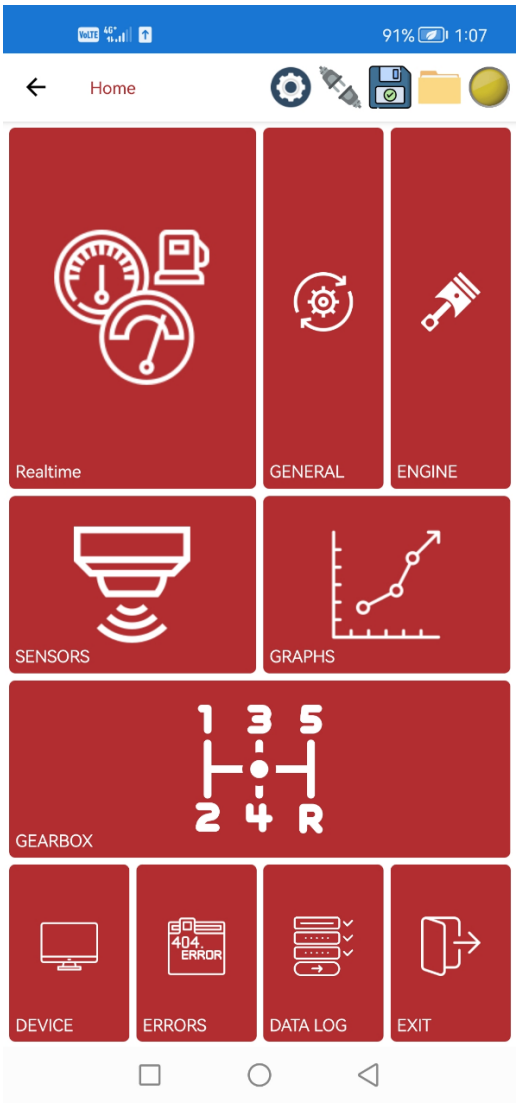
Hyperspace TCU Android Ver 3.6

This is not a detailed manual. It is only a quick explanation to the settings in the same order as is found in the Android software. This manual has all the possibilities of the software but it may not be visible for your product. On the left of this PDF document there will be an Index file which will help you get to the part you seek as quickly as possible.

Throughout this settings manual there are Hyperlinks that will guide you to an online document with detailed explanations on that feature. All these documents are available under Online Manuals from the Spitronics Website. For wiring information use the online Wiring diagrams for each product. It can be found at Manuals/Online Manuals/TCU/*(Product Name)*.

The software manuals are based on the PC Software but it is the same settings as the Android version.

Start-Up Screen

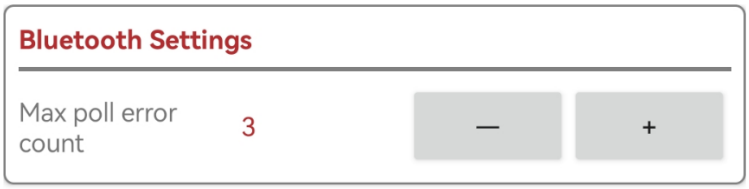


Header Name

Each page that you enter from the start screen will have a return button and name on top of that page. Click it to exit the page or you can use the phone's return button if it is visible.

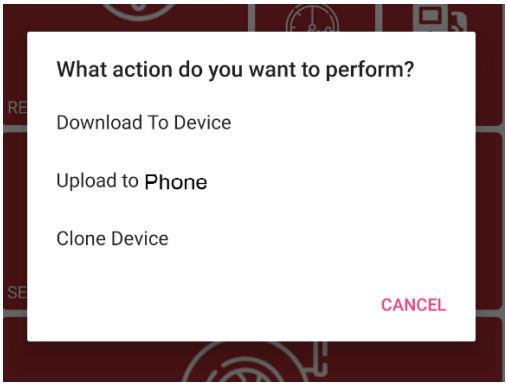
Bluetooth Settings

This settings is used to stabilize Bluetooth communications. go for the lowest value that the mobile don't lose communications randomly.



