**WARNING**

**Any retrofits performed by following this guide you do at your own risk!**

**Read the complete guide before you star! Make a copy of your existing coding and adaptation settings before making any changes!**

**Any references to part numbers are valid at the time of publication of this guide.**

## Introduction

This guide is for Audi A6/A7/A8 models only (manufactured since end of 2010) in prefacelifted and facelifted 4G/C7 (A6/A7) and D4/4H (A8) chassis. Some of the information may be applicable to other Audi models but be aware about part differences e.g. Lane Assist camera found in the A4/A5/Q5 is different to camera found in A6/A7/A8.

Audi provides two Speed Limit Indicator systems.

**Speed limit indicator based on navigation data**

In the MMI Navigation Plus of the Audi 4G/4H generation, Audi implemented a display of prescribed speed limits for the first time. Speed limits are shown in the form of symbolised road signs in the MMI display (right bottom corner). The system takes the required information from the data record of the navigation system.


This procedure has the advantage that no additional components have to be fitted in the vehicle to implement the functionality. The map material that is used only has to contain prescribed speeds; these are then displayed when driving on the corresponding roads. However, the navigation data do not contain temporary prescribed speed limits, hence they cannot be displayed.

**Speed limit indicator on the basis of an image processing system**

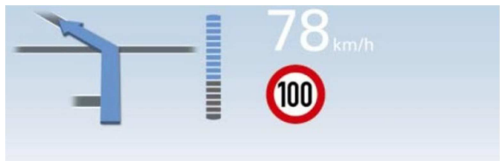
Another concept for the display of current prescribed speed limit is to record road signs with a video camera. The recorded camera images are analysed by image processing software with regard to signs with prescribed speeds and the determined speed limits are displayed to the driver.

The advantage of this method is that temporary and modified prescribed speeds can also be recorded and displayed. However, inaccuracies in the optical recording of road signs can result from poor ambient conditions. For example, correct recording of road signs can be difficult or even temporarily impossible in heavy snow, rain, fog or in the event of dazzling. The same also applies to damaged and dirty road signs.

**The Audi speed limit indicator**

The Audi speed limit indicator combines the advantages of both of the systems described above: the speed limit indicator based on navigation data and the speed limit indicator on the basis of an image processing system. The combination of both systems provides two sources of information where the data can be checked for plausibility.


The traffic signs are displayed in the instrument cluster. If the vehicle has a head-up display, the signs can also be shown there.




## The control units necessary for the Audi Traffic Sign Recognition function

The system can only be activated if the vehicle was factory fitted (or retrofitted) with MMI Navigation Plus (PR Code: PNQ) or Technology Package (PR Code: WB4,WB7). The MMI navigation Plus features:

- Big 8-inch main colour display
- Touchpad on central console

- Hard drive for media storage and navigation data
- Driver Information System (DIS) with 7-inch colour display on dashboard

The following Control Modules are essential and must be installed in the vehicle

**Camera Control Module J852 (VCDS ECU 85)**

- This unit is present if the vehicle was factory fitted with Adaptive Cruise Control or Active Lane Assist
- Supported parts: 4G0907217, 4H0907217A, 4H0907217B
- Supported parts facelift model: 4H0907217F
- There is no component protection in this unit

Functionality

- Registers the area in front of the vehicle and transfers the images to the image processing control unit J851

**Image Processing Control Module J851 (VCDS ECU 8E)**

- This unit is present if the vehicle was factory fitted with Adaptive Cruise Control or Active Lane Assist
- Supported parts: 4G0907107B, 4G0907107C, 4G0907107D, 4G0907107E
- Supported parts facelift model: 4H0907107F, 4H0907107G, 4H0907107H
- Part No: 4H0907107 installed in early production vehicles (2010) is not supported. The software update is currently not available in Audi Flash DVD. (There is no information about any possible updates by Audi Dealer via SVM either). You will damage this unit if you attempt to flash with higher available software version using VCP or ODIS.
- There is no component protection in this unit

Functionality

- The function software of Audi Traffic Sign Recognition is integrated in this unit
- Asks the control unit in dash panel insert J285 to display speed limit signs and, if required, to display messages and warnings
- Transfers the speed limit signs to the control unit for windscreen projection J898 and asks it, if required, to display warnings

**Data bus On Board Diagnostic Interface J533 (VCDS ECU 19)**

- Standard factory fitted equipment
- Supported parts: factory fitted

Functionality

- The interface of the various data bus systems

**Instrument Cluster Control Module J285 (VCDS ECU 17)**

- Standard factory fitted equipment with 7-inch colour display
- Supported parts: factory fitted

Functionality

- Shows the speed limit indicator in two possible display forms: in the full screen mode or in a reduced supplementary display. The instrument cluster also shows driver messages from the speed limit indicator and delivers the image processing control unit J851 the current time of day for display prioritisation.

