Procedure:**

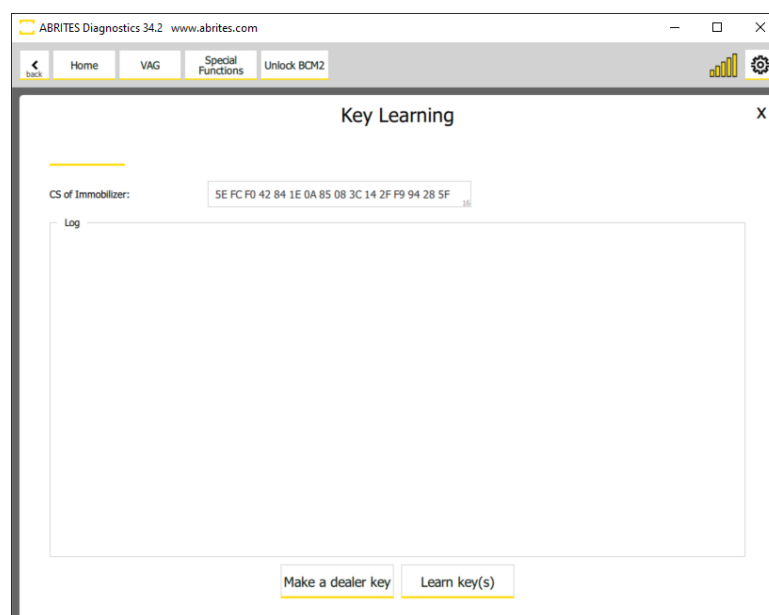
The procedure for unlocking the BCM2 unit and programming keys consists of the following steps:

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.



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

Name	Value
<b>Diagnostic data</b>	
VAG number:	8K0907064GH
Version:	0621
<b>Immo data</b>	
VIN:	WAUZZZ8T48A444444
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
Remote control key:	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 FF FF FF FF FF FF FF FF
Key 3:	BA CC 4A 96 FF 12 FF FF FF FF FF FF FF FF FF
Key 4:	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
Key 5:	FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF

**Key Learning**

CS of Immobilizer: SE FC F0 42 84 1E 0A 85 08 3C 14 2F F9 94 28 5F

Log

Please, make sure the BCM is attached to the car and AVDI is connected to the OBD port

Confirm Cancel

Make a dealer key Learn key(s)

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#### 4.4.2 Using the CB016 - outdated and replaced by ZN080

CB016 cable set is an outdated product.

For optimal performance, please use the [ZN080 - BCM2 Solder-Free Connection Set](#)

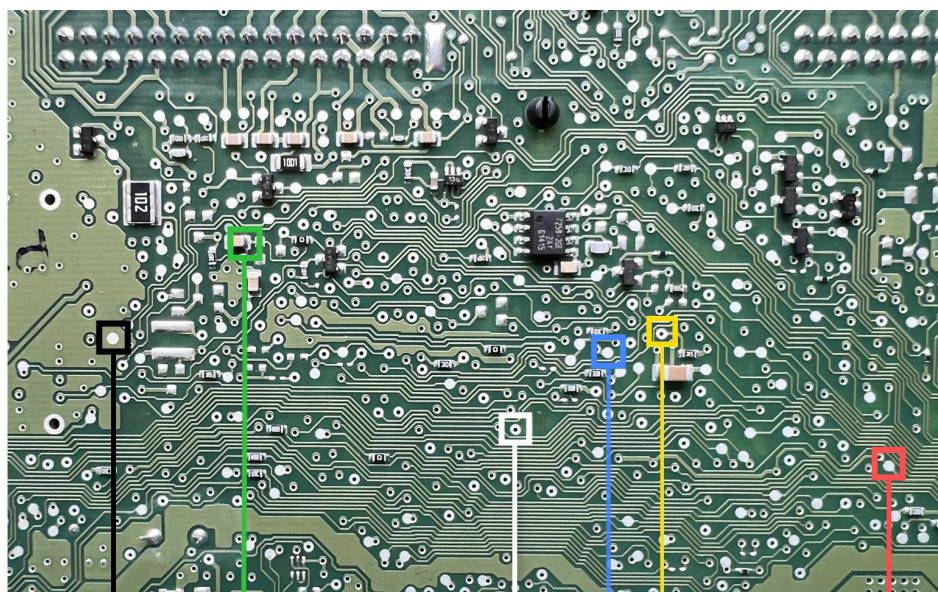
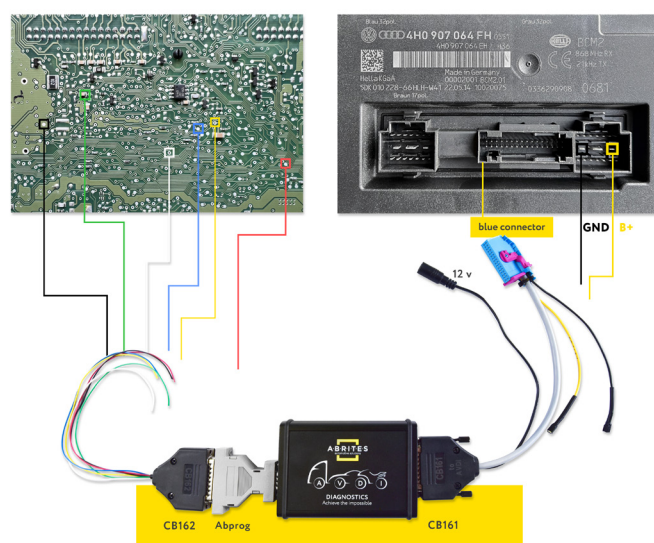
The functionality requires the user to use the ABPROG, CB162 together with the CB161 cables. CB161 requires a power adapter to be used in order to supply the BCM2 unit with +12V. The ZN063 12V/1A DC Power adapter can also be used as power supply (any other power adapter with the proper connector is also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