Connect Button

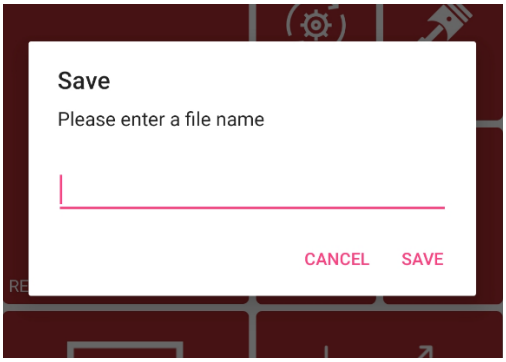
Once you have opened a Map then this connect button will appear. Clicking on it will bring up the next Menu.



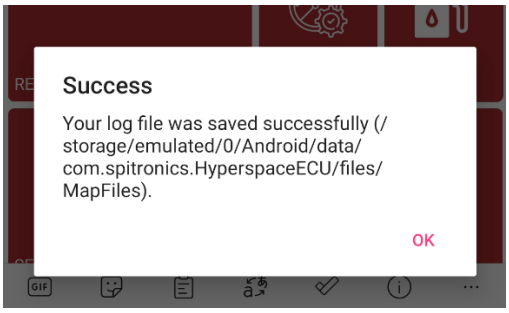
Download to Device means the map will be loaded in the ECU but the Critical Settings will not be changed.
Upload to Phone means ignore the map and reload the map in the ECU to the phone.
Clone Device means load the map and Critical Settings into the ECU. **NB!** This feature is for setting up a new device and the outputs must not be connected to the ECU or it could damage the ECU or engine components.

Map Save Button

Use this button to save a Map or Tune from the ECU. This will ask you to enter a file name for your Map.



Enter a file name and click save. The next block will tell you where the map will be saved.



From here you will need your phone's file manager to get the file and email it to someone or leave it there as a backup.

Map Open Button

This button will open the Phone's ***File Browser*** and let you open a file from the phone's memory. Normally this file will be in the ***Download Files*** folder on your phone. If you want to open a map that you saved the follow the Save button's folder structure. Phones differ so we will not be able to log each phones procedure in this manual.

Status/Save LED

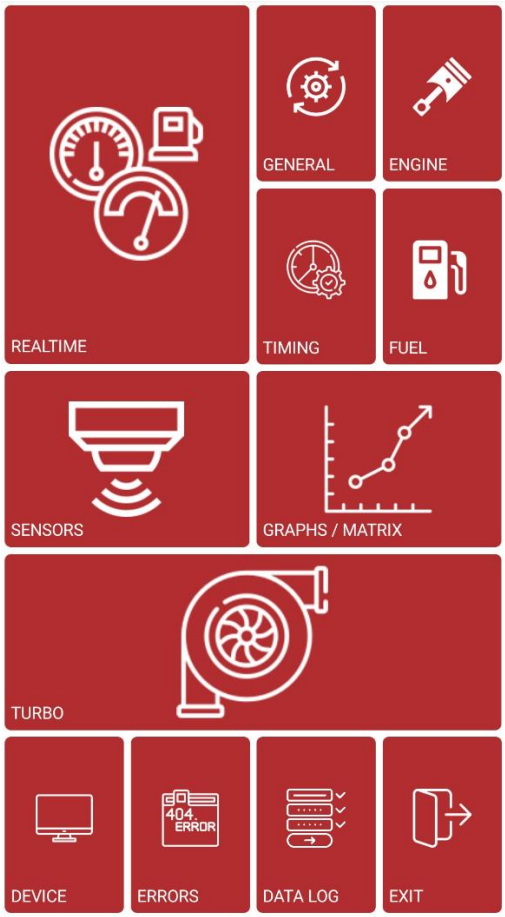
This LED will flash different colors.
Green means the phone is connected with the ECU and there are no changes between them.