**Information Electronics Control Module J794 (VCDS ECU 5F)**

- Standard factory fitted equipment with
- Supported parts: factory fitted

Functionality

- The navigation system is integrated in this control module for information electronics. The navigation system provides the image processing control unit J851 with so-called predictive route data that are required for the speed limit indicator.

**Electrical system control unit J519 (VCDS ECU 09)**

- Standard factory fitted equipment
- Supported parts: factory fitted

Functionality

- The onboard supply control unit informs the speed limit indicator as to whether the windscreen wiper is activated or not. The image processing control unit J851 requires this information for display prioritisation

## Optional control units that can be used if fitted

The following optional Control Modules provide additional functionality but they are not essential for Traffic Sign Recognition to operate. The system will be still fully functional without these Modules.

**Windshield Projection Head Up Display Control Module J898 (VCDS ECU 82)**

- Optional equipment
- Supported parts: factory fitted

Functionality

- If the vehicle has a head-up display, the speed limit signs and warnings can be displayed there

## Parts and Tools Required

- VCDS Interface for coding and adaptations
- VCP (Vag Can Professional) Interface for parametrization

## Calibration

**Camera Control Module J852 (VCDS ECU 85)**

If this Module has been retrofitted or replaced (with either new or used) then calibration will be required at the Audi dealership. (DIY calibration process can be found on the interned but it requires special tools and ODIS interface. Accuracy of this method is questionable)

If the windscreen has been replaced (e.g. due to damage) then re-calibration will also be required.

No calibration is required if this Module was factory fitted. Calibration was completed at the factory - this may not be the case for everyone.

## Software update

Should you require to update any ECU software then:

- Do it at the main Audi dealer via SVM
- Use VCP interface
- Use ODIS interface

VCDS does not support ECU flashing required for software update.

## Coding

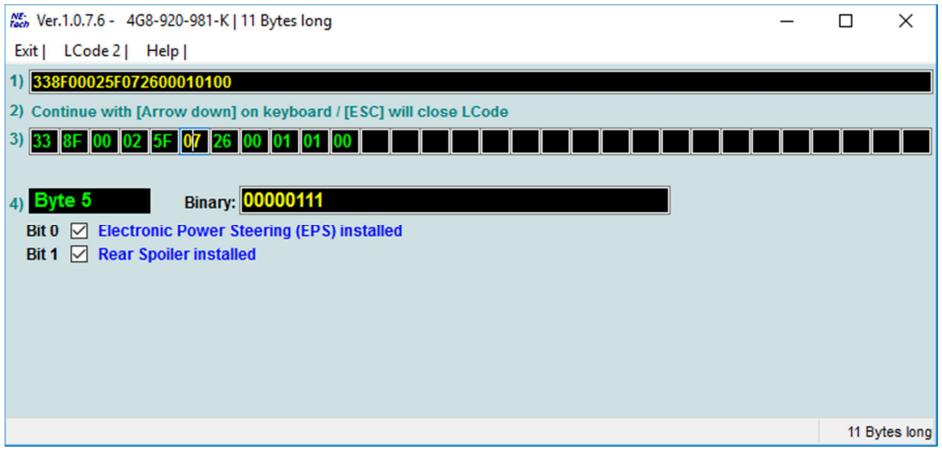
Perform a scan of the vehicle and make sure modules 85 and 8E are present. Module 82 is optional.

**Note:** Bits in some versions of Control Modules/VCDS listed below may be without labels and/or without drop down selection list. Use “Unlabelled Bits” to code these Modules.

**Step 1**

[Select] -> [17-Instruments] -> [07 Coding] -> [Long Coding Helper]

Select Byte 5 enable **Bit 2** ☑



You may find that in some versions of Control Modules/VCDS there is no Bit 2 visible in Byte 5 (Picture above). In this case you have to manually change either Hexadecimal or Binary value to enable Bit2. Follow description below.