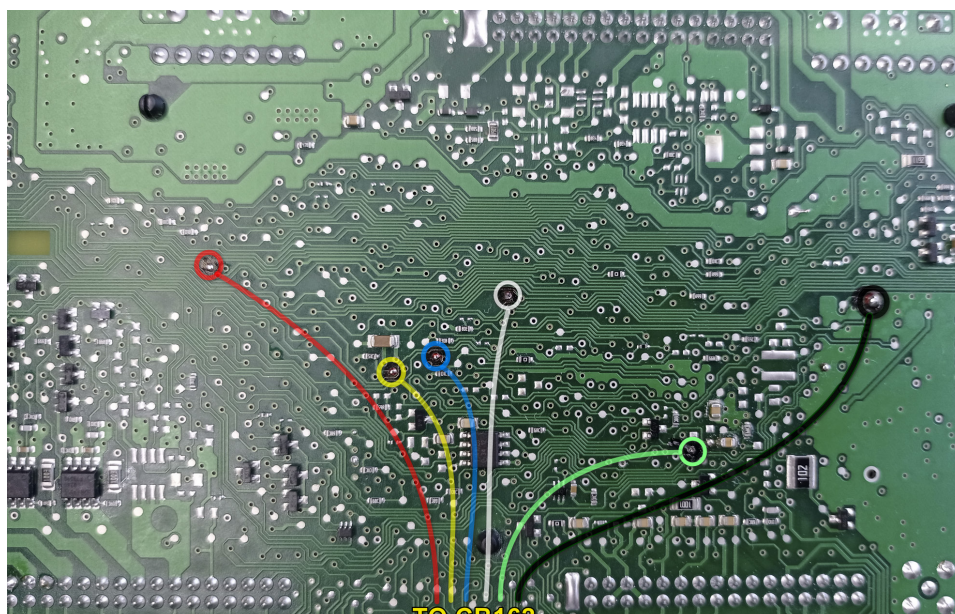
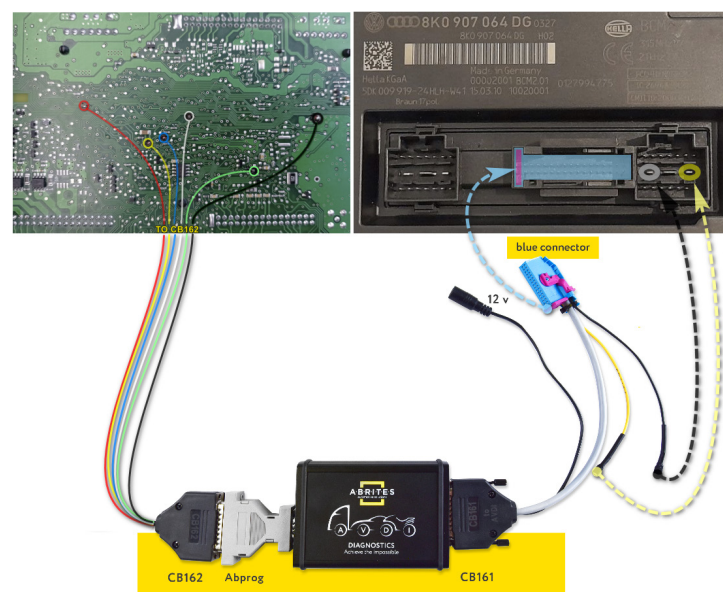
BCM2



\*Depending on the software version of the unit, there might be very little differences 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 8K BCM2 unit



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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.

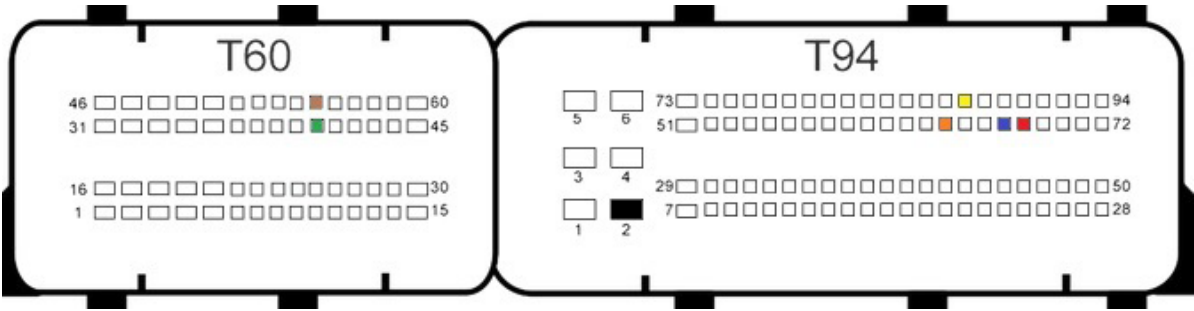
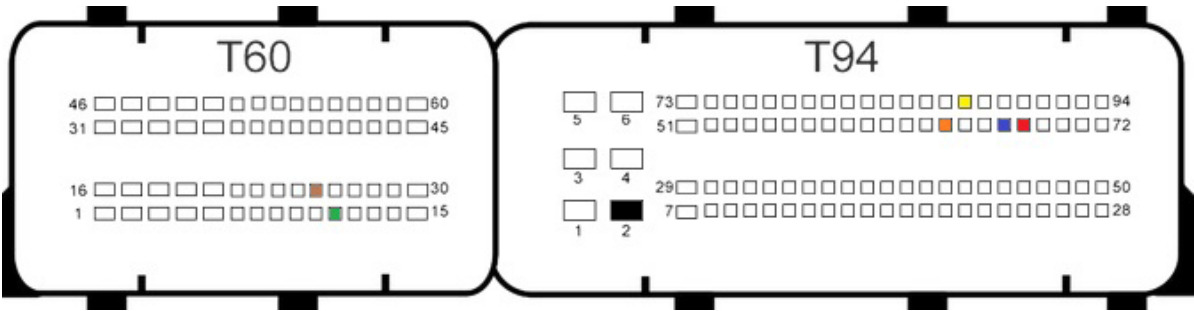
**Note:**

**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)".**

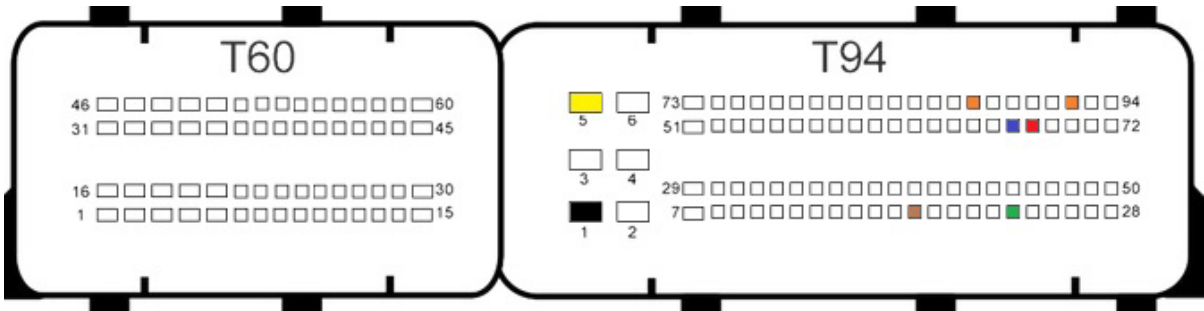
**All keys lost on Audi A6/A7/A8/Touareg is possible if the CS of the ECU/TCU could be read.**

4.5 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.