Yellow means they are connected but the maps were changed from the phone's side and the changes is not yet saved in the ECU to make them permanent.

Red means communication is lost or is not stable.

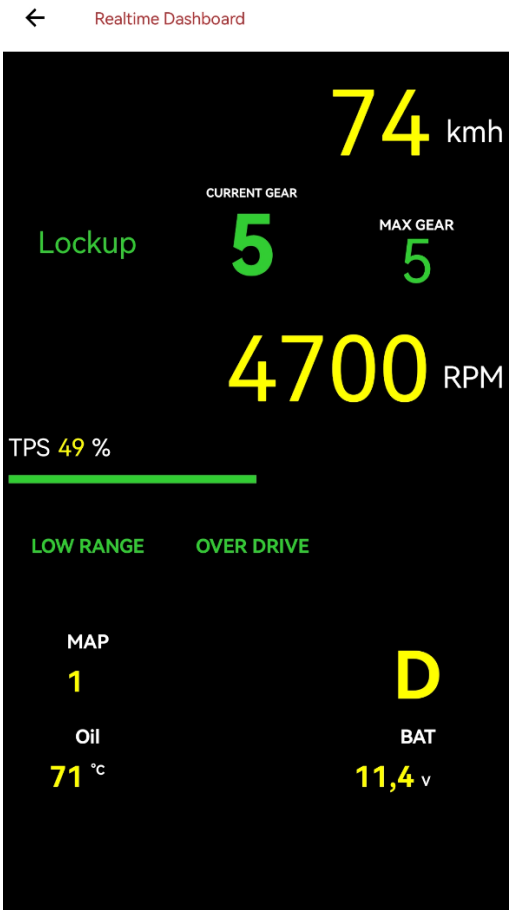
Clicking on this Yellow LED will save the data to the ECU in permanent memory. It will then flash green again.

Pages Screen



This is all the different pages that you can select from the menu. Graphs will open another selection. Note that pages may be too long and you need to scroll up with you finger sliding it to the top.

Real-Time Display



This block displays all the analogue sensor values as they change in the ECU. Below is a description of the meaning of each signal.

Speed

This is the Speedometer value displayed in Kph. For Mph change it at the Settings tab.

Lockup

This value displays lockup status. Green for engaged and grey for released.

Current Gear

This value displays the current gear that is selected by the TCU.

Maximum Gear

This value displays the highest gear that the TCU may select. This is a driver selection to prevent the TCU from selecting higher gears.

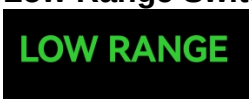
RPM

This value indicates engine revolutions per minute.

TPS Sensor

This value displays the amount of throttle pedal which is applied by the driver.

Low Range Switch



This displays the status of the low range lever. Green is engaged and grey is disengaged.

Overdrive Switch

This displays the status of the overdrive selection switch. Green is engaged and grey is disengaged.

2nd Start Switch

This displays the status of the 2nd Start selection switch. Green is engaged and grey is disengaged.

Map or Tune indicator

This displays the current map that is selected. The TCU can hold up to 4 maps.

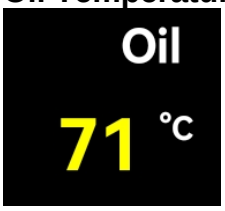
Tiptronic Buttons Up and Down

This value displays the status of the tiptronic push buttons. Green is pressed and grey when released.

Shifter Lever Sensor

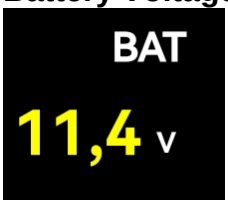
This value displays the current shifter lever position like PRND21 etc.

Oil Temperature Sensor



This value displays the current TCU oil temperature if the box has a sensor.