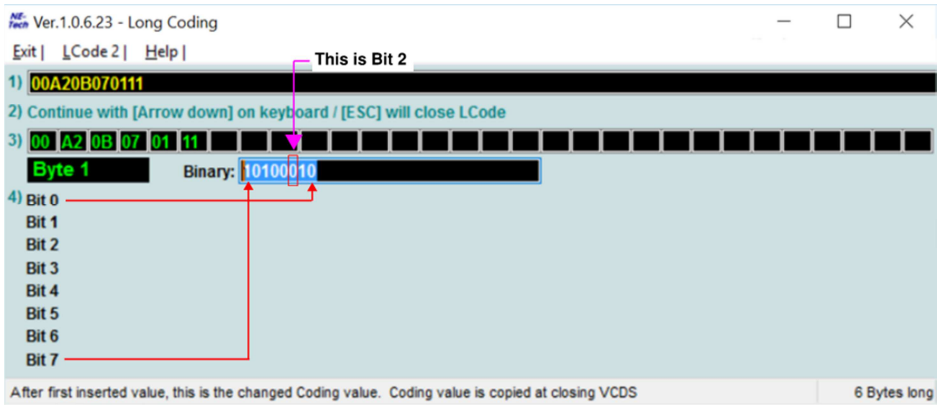
**Guide how to change LCode Bit**

Picture below shows a typical control module without tickable fields to change Bit status. In this example Byte 1 value A2 (Hex) = 10100010 (Bin). Long coding can be changed in two ways.

- By changing hexadecimal value in line 3) – e.g. Byte 1 current value A2 can be manually changed by selecting and typing new value
- By changing Binary value in "Binary:" field – e.g. Byte 1 current value 10100010 can be changed manually by selecting and typing new value

Once one of the value has been changed, another will be updated automatically. Red arrows show first and last Bit of Binary value, hence e.g. Bit 2 = 0.

Binary value 0 means Bit ☐ (disabled), value 1 means Bit ☑ (enabled)

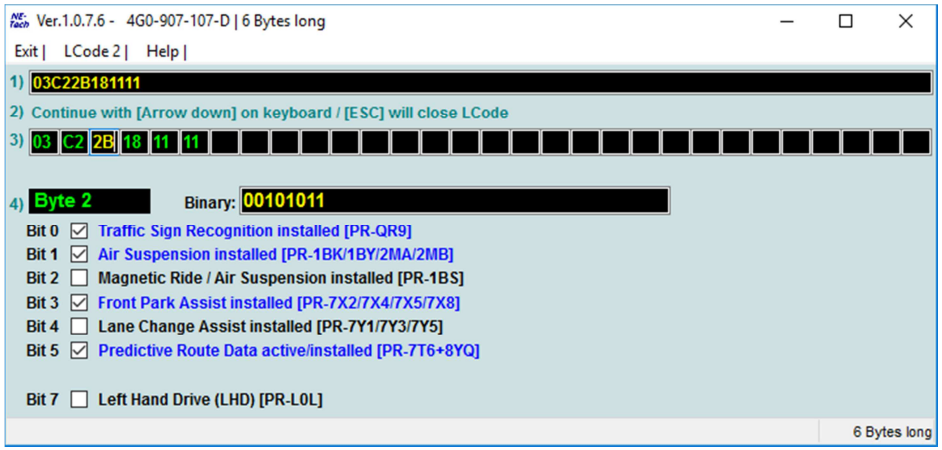



See video here: https://www.youtube.com/watch?v=DvOzrKx7Tu0

**Step 2**

[Select] -> [8E-Image Processing] -> [07 Coding] -> [Long Coding Helper]

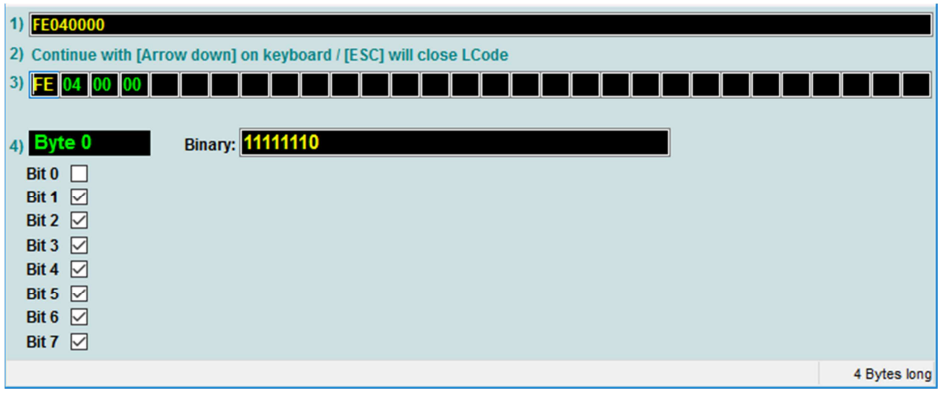
Select Byte 2 enable **Bit 0** ☑




**Step 3**

[Select] -> [85-On Board Cam] -> [07 Coding] -> [Long Coding Helper]