4.6 PCR 2.1 read CS



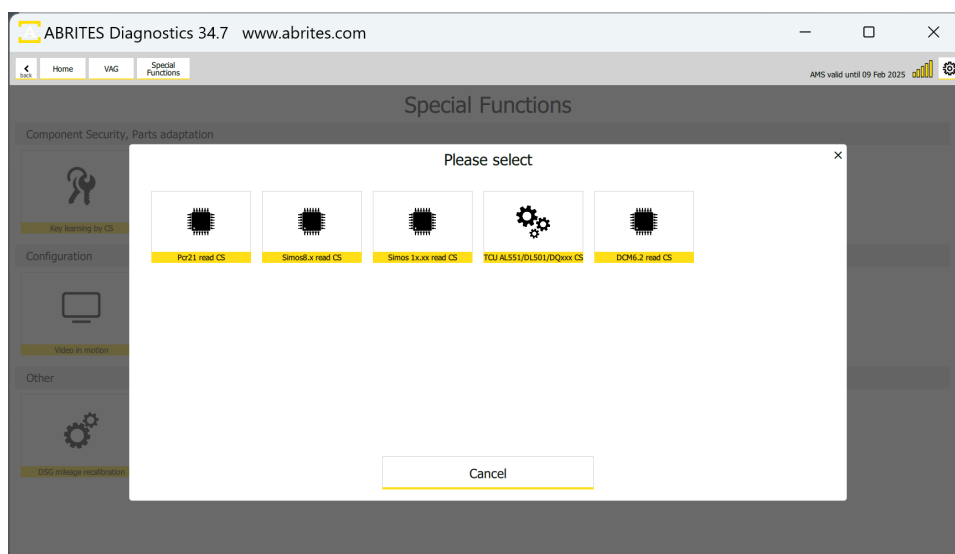
## 4.7 DCM6.2 read CS

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 On-line > “Special Functions” > “Read CS on bench” menu and click on “DCM6.2 Read CS”.



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### 4.7.1 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 work 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)

2. 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)

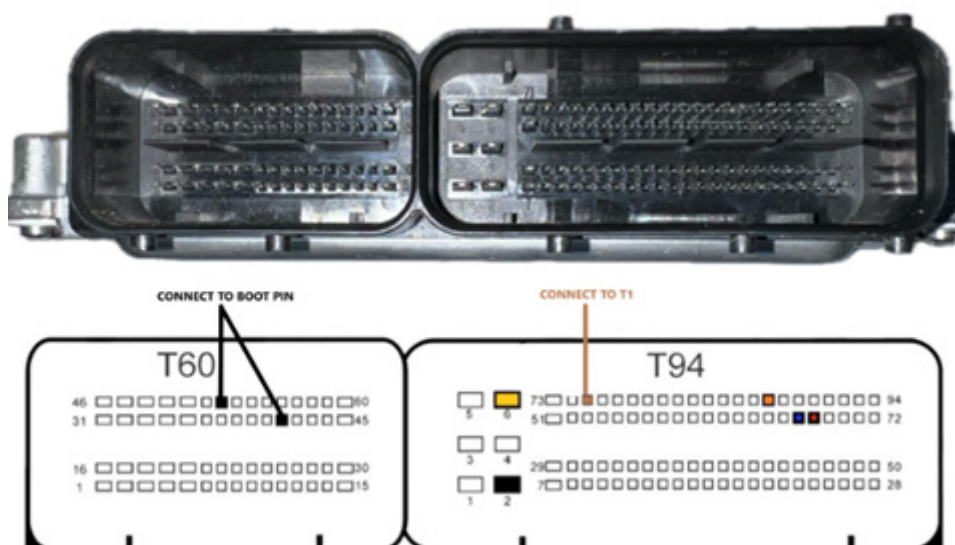
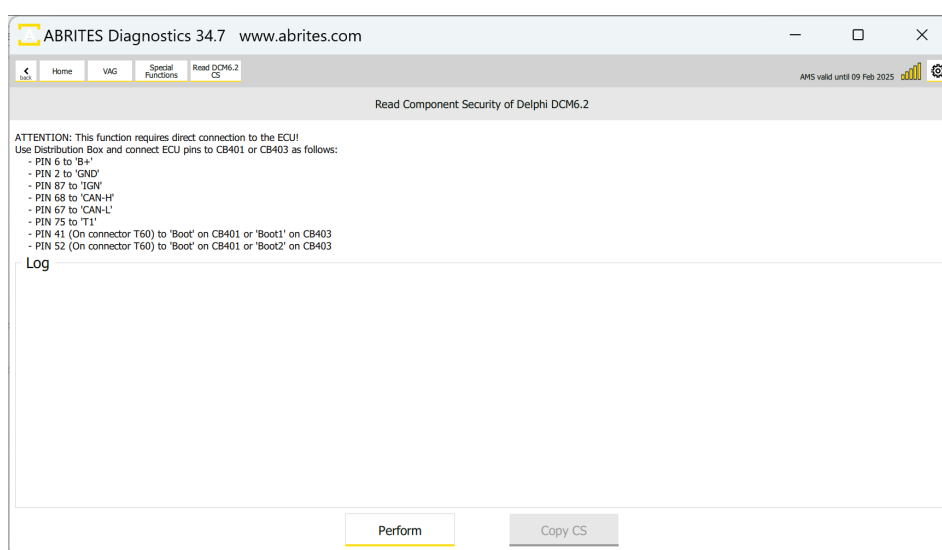
87pin – IGN (orange)

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.



## 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:

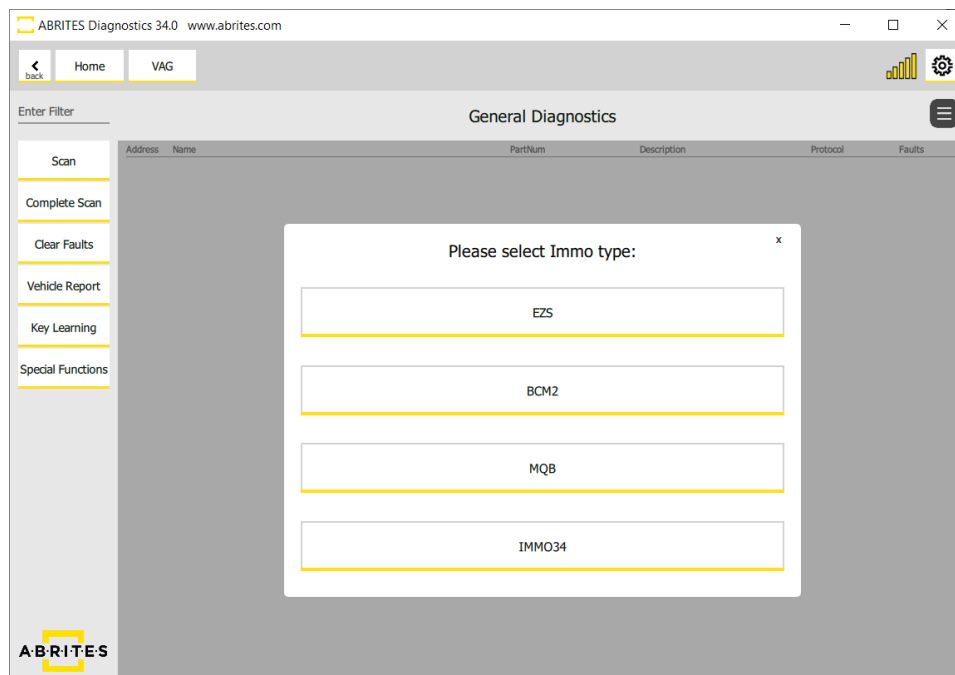
- EZS-Kessy (e.g Audi A6 4F)
- BCM2 (e.g. Audi A4/A5/Q5/ 2008+)
- MQB (spare key programming for VDO MQB immobilizer(dashbaord))
- Immo 3/4 vehicles