Battery Voltage

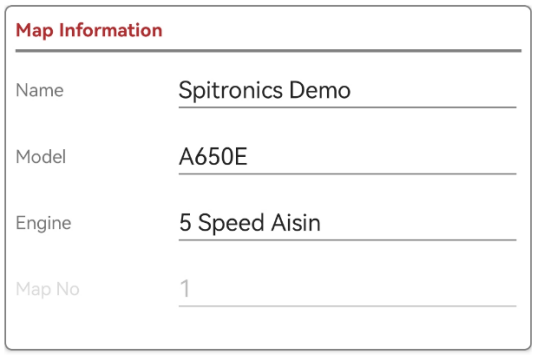


This value displays the current battery volts measured at the TCU.

General Settings

For more detailed explanation look in the General Settings Manual.

MAP Information



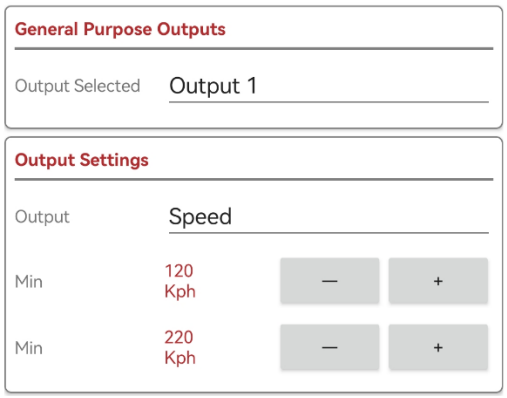
The Map information screen, **Name Model** and **Engine**, contains info for the TCU application for a specific vehicle. This helps the tuner to recognize previous work and tuning data. It is saved in the TCU and also in PC maps. It does not affect any tuning on the engine.

Map Number

The firmware can save up to 4 maps for Maps or tuning algorithms. This is only an indication and the map cannot be forced on this page.
There are different methods of selecting these maps. Most popular is the 4 Map rotary switch. Then there is Up and Down Button hold method for 2 maps only. Maps may be changed while driving. Keep in mind Map 2 to 3 and visa versa requires the vehicle to stand still. This is because mostly low range on transmissions cannot be selected during driving.

General Purpose Outputs

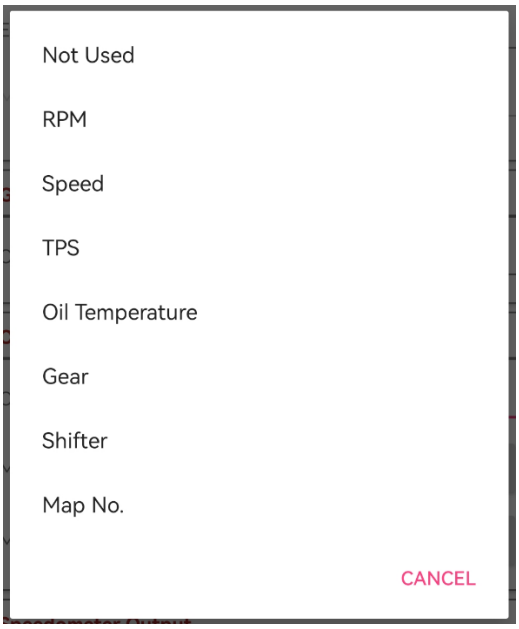
Hyperspace TCU Ver 3.6 can handle up to 2 General Purpose (GP) outputs to configure for several different functions. These outputs can be configured to use any of the analogue signals to switch relays on or off when certain limits are reached. Due to the number of GP outputs this block was developed to be generic block. That means there is a dropdown menu to choose which output is adjusted by the tuner. Not all firmware has the ability for 2 GP outputs so the number of selections may be limited. This depends on which features are activated in the TCU. Note the operating current and requirements of each product in the electrical drawings, so that damage to the TCU will not occur. See the GP Priority register and the wiring of the specific transmission. Some drivers may be positive output and some negative output. For more detailed explanation, look in the Hyperspace TCU Ver 3.6 Manual.