Select Byte 0 enable **Bit 4** ☑




**Step 4 (omit for facelifted models)**

Enter the hidden (green) menu on the MMI to activate the menu for Traffic Sign Recognition. Press and hold MENU+CAR for a few seconds until Green Menu activated

Car -> Cardevicelist -> Check “Traffic sign recognition (VZE)”

Car -> Carmenuoperation -> Traffic sign recognition (VZE) –> Change from 0 to 5

Restart MMI to save changes - Press and hold together MENU+Centre Knob+Top Right Function Button

**Step 5**

Use VCP Interface to perform the following procedure.

According to your Image Processing Control Module part number, download required ZDC file from the File Management. The following ZDC files are available for part numbers as noted below:

- a6_c7_imageProcessor_Camera_4g0907107b.zdc
- a6_c7_imageProcessor_Camera_4g0907107d.zdc
- a6_c7_imageProcessor_Camera_4g0907107e.zdc
- a6_imageProcessor_8e_4h0907107f,g.zdc
- a6_imageProcessor_8e_4h0907107h.zdc

**Note:** Although Part No 4G0907107C is supported, currently corresponding ZDC file is not available, hence parametrization cannot be completed.

[Guided Functions] -> ⊙ Apps -> Upload parameter data -> [Next] -> [Next]

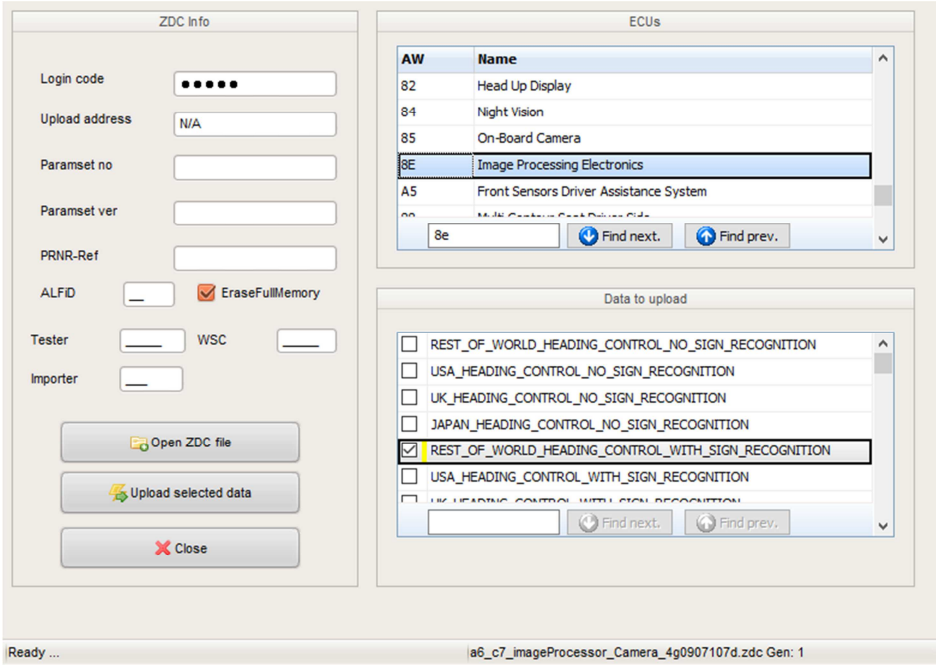
In ECUs field select 8E Image Processing Electronics

[Open ZDC file] -> Select file relevant for your part number

Enable ☑ EraseFullMemory

Enable ☑ REST_OF_WORLD_HEADING_CONTROL_WITH_SIGN_RECOGNITION

[Upload selected data]