In order to program keys, a ZN002 PROTAG will be required.

wwIn All Keys Lost situations, additional cables produced by Abrites might be required (please check

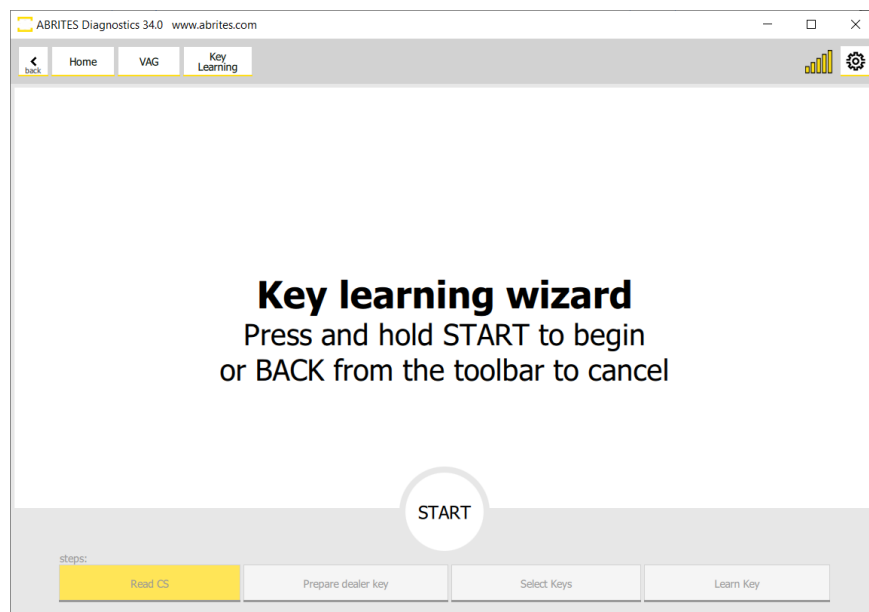
<https://abrites.com/shop>)

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





The procedure is “guided” for all available cars/platforms and you just need to follow the on-screen instructions:



## 6. VAG Immo V adaptation

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### 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.

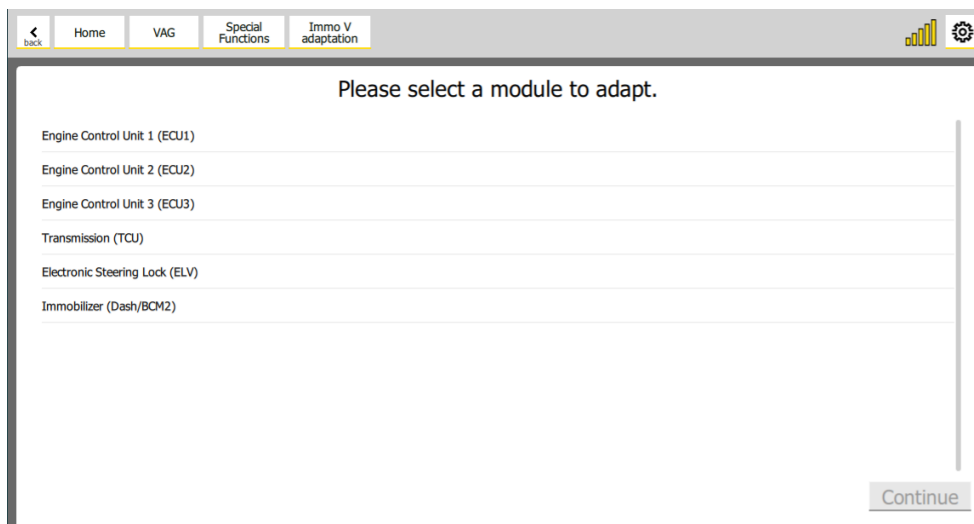
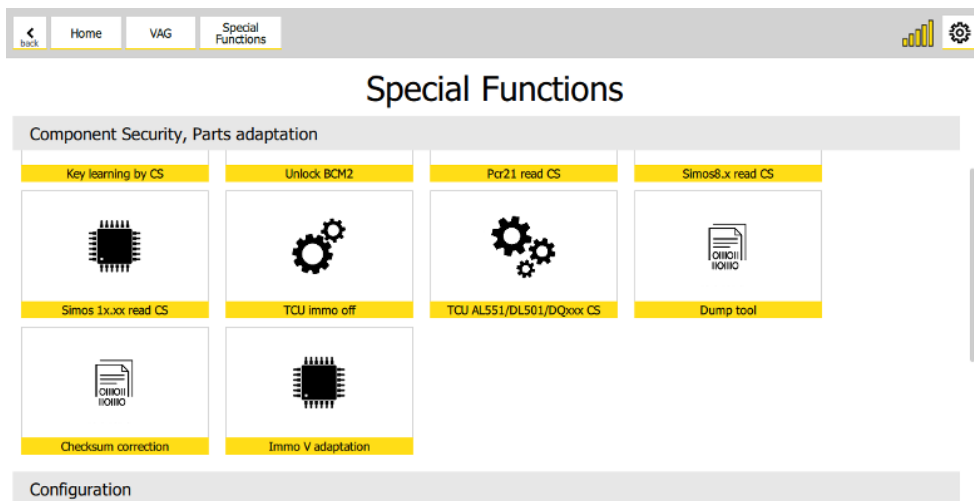
For the Immobilizers (BCM2 or dashboard) you will need also the Component Protection (CP) of the original and the replacement module. For adapting the Immobilier you need to know also the power class of the car. All the information (CS and CP) you can get in different ways:

- 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 by 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.



**IMPORTANT:** In case you are working on an ECU - Please make sure you save the coding before beginning 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

The screenshot shows the 'Immo V adaptation' interface. It has a navigation bar at the top with 'back', 'Home', 'VAG', 'Special Functions', and 'Immo V adaptation'. The main area is divided into two columns. The left column is titled 'Replacement module:' and contains a 'CS:' input field and a 'Load' button. The right column is titled 'Original module:' and contains 'CS:', 'Power class:', and 'CS (immobilizer):' input fields, a checkbox labeled 'Get VIN number from the immobilizer', and a 'Load' button. A 'Change' button is located at the bottom right of the interface.