Output selection

If an output is available, the software will show the location of the driver that is used with this GP output. Should an output not be available the driver will be blank and the Output settings will be locked on not used.

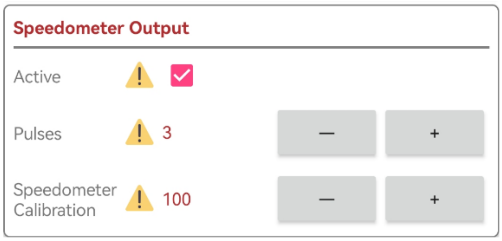
Selections
The tuner has a number of selections to use in the GP output. Use the drop down menu to display the others.



Not used – this saves processor time
RPM – RPM/min 100rpm increments
Speed – Road speed at 1 km/h increments
TPS – percentage at 1% increments
Oil temperature – degrees at 1°C increments
Gear – 1 Gear increments
Shifter – 1 position increments
Map No – 1 Map increments

Note! If you don't use these outputs, select ***Not Used*** so that valuable processor time can be saved.

Speedometer Output



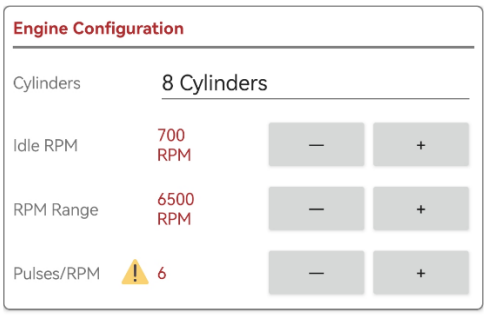
Active
This feature selects an output for speedometers. Switch off if not used to free up processor time.

Pulses
This feature is used for speedometer calibration. You can adjust the number of pulses per revolution of the prop shaft. This is handy for transmission conversions. A value of 1 to 60 pulses can be achieved with this function. Note different electrical connections in the drawings to connect the different speedo gauges onto the Spitronics TCU.

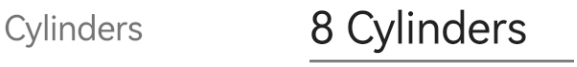
Engine Settings

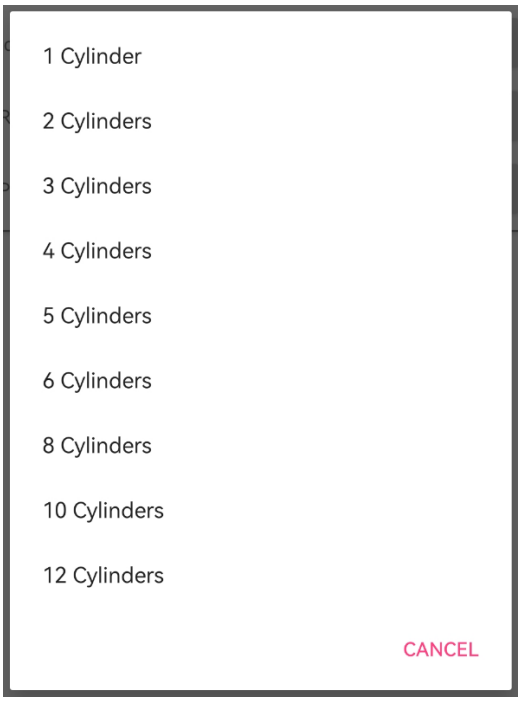
For more detailed explanation look in the Engine Settings Manual.

Engine Configuration



Cylinders





Number of cylinders on the engine can be selected in this block. It is not used by the current firmware but reserved for future development of different firmware.

Idle RPM

Idle RPM of the engine can be typed in this block. It is used by the firmware to release the lockup clutch if the revs fall below this value plus 200 RPM. Example if you select 800 the lockup will release below 1000 RPM's.