**Note:** In case of required ZDC file is not available in your VCP Filemanagement, contact VCP support team.

**Step 6**

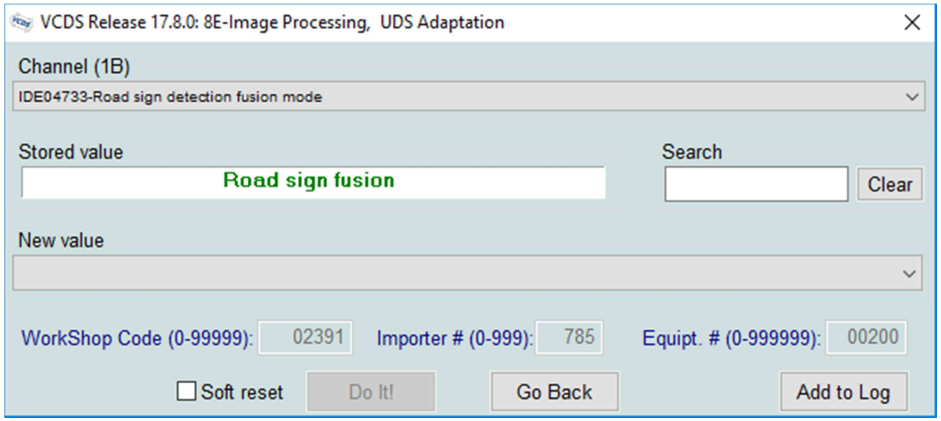
Use VCDS to perform the following adaptations

[Select] -> [8E-Image Processing] -> [Security Access -16] -> Enter: S12345

Modify the following channels:

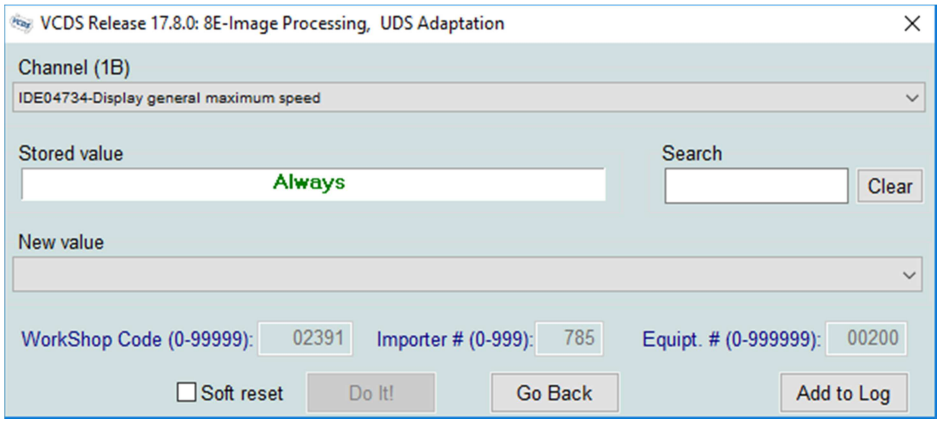
Channel: IDE04733-Road sign detection fusion mode