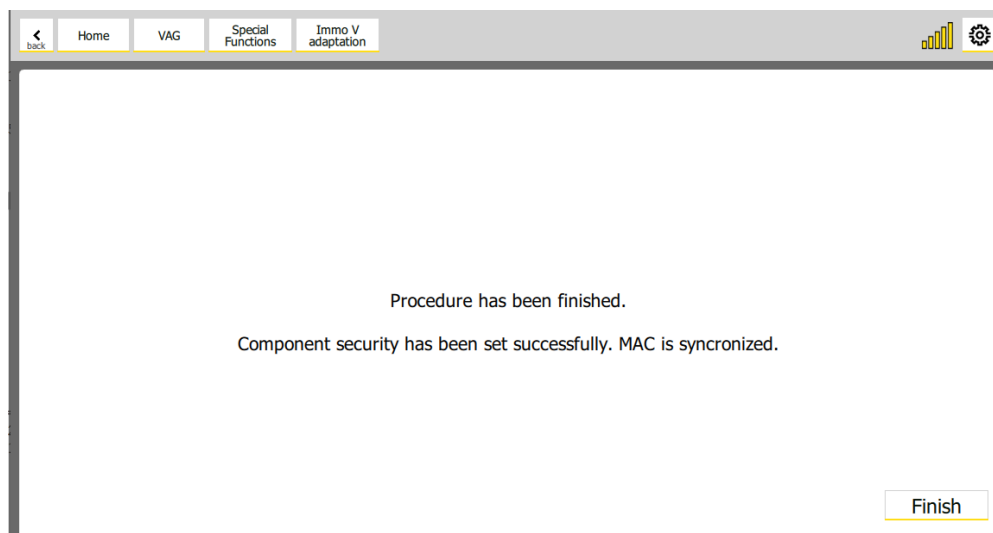
If you want to get the VIN (Vehicle Identification Number) from immobilizer, then check “Get VIN number from the immobilizer”. If not checked, the module will remain with its original VIN.

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

This screenshot shows the same 'Immo V adaptation' interface but with data loaded into the input fields. The 'Replacement module:' section has 'CS:' filled with '9d 4b 2c 7c 7a 55 e4 00 00 00 00 00 00 00 00'. The 'Original module:' section has 'CS:' filled with '10 BA D7 1A 56 22 C6 96 66 04 55 73 A9 63 CE 10', 'Power class:' filled with '9c', and 'CS (immobilizer):' filled with '9D 4B 2C 7C 7A 55 E4 96 66 04 55 73 A9 63 CE 10'. The 'Get VIN number from the immobilizer' checkbox is now checked. The 'Load' buttons are still present, and the 'Change' button remains at the bottom right.

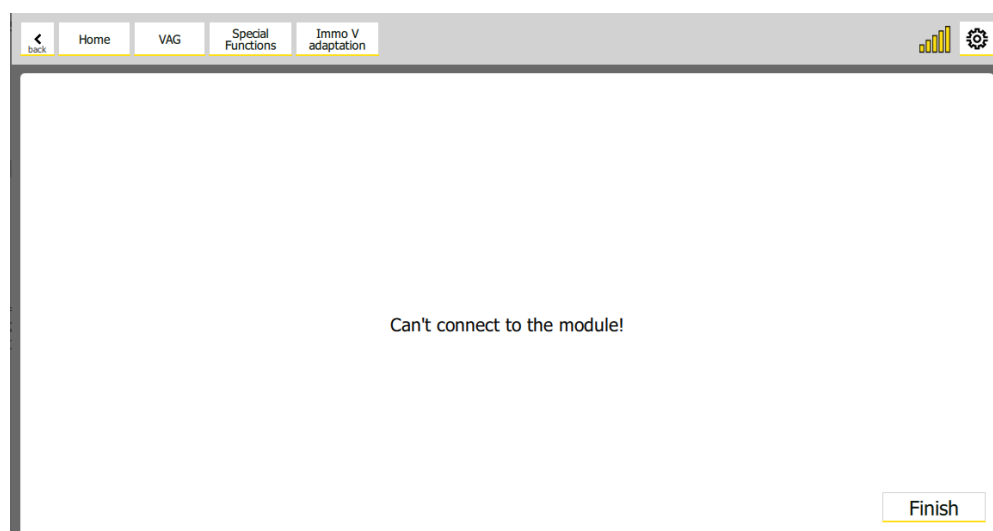
4. Click on “Change” button to adapt the module.

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



## 6.2.1 Troubleshooting

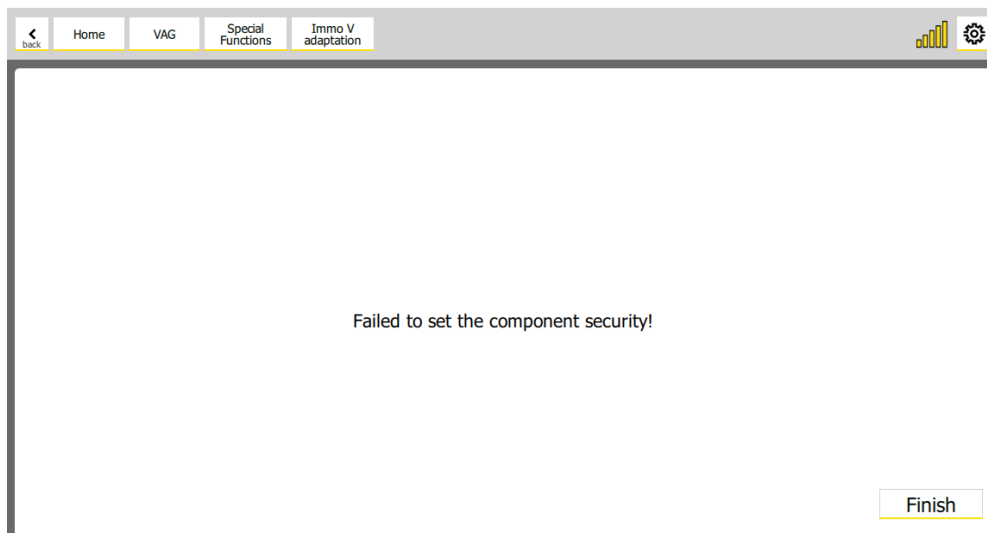
1. “Can’t connect to the module.”



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

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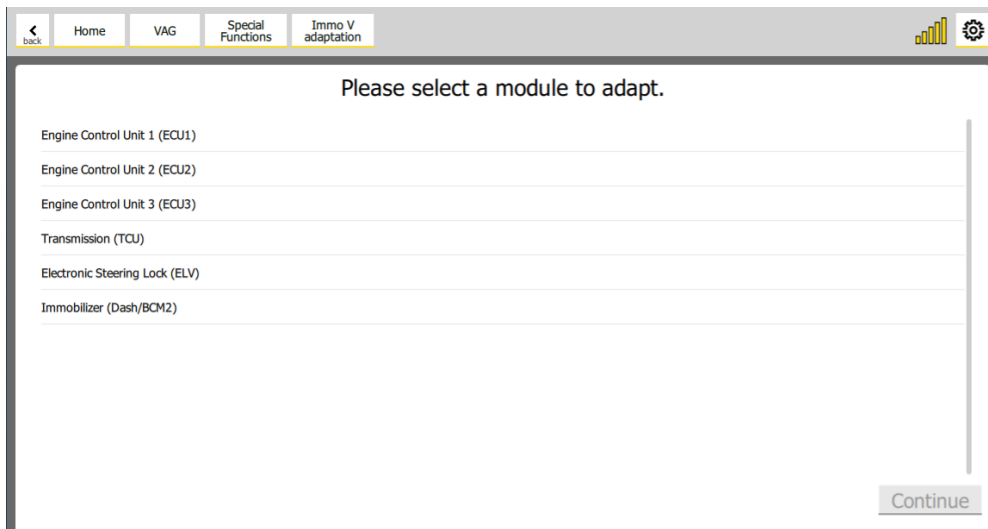
2. "Failed to set the component security!"



