




Sensor Settings




Sensors



Active Sensors

☒ RPM



☒ Battery


☒ TPS 


☒ Speed 

**Oil Temperature Sensor** 

2K

☒ Low Range Switch [Negative] 

☒ Overdrive Switch [Off]

☒ Second Gear Start [Off]


Shift Base Algorithm

RPM


Tiptronic Options


Tiptronic

Not Used


Shifter Sensor 

POT Input



Map Selection 

4 MAP Switch





This pages is used to select, setup and calibrate sensors and features.



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Shift Base Algorithm

RPM

This block let the tuner select the different sensors that is used for his application. Not all the sensors are used but each one has different features that makes the transmission perform at its best. If a sensor is not used, leave the block unchecked. This will free up valuable processor time. Also make sure the wiring to that sensor is properly isolated as there is power on the leads that could short circuit, damaging the TCU as a result. Some of the sensors cannot be altered or will be forced on or off by the firmware.



These signals are critical settings which means they are saved separate from the 4 maps. Some can only be calibrated in MAP 1 and does not change when other maps are loaded in the TCU. The Clone function will alter this calibration to the Clone map.

Calibration



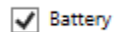
Some of the inputs can be calibrated by clicking on the calibrate button. This allows for a wider range of sensors to be used in the software.

RPM Sensor



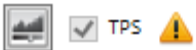
This input is forced on and essential to the operation of the TCU. It can be any pulse configuration even uneven pulses. As long as you enter the number of pulses per one revolution of the engine. In some conversions you may add a sensor that scans a bolt on the crank or camshaft as the engine may be of a carburetor type. It is not possible to control the engine without this signal. This signal is normally connected on the ECU.

Battery



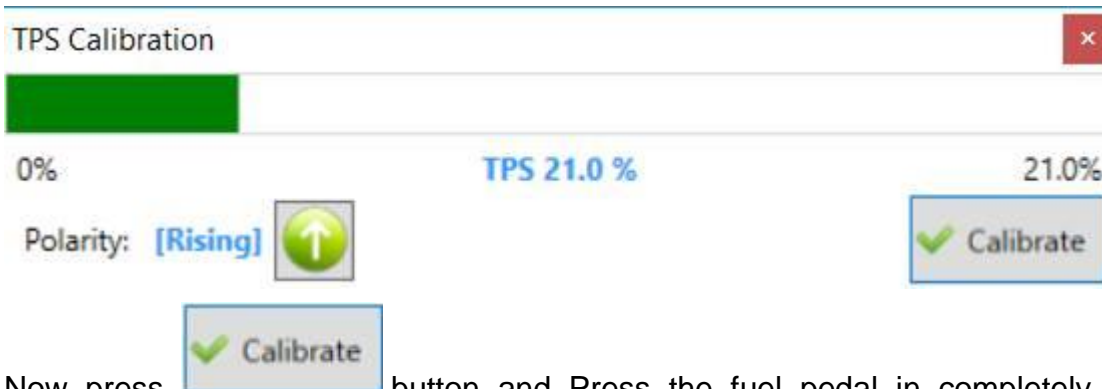
This input is not used in the TCU control parameters at this stage but merely an indication for the tuner. It may be used on the GP outputs to switch on a battery low lamp which indicates that the alternator is not charging.


TPS

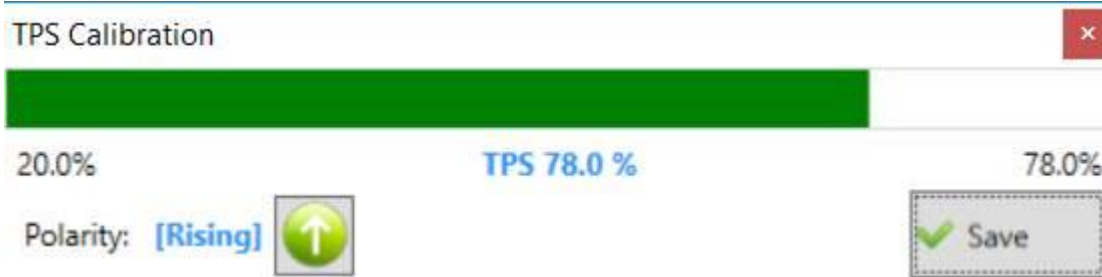


This sensor indicates to the TCU what the driver's intent is. It is also used for features such as kick down, lockup control and smooth shifting. It is not possible to control the transmission without this sensor. This signal normally is connected from the ECU. For the TCU to operate correctly this sensor


needs to be calibrated. Click on the calibrate  button left of the TPS check box and do the following procedure:




Now press  button and Press the fuel pedal in completely and release the pedal completely. The *Min* and *Max* values will be indicating the range of the TPS.



The TPS value must increase with throttle depression. If it is decreasing, click on *Polarity* to select rising

or falling edge.  This feature is normally used where the original TCU is still connected and wiring cannot be altered. In this case you connect only the TCU TPS signal wire to the ECU TPS signal wire. Do not connect the ground or 5 volt signal wires but isolate them to prevent shorts.






Click the *Save* button. You may now test the TPS signal by pressing the pedal in and releasing it. The

TPS real time value should operate from 0 to 100%. Then click on the *Save to TCU*  button to make the changes permanent.