New value: Road sign fusion



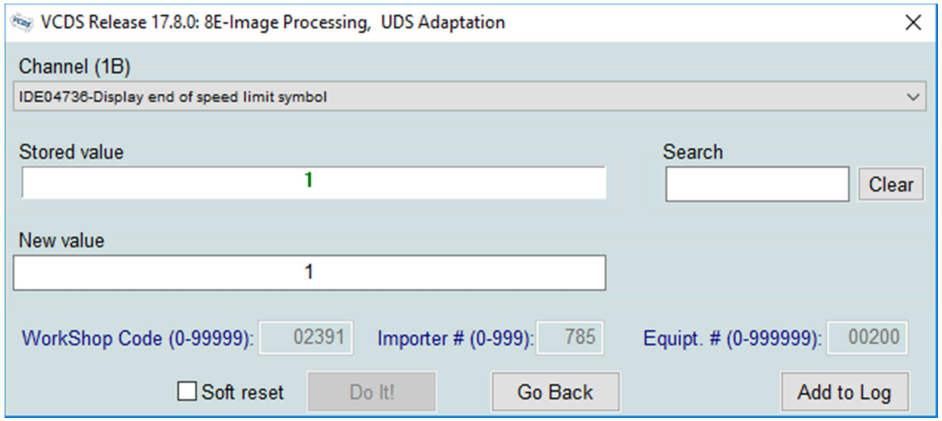

Channel: IDE04734-Display general maximum speed

New value: Always



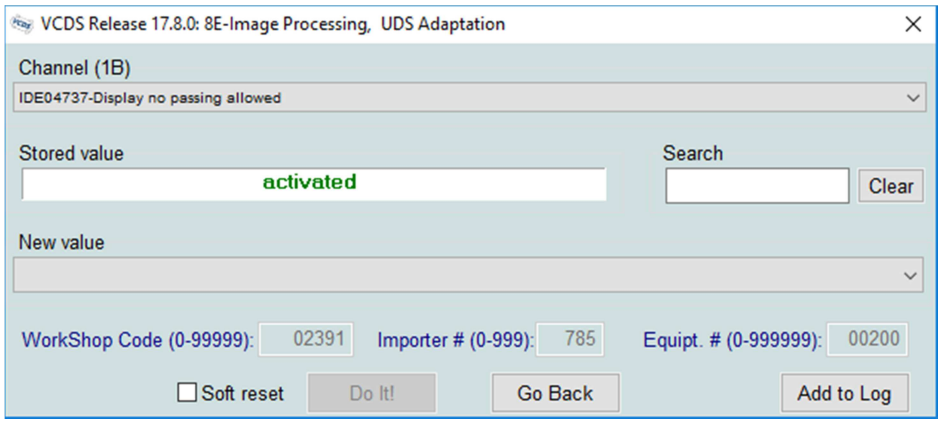

Channel: IDE04736-Display end of speed limit symbol

New Value: 1



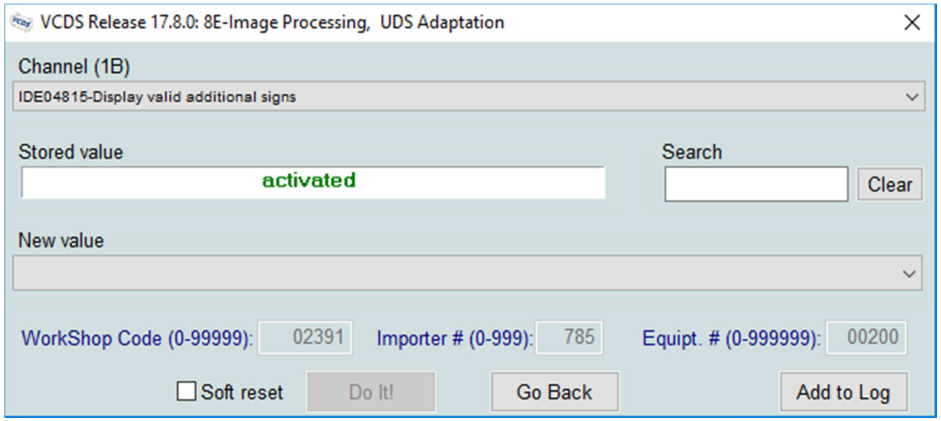

Channel: IDE04737-Display no passing allowed

New value: activated



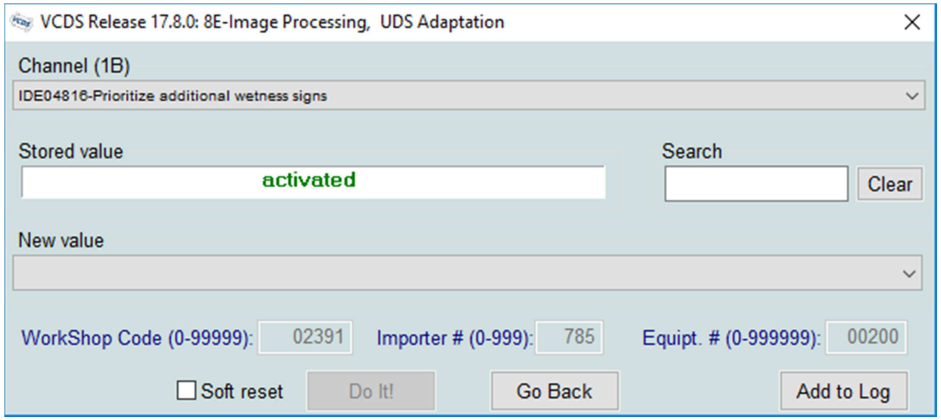
Channel: IDE04815-Display valid additional signs