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.



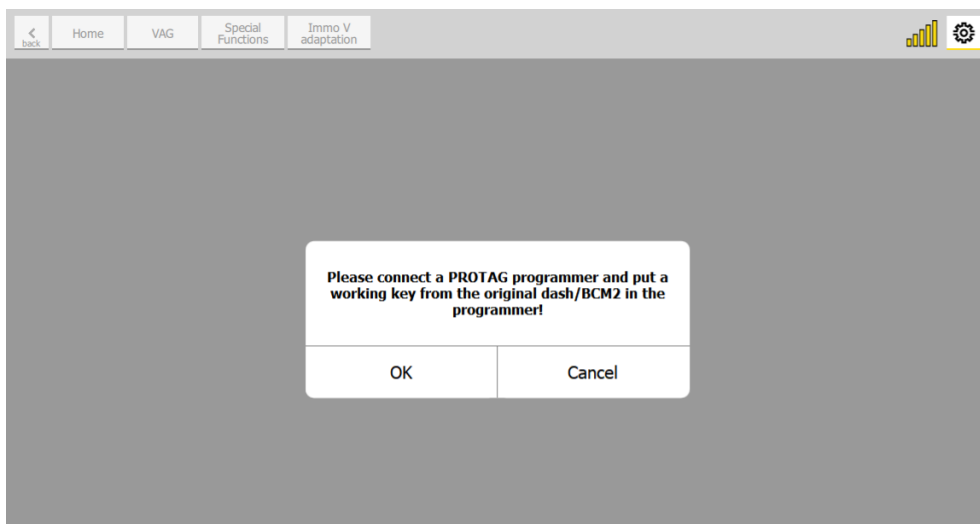
3. Set the following data:

- 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.

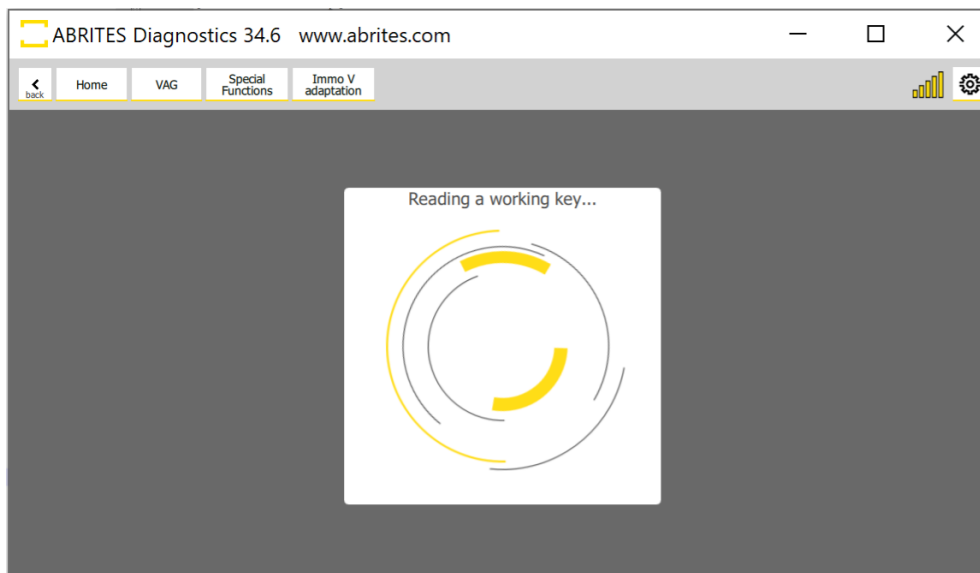
The screenshot shows the 'Immo V adaptation' window in the Abrites software. The interface includes a top navigation bar with buttons for 'back', 'Home', 'VAG', 'Special Functions', and 'Immo V adaptation'. The main area is divided into two columns. The left column, titled 'Replacement module:', contains fields for 'CS:' (9D 4B 2C 7C 7A 55 E4 96 66 04 55 73 A9 63 CE 10) and 'CP:' (9C 29 C4 CD C4 53 89 9B 9F 39 01 08 FE 72 02 11). Below these is a 'Modules to synchronize:' section with checkboxes for ECU1, ECU2, ECU3, TCU, and ELV, all of which are checked. A 'Load' button is positioned to the right of this section. The right column, titled 'Original module:', contains fields for 'CS:' (9D 4B D7 1A 56 22 C6 96 66 04 55 73 A9 63 77 FF), 'Power class:' (9c), and 'CP:' (11 75 51 83 E8 BD 2D 42 69 C3 F3 81 54 CB 91 3C). A 'Load' button is located below the 'CP:' field. At the bottom right of the main area is a 'Change' button.

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.