Speed



This sensor indicates road speed to the TCU. It is also used for features such as kick down, gear down and smooth shifting. It is not possible to control the engine without this sensor. This signal is normally connected at the back of the transmission to measure prop shaft rotation. This sensor is set up in 2 parts. First input the number of pulses per one prop shaft rotation in the

Speed Sensor Pulses/RPM   block. Click on the calibrate   Speed  button left of the Speed check box.




Speed Calibration

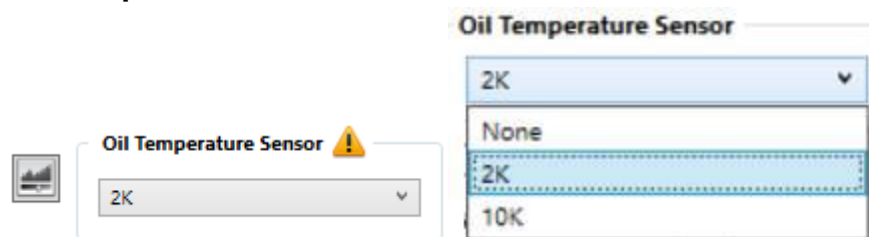
Offset Value

Speed: 124 kph

Ok

Change the offset value till the speed value reads the same as the car, speedometer or as a GPS reading. Click the *OK* button. Then click on the *Save to TCU*  button to make the changes permanent. If you are not sure what the pulses value is then start with a 110 value here and adjust the speed sensor pulses/RPM till the speed is as close to real speed. Then do offset value again. If the offset value is very low or very high, then speed calculation becomes erratic.

Oil Temperature Sensor



Oil Temperature Sensor


2K

None

2K

10K

This sensor indicates transmission oil temperature to the TCU. It is not used in all TCU firmware but it does help to smooth shifting when the transmission is cold. There are 2 selections for different sensors. Normally 2k or 10k which alter the sensor calibration. Note that this does use a different wire in the harness as well. Select None if it is not used.

This sensor can be calibrated slightly but it is only an offset adjustment to make it accurate at a critical temperature. Most firmware is pre calibrated for that sensor on the TCU. Click on the calibrate  button.




Oil Temperature Calibration

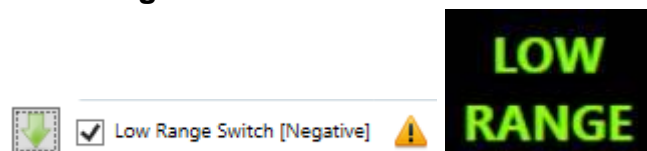
Offset Value

Oil Temperature: 29 °C

Ok

Now adjust the offset value to match your accurate thermometer. Click the *OK* button. Then click on the *Save to TCU*  button to make the changes permanent.



Low Range Switch



Low Range Switch [Negative]

LOW RANGE


This feature indicates to the TCU when low range is selected. This will do an automatic adjustment on the speed values entered in the gear shift profiles. The arrow will select the signal logic for low range. Note that light on the real-time bars must be green when low range is engaged.

Set the ratio for the transfer box in the Transferbox Ratio   (%) block. Check the wiring diagrams to connect it properly.

Overdrive Switch



Overdrive function was used on the older vehicles but today tiptronic buttons took this to the next level where you could select any gear as the highest in certain driving conditions. But you may select the overdrive function if you prefer it. Note that this function will disable tiptronic and then the tiptronic upshift button becomes the overdrive button. If you don't wire in a button, you can still use the overdrive function with the map switch to enable or disable overdrive on different map. You may also use the

Gears function Gears  to select the max gear. The arrow will select how the overdrive is activated on start-up in different maps. If it is on top arrow, then it means that the transmission will go to the high gear. If it is on down arrow, then the transmission will go to high gear one. If the overdrive button is pressed and released the overdrive function is toggled on or off. On some TCU's there is an output that could be wired to a lamp indication for the dashboard. Alternatively, the dash displays may indicate these functions. Note that if you do use an OEM overdrive switch check the wiring recommendation for the specific TCU. They differ between the products.

Second Gear Start



This function is very handy in snow or slippery roads to minimise torque and also used in low range driving. Note that this function will also disable tiptronic and then the tiptronic downshift button becomes the second gear button. If you don't wire in a button, you can still use the second gear function with the map switch to enable or disable second gear pull-off in different maps. The arrow will select how the second gear is activated on start-up in different maps. If it is on top arrow, then it means that the transmission will pull off in second gear. If it is on down arrow, then the transmission will pull off in first gear. If the second gear button is pressed and released the second gear function is toggled on or off. On some TCU's there is an output that could be wired to a lamp indication for the dashboard. Alternatively, the dash displays may indicate these functions. Note that if you do use an OEM overdrive switch check the wiring recommendation for the specific TCU. They differ between the products.

4 Wheel Drive

With Version 3.3C and onwards there is an all-wheel drive selection for certain transmissions like Subaru.



☒ 4 Wheel Drive [Negative]

This feature will allow the user to select a manual On/Off switch or an automatic graph with TPS activation. If a switch is wired in, then the user may also select negative or positive signal for activation. This will allow it to be tapped into an existing OEM installation if such a switch exists.

If he switches the selection Off, and firmware is written for the graph, then another graph will become visible on the duty cycle graphs. The solenoid can then be faded in or set on or off by adjusting the graph.