RPM Range

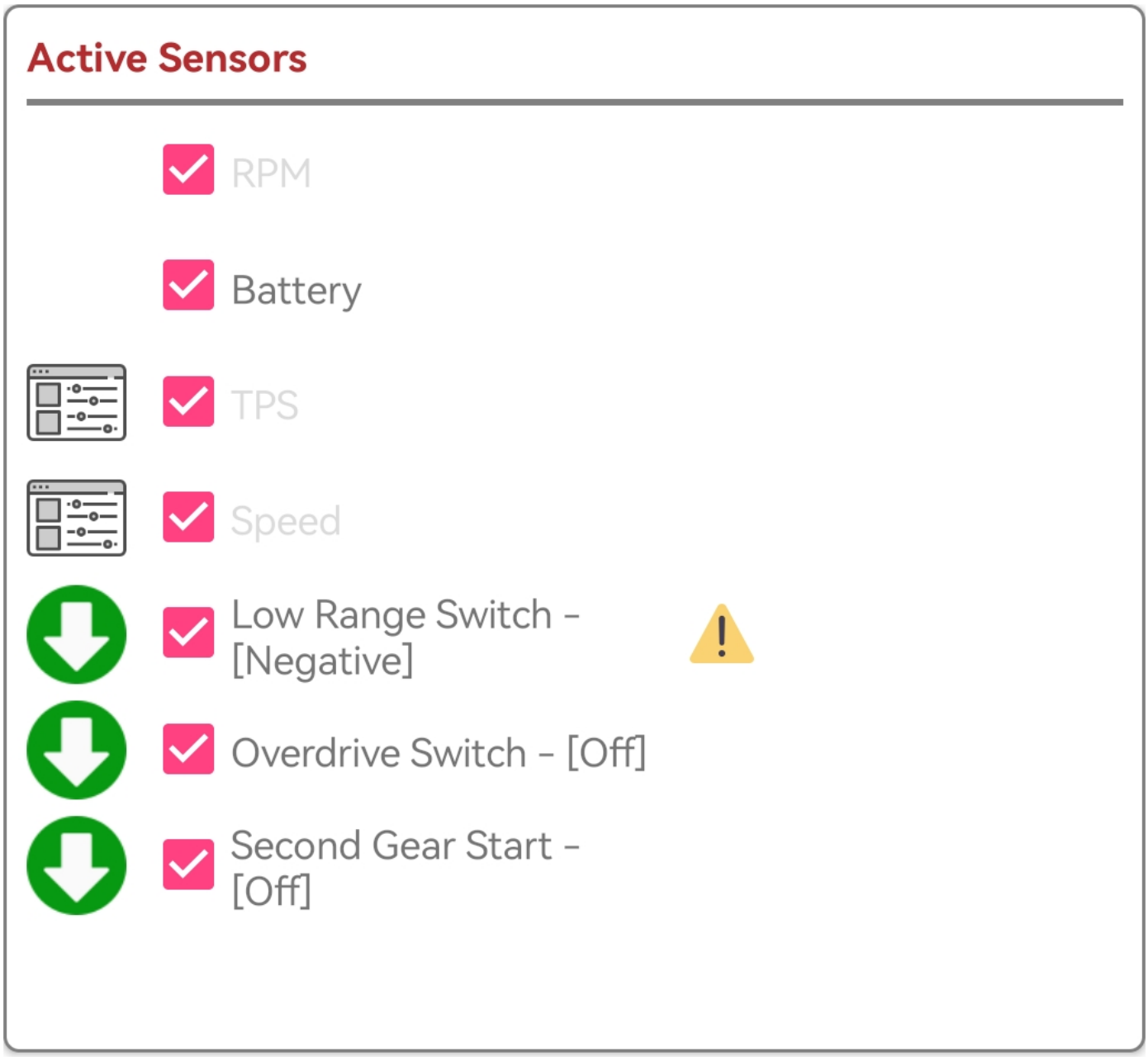
Maximum RPM of the engine can be typed in this block. It is used to scale the gear profile graphs so that the whole graph can be used for tuning. It also calibrates the maximum scale of the analogue RPM gauge.