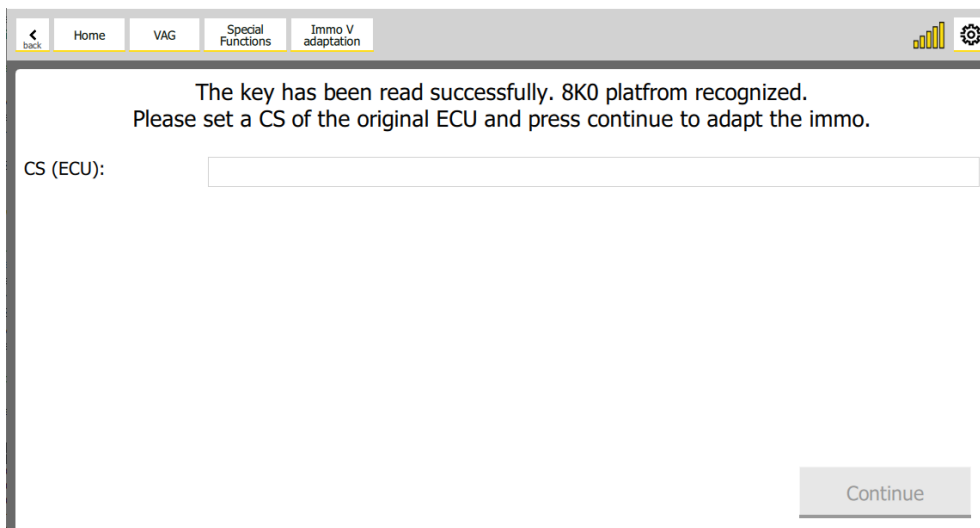




6. It will start to read the key.



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

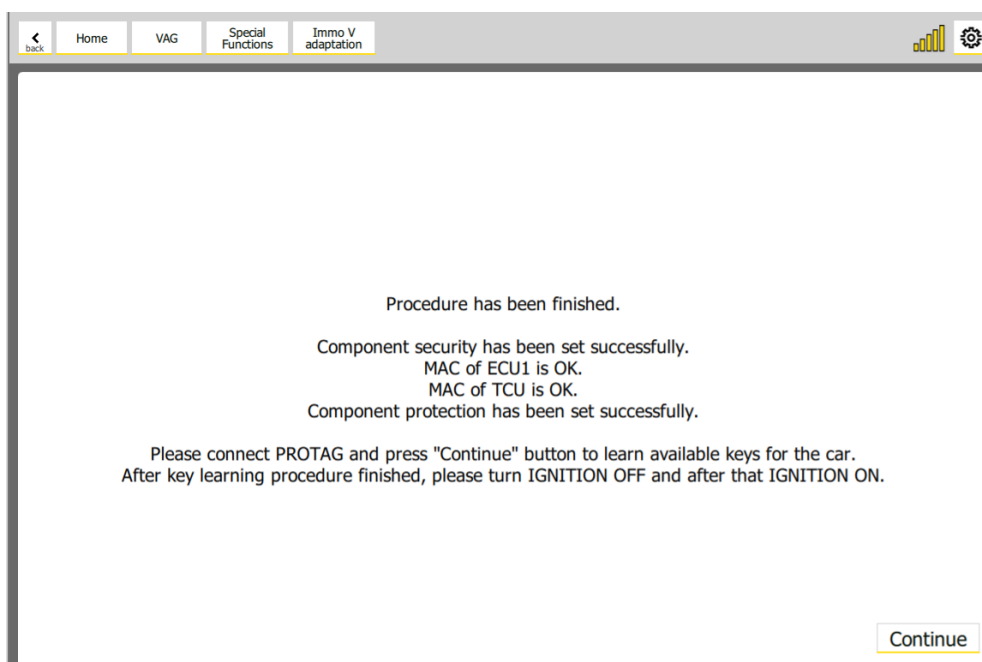


Please set the CS (Component Security) of the original ECU and click on "Continue" button.

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:

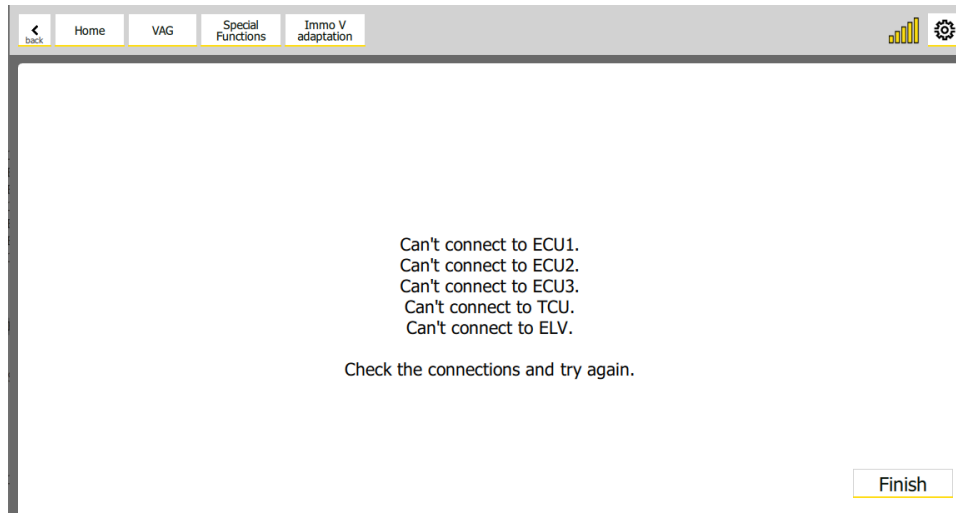
The screenshot shows a software interface titled "Key Learning". It features a yellow horizontal bar at the top left. Below the bar, the text "CS of Immobilizer:" is followed by a text box containing the hexadecimal value "9D 4B 2C 7C 7A 55 E4 96 66 04 55 73 A9 63 CE 10". Below this, there is a large rectangular area labeled "Log". At the bottom of the interface, there are two buttons: "Make a dealer key" and "Learn key(s)". The "Learn key(s)" button is highlighted with a yellow underline.

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.

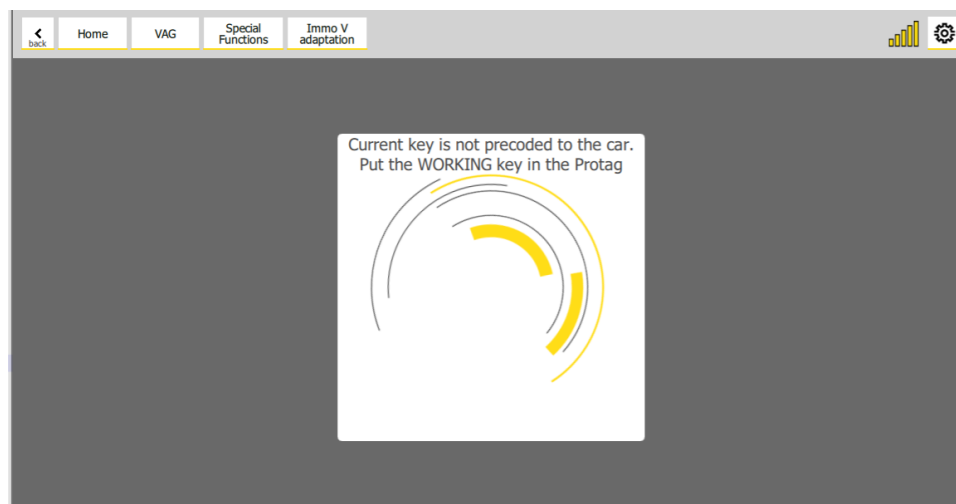
### 6.3.1 Troubleshooting

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"