New value: activated




Channel: IDE04816-Prioritaze additional wetness signs

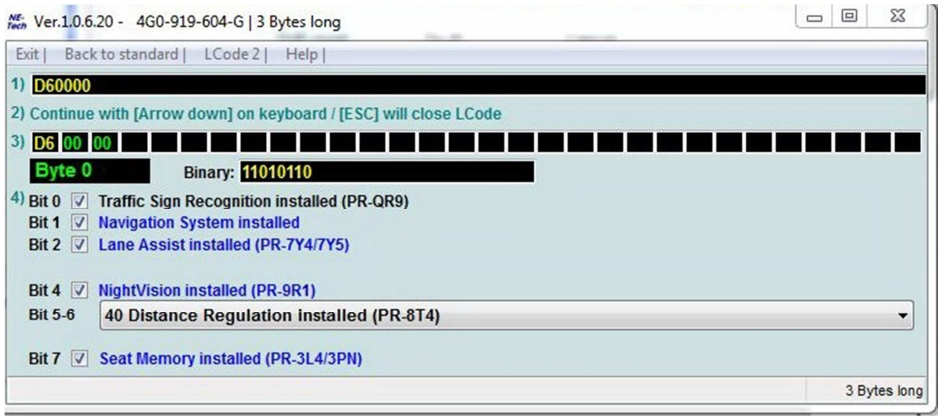
New value: activated




**Step 7 (Vehicle with Heads Up display only)**

[Select] -> [82-Heads Up Display] -> [07 Coding] -> [Long Coding Helper]

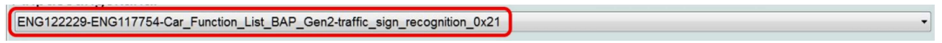
Select Byte 0, enable Bit 0 ☑




**Note:** You may need to change some adaptation channels associated with Traffic Sign Recognition system in order for HUD to be fully functional.

**Step 8 (for facelifted models only)**

[Select] -> [5F-Information Elect] -> [10 Adaptation] -> Edit the following channels:




New value -> activated


New value -> activated


New value -> activated

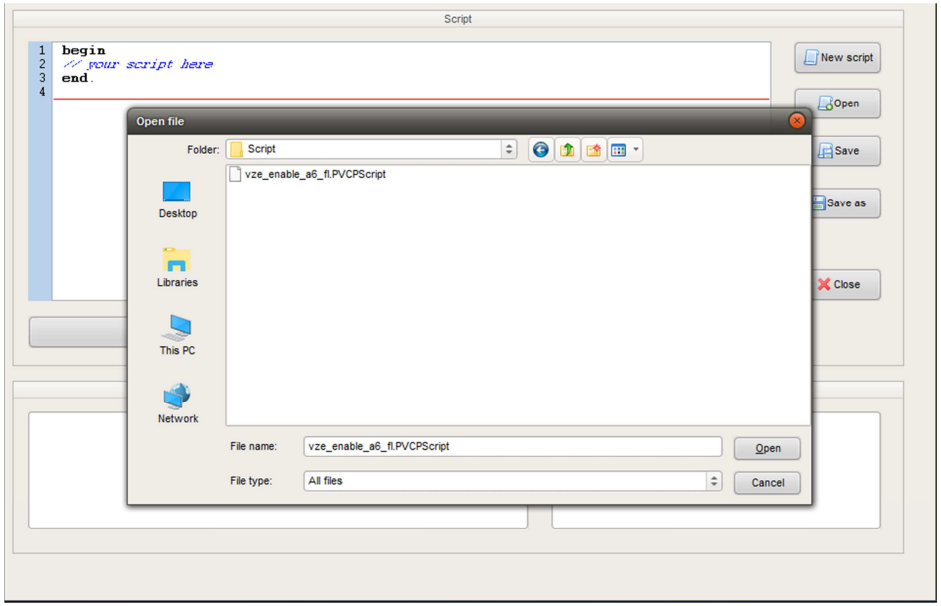
**Step 9 (for facelifted models only)**

Coding and adaptations can be automatically completed using specific Script File in VCP Interface.

Use VCP Filemanagement to download *vze_enable_a6_fl.PVCPScript,* and then:

[Scripter] -> [Open] -> Select file: *vze_enable_a6_fl.PVCPScript* -> [Run]

To open the file ensure you have selected “All files” from the File type drop down list



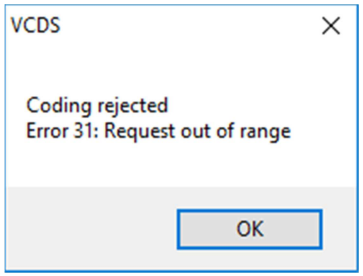

**Note:** In some cases for facelifted models only, Traffic Sign Recognition System activation procedure can be completed by following Step 5, Step 8, Step 9 and Step 10 ignoring other steps described in this guide.

**Step 10**

Clear all faults and refresh the system. No errors should be present.

## Coding troubleshoot

**Error 31**




Error 31: Request out of range – Selected coding cannot be applied into ECU. The ECU does not support selected option or ECU software version is too low.

Solution: ECU software update (if available) with higher suffix (e.g. xxxxxxxxxA to xxxxxxxxxB) or ECU replacement with higher software version.