Pulses/RPM

This setting is the number of RPM pulses per engine revolution that the TCU receives. It is used for correct revolution calculation and display. Example: If you connect to a 36-1 gear then enter 35 pulses per rpm.

Sensor Settings

For more detailed explanation look in the Sensor Settings Manual.



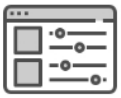
Active Sensors

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.

NB! Note that all these calibrations must be made in Map 1 as they will be the same in the other Maps1. They are marked with the yellow triangle sign.

Calibration



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

RPM Sensor

For more detailed explanation look in the RPM and Speed Manual.

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.

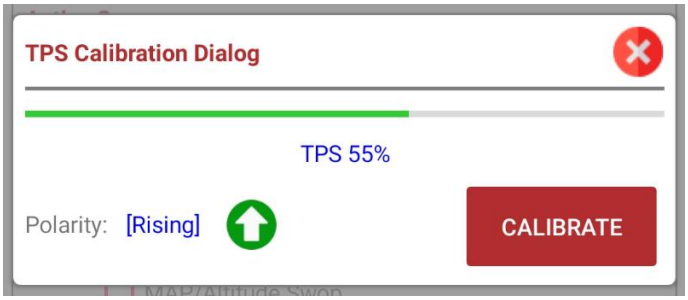
Battery Charge Voltage

This input is not used in the TCU control parameters at this stage but merely an indication for the tuner.

TPS

For more detailed explanation look in the Throttle Position Sensor Manual.

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:



The TPS value must increase with throttle depression. If it is decreasing, click on *Polarity* to select *Negative*. This feature is normally used where the original ECU is still connected and wiring cannot be altered. In this case you connect only the ECU TPS signal wire to the OEM signal wire. Do not connect the ground or 5-volt signal wires but isolate them to prevent shorts. Now click the *Calibrate* button. The current TPS value will be written into the two blocks *Min* and *Max*.

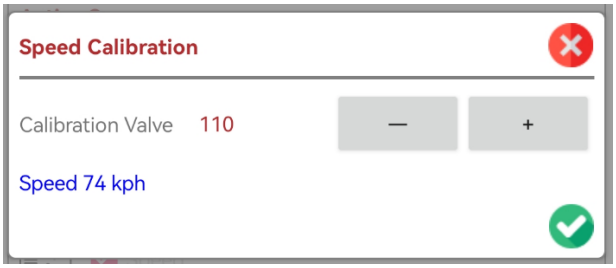
Press the fuel pedal in completely and release the pedal completely. The *Min* and *Max* values will be indicating the range of the TPS. Click the *Save* button. You may now test the TPS signal by pressing the pedal in and releasing it. The TPS real time value should operate from 0 to 100%.

Then click on the '*Save to ECU'* button to make the changes permanent.

Speed

For more detailed explanation look in the RPM and Speed Manual.

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 transmission 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. Firs input the Speed Sensor Pulses / RPM of one prop shaft rotation in the Gearbox settings block. In some cases you can count this value if you can see the sensor. Click on the calibrate button left of the Speed check box.



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. This means your pulses per RPM was incorrectly set.

Low Range Switch

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 the green text on the real-time bars must be green when low range is engaged.

Set the ratio for the transfer box in Gearbox Settings. Check the wiring diagrams on how to connect it properly.

Overdrive Switch

For more detailed explanation look in the Sensor Settings Manual.

Overdrive function was used on the older vehicles to select between top gear and the gear below that. It share the input of the Tiptronic Up button. This function will disable tiptronic function. Note the green text on the real-time bars must be green when overdrive is engaged.