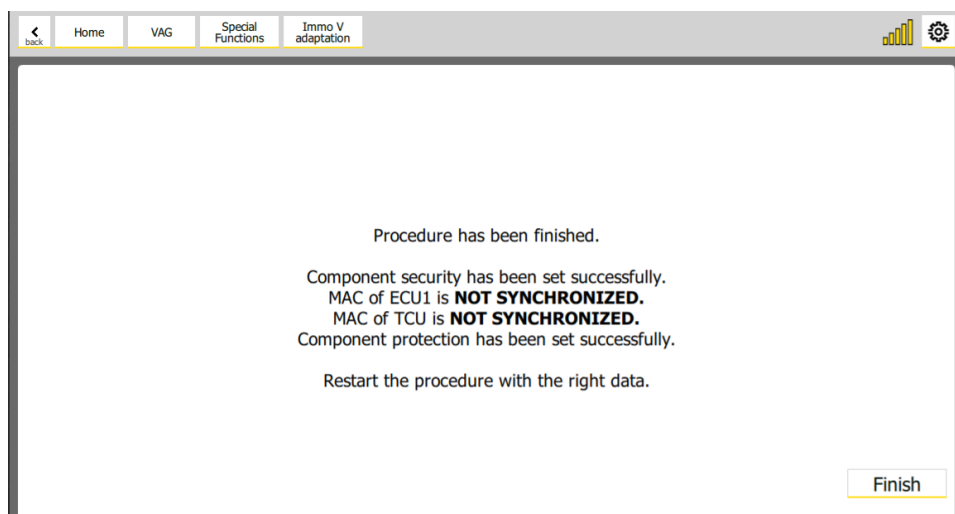


This message can appear when PROTAG is trying to read a working key (step 6 of the procedure). Possible reasons for this message are:

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.

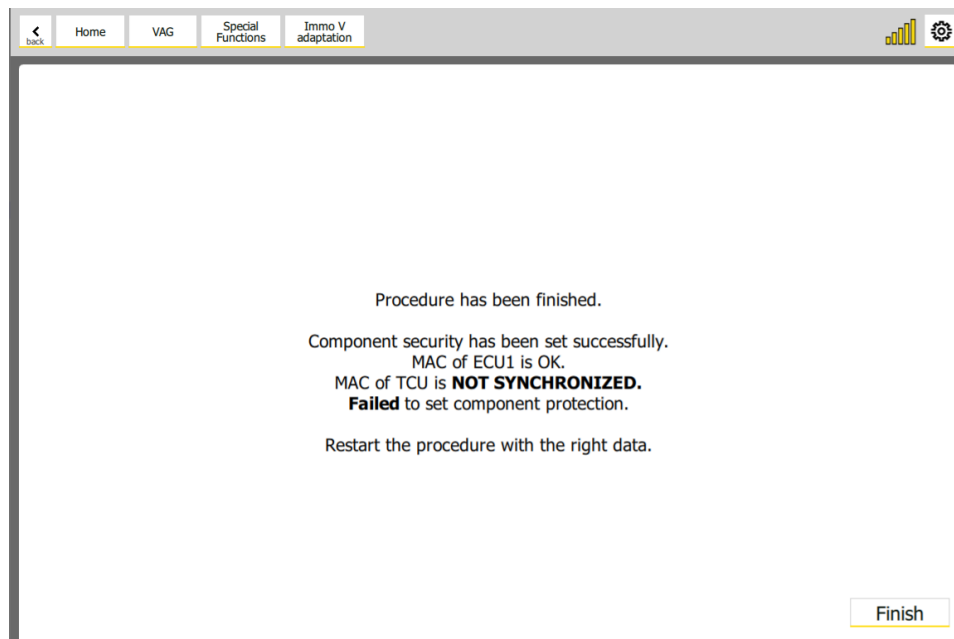


This usually appears when CS of the original ECU (step 6.1 of the procedure) is not correct. Please double check the CS of the ECU.

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

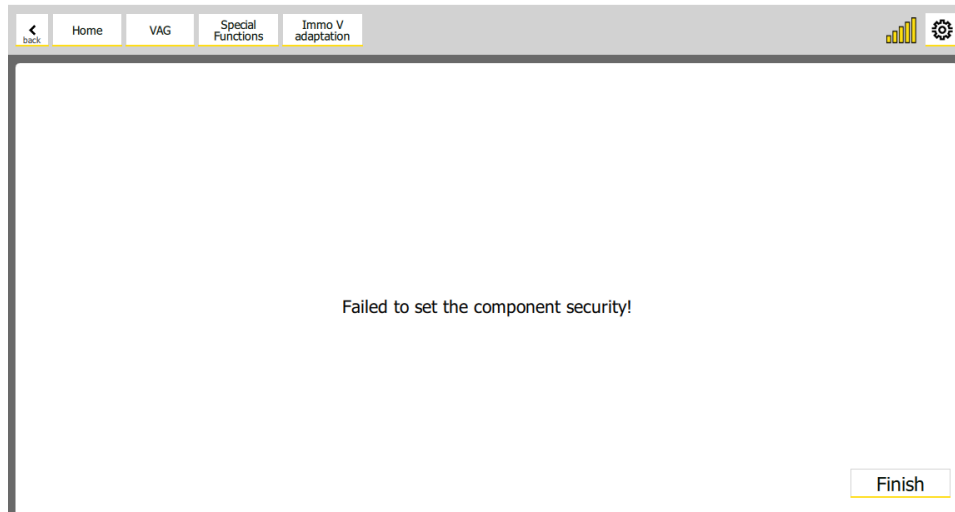
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4. "Failed to set component protection."



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 there 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 – CAN H to Dashboard

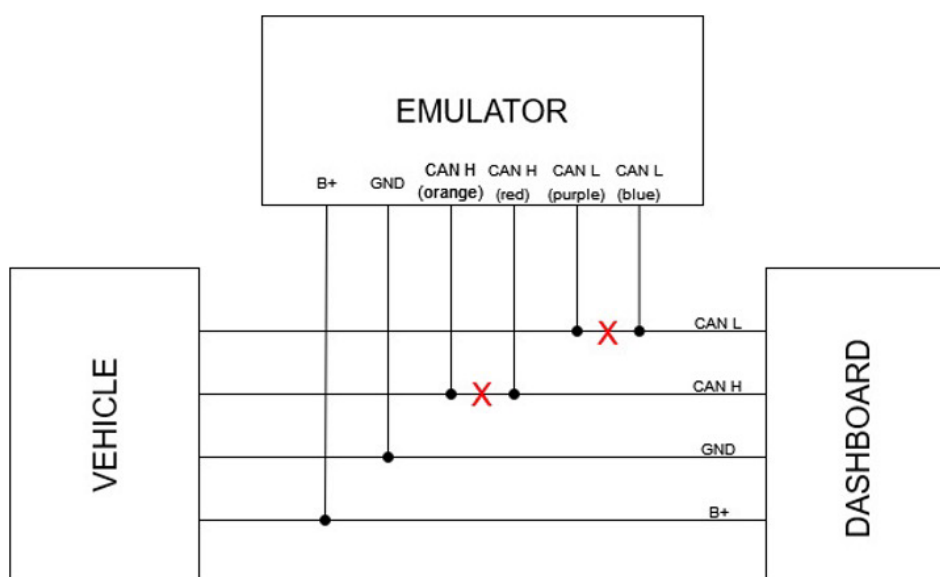
Purple – CAN L to Vehicle

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.





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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 through 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 means 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 then close the software and continue with the BCM2 unlock procedure.