## New MMI Menu

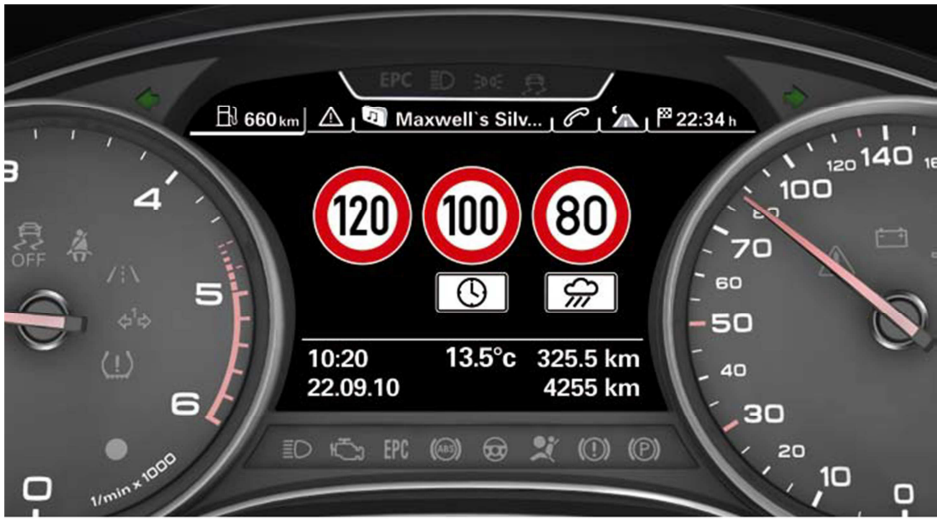
New options are available in [CAR] -> Driver assist

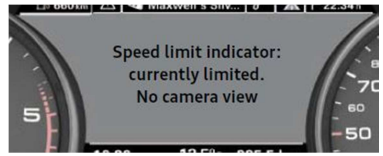
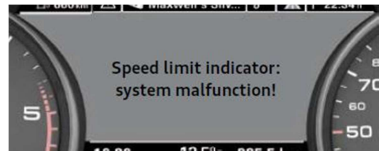
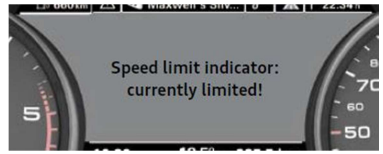
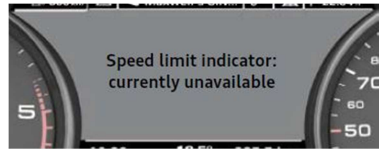
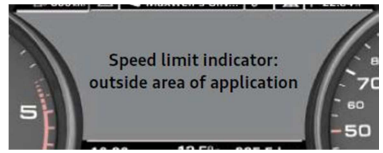


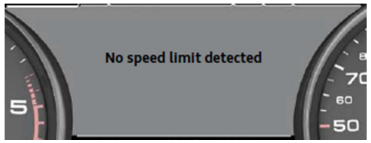
The different road signs that the speed limit indicator can display are shown below.

| | | | | |
|---|---|---|---|---|
|  |  |  |  |  |
|  | Road signs that cancel speed limits are detected by the image processing system but are not displayed. The previously displayed speed limit disappears from the display and is replaced by the legally permitted maximum speed. | | | |

Supplementary display in the driver information system


| The following circumstances can lead to display of the message texts in the Driver Information System | |
|---|---|
| • internal or external fogging of the windscreen<br>• heavy fog<br>• dirt on the windscreen |  |
| • defective control unit for image processing J851<br>• failure of the FlexRay bus to which the control unit J851 is connected |  |
| • a malfunction of the camera<br>• a malfunction of the navigation system<br>If this is the case, the speed limit indicator continues to operate with restrictions. As there is only one source of information available now, the rate of errors of the speed limit indicator increases. |  |
| • temporarily no navigation data is being received<br>• although the camera sees contrasts, the image does not correspond to any road view |  |
| The message text "Speed limit indicator: outside area of application" appears if the vehicle is in a country that is not supported by the speed limit indicator.<br><br>The speed limit indicator determines which country the vehicle is in from the predictive route data in the navigation system. |  |

| | |
|---|---|
| • Driving on a motorway<br>• In the relevant country, there is no maximum permitted speed on motorways<br>• Road signs with prescribed speeds for the current section of motorway have not been detected<br>• The menu option "Signs Relevant to Trailers" in the MMI is at "off" |  |