

Audi, Seat, Skoda and Volkswagen

ECU Version (VAG Mode 1)

Selecting 'ECU Version' displays the following data for the selected control module:

- Part Number
- System Name
- Version Number
- Coding
- Extra ID

Part Number

An alphanumeric code used by VAG to identify a particular 'make' and 'model' of vehicle.

System Name

Additional identification information for the ECM in 'plain text' containing the module name and part of the version number.

Version Number

A four-digit number identifying the module software version number.

Coding

Vehicle specific module configuration.

Extra ID

Two data fields for extra identification (VIN) and immobiliser.

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Actuators (VAG mode 3)

This function allows component activation (Injectors, Solenoid valves, Relays etc.) in the sequence determined by the ECM. The Technician can use this function to test the electrical circuit of available actuators or to investigate where faults lie when an actuator fails to actuate.

For the Actuators function to perform appropriately the ignition must be switched on with the engine not running. If actuation is required for the ENG Electronics 1,2 or 3, the engine temperature must be at a minimum of 80°C (176°F) to ensure that all of the injectors are activated. For each actuator the activation process will run for approximately 1 minute unless the test process is advanced to the next actuator by pressing the tick key to accept.

Preliminary requirements

1. Ignition On, Engine not running.
2. Engine temperature at a minimum of 80°C (176°F). (If applicable)
3. The ECM is functioning correctly.
4. The required channel is available.

Performing Actuator test

1. Connect the scan tool to the vehicle's diagnostic socket.
2. Select the particular system (i.e. ENG Electronics1) from the SYSTEM MENU and wait for diagnostic communication.
3. From the FUNCTIONS MENU select ' Actuators' and follow the screen prompt.
4. After the first actuator has been actuated, the actuator identification will be displayed on the scan tool display.
5. To activate the next actuator in the pre-determined sequence, press the ✓ key.
6. When the last actuator in the sequence is activated the scan tool will then display "END".
7. If the activation process is to be repeated, the engine must be started such that the ECM detects an engine speed greater than 300 rpm.

NOTE: The actuator function can be performed on any ECM that has actuators associated with it. During the activation process the electric fuel pump will run continuously. For each ECM the sequence and duration of each activation is pre-determined by the ECM.

Basic Settings (VAG mode 4)

This function allows the technician to view and change base/learned values relating to ignition timing, idle speed, mixture, etc. The Basic settings function can also be used to ensure that the ECM can adapt or re-learn the engine operating conditions within a short period of time.

Based on the engine code, some ECMs do not have provisions for adjustment of basic settings using a diagnostic tool. For these ECMs, the operating parameters are pre-stored in the ECM and adapt as the engine operational conditions change.

If the learned values are erased the ECM will revert to the default values for each of the operating parameters, which may not match the engine current operating status. This may result in temporary poor engine performance. If the engine is operated over a long period, the ECM will re-learn and adapt to the engine. However, with the use of a diagnostic tool the ECM can be made to adapt to the engine within minutes.

Preliminary requirements

1. Vehicle stationary. Hand brake/parking brake on.
2. Engine running at idle.
3. Accelerator pedal at rest.
4. Fault memory must be erased.
5. All electrical consumers switched off. (Coolant fan must not run during basic settings).
6. Air conditioning system must be switched off.
7. Engine temperature at a minimum of 80°C (176°F).

After initiating basic settings

After initiating basic settings the scan tool will:

1. Switch off A/C compressor.
2. Switch off the EVAP canister purge regulator system.
3. Stabilise idle speed.
4. Stabilise ignition speed.

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Performing basic settings

1. Connect the scan tool to the vehicle's diagnostic socket.
2. Select 'ENG Electronics'1 from the SYSTEM MENU and wait for diagnostic communication.
3. From the FUNCTIONS MENU select 'Read DTCs' and erase any existing fault codes.
4. Return to the FUNCTIONS MENU and select 'Basic settings' and enter display group 0. Press the tick key to display the stored data values.
5. Using the accelerator pedal, increase engine speed to slightly above idle speed for 5 seconds and then allow engine to idle for 2 to 3 minutes.
6. Check the scan tool display to ensure that the values are within the vehicle specifications based on the engine code.

If the displayed data is within the specification and the coolant fan has not run during the test, basic settings are complete. If the displayed data is out of range rectify the fault and re-start the process.

Re-Coding (VAG Mode 7)

Provided that a module can be re-coded, this mode allows for the coding of a replacement control module or changing previously stored incorrect coding. Coding is stored either as 7-bit (0000000 - 1048575) or 5-bit (00000 - 32767). New code numbers can be entered via the scan tool.

Once scan tool has established a data link with a module it will evaluate the module coding. Dependent on the protocol used, KeyWord 1281, KeyWord 2000 or CAN, the module will indicate whether it can be re-coded. KeyWord 1281 protocol identification will display P-M-C and the Work Shop Code (WSC) 00000 if re-coding is not supported. KeyWord 2000 or CAN protocols will display 'Function not supported' if re-coding not possible.

Where re-coding is supported, on-screen instructions are displayed to guide the user through re-coding. The scan tool recognizes 20 or 15 bit coding and will modify input requirements accordingly.

WARNING: Before re-coding a module, record original code number in case new code number is not accepted.

As an example, a instrument panel control module has a code 01402 that has the following meaning:

- **01** - Brake pad wear sensor - warning active
- **4** - UK 24 hr. clock and odometer in miles for cluster (2000+)
- **3** - No service interval (only for 2002+ models)
- **1** - Distance impulse number (k value)

Re-coding an ECM

Preliminary Requirements

1. Ignition on, engine not running
2. ECM supports re-coding
3. Scan tool

Re-coding Procedure

1. Connect the scan tool to the vehicle's data link connector.
2. From the 'Systems Menu', select relevant control module and wait for data link to be established.
3. From the 'Functions Menu', select 'Re-coding' - follow on-screen instructions.

NOTE: KeyWord 1281 protocol requires 5 digits, including leading zeroes as appropriate, KeyWord 2000 and CAN protocol requires 7 digits, including leading zeroes.

4. Ensure that the correct number sequence is entered and if accepted by the module the display will indicate the new code, if code is incorrect the original code is retained and an error message is displayed.

NOTE: There is no restriction on the number of attempts allowed to re-code a module.

The original code is stored in the module data and is displayed by the scan tool on establishing a data link.

Warning:

The original code can only be restored by re-entering the code following the procedure above.

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Adaptation (VAG Mode 10)

This function not only allows the resetting of service intervals, but also certain values and settings in the control modules that supports it, i.e. gauge values, mixture trims, etc. Adaptation is carried out by selecting a channel number. There are three steps to changing adaptation values:

1. Read adaptation
2. Test adaptation
3. Save adaptation

Read Adaptation

Read adaptation will read and display adaptation data from a selected ECM adaptation channel. When a channel number is selected by the technician and the <ENTER> key has been pressed the ECM will respond with the value that is currently stored in that channel.

Test Adaptation

Test adaptation allows the newly entered adaptation value to be tested on the engine, in order to achieve the correct setting for the required running condition. When the new adaptation value is entered and the <ENTER> key is pressed the ECM temporarily stores the value. If a measured value block is assigned to the channel it will be displayed.

Save Adaptation

Save adaptation allows the new adaptation value to be stored in the selected channel. If the technician decides to permanently store the new adaptation value to the ECM, having pressed the <ENTER> key, the new value is stored in the channel and is then used by the engine.

Preliminary requirements

1. Ignition On, Engine not running.
2. The ECM is functioning correctly.
3. The required channel is available.

Performing Adaptation test

1. Connect the scan tool to the vehicle's diagnostic socket.
2. Select the required ECM from the SYSTEM MENU (the selection should be based on the type of adaptation that needs to be performed) follow the screen prompts and wait for diagnostic communication.
3. From the FUNCTIONS MENU select 'Adaptation', then select the 'Manual Reset' option (if applicable). Enter the channel number and follow the on-screen instructions.
4. If a measured value block is assigned to the channel, by pressing the ▼ arrow, the scan tool will display the measured value.
5. If the technician needs to change the current value, by pressing the <ENTER> key the technician would be able to enter the data in a five digit format. For example, if the number 15 needs entering the technician must enter 00015 using the ▲, ▼ and <ENTER> key where appropriate.
6. Having tested the new value the Technician can save the new value by pressing the <ENTER> key.
7. The scan tool will then display the new value that is stored in the selected channel.
8. If the technician needs to clear all learned values and revert back to the baseline values, channel number '0' needs to be entered when prompted.

NOTE: Adaptation function should be used by Technicians who are aware of the results of changing baselines/learn values to the engine operations.

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Login to ECM (VAG Mode11)

Some ECMs may require a valid login code to be entered before allowing some actions such as re-coding, adaptation values, coding cruise control, A/C etc.

Each vehicle control module has a unique login code that is stored in the 'Vehicle Factory Repair Manual' or can be obtained from a VAG dealer. The login code is a 5 digit number between 0 and 65535 and is entered via the scan tool.

Login to an ECM

Preliminary Requirements

1. Ignition on - engine not running
2. ECM supports login
3. Scan tool

Login Procedure

1. Connect the scan tool to the vehicle's data link connector.
2. From 'Systems Menu' select relevant ECM.
3. From 'Functions Menu' select 'Login ECM'.
4. Follow on-screen instructions and enter login code, including any leading zeroes.
5. On acceptance of the code 'Code accepted' will be displayed, if not an appropriate error message will be displayed.

NOTE: There is no restriction on the number of attempts made to enter the login code, however, some ECMs may break the datalink requiring the ignition to be switched off for approximately 2 minutes before re-establishing communications.