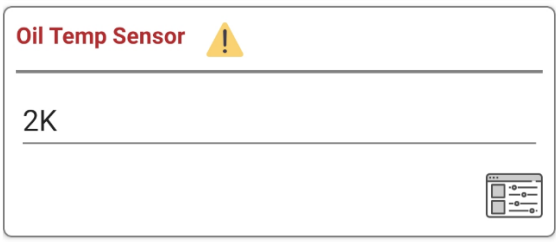
Second Gear Start

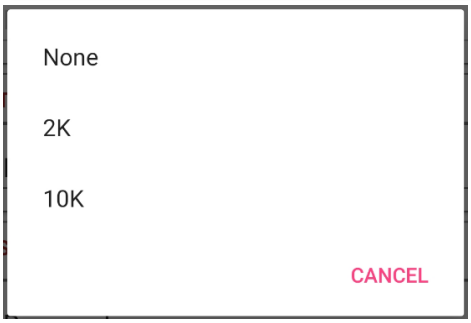
For more detailed explanation look in the Sensor Settings Manual.

This function is very handy in snow or slippery roads to minimise torque in 1st gear and also used in low range driving. This function will disable tiptronic function. Note the green text on the Over Drive bars must be green when overdrive is engaged.

Oil Temperature Sensor

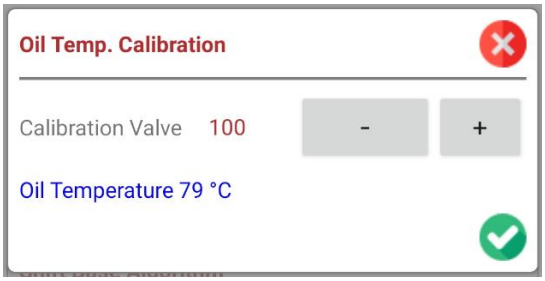
For more detailed explanation look in the Oil Temperature Sensor Manual.





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.



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.

Shift Base Algorithm

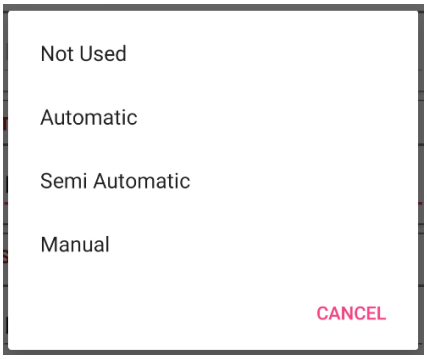
This block is for future use on specific firmware. Current firmware can only base calculations for profiles on the RPM signal with Speed limits implemented. In future firmware will be developed for speed base calculations.

Tiptronic Settings

For more detailed explanation look in the Tiptronic Settings Manual.

Each TCU has the ability to wire 2 push button switches for Tiptronic functions. When the Map is set to operate in Tiptronic mode, these buttons will give the driver the option to shift the transmission manually to his command. These 2 inputs can also be changed to function as overdrive and 2nd gear start buttons.

This block gives the tuner options on how he would like to set up the tiptronic operation and LED indication for each Map. This is useful for modes like towing, racing and low range. If it is used as automatic only without buttons, select Not used. These modes may be set up differently for each of the 4 maps.



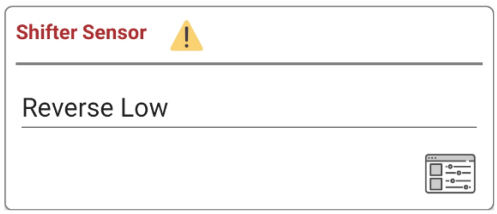
Automatic
In this mode the driver merely select the maximum gear allowed for the TCU. The rest function as normal. The setting on real-time display is the MAX Gear. The driver will feel in control as down shifts are immediate if it is safe and allowed by the TCU. Upshifts however will function on normal shift points.

Semi-automatic
This feature is more direct and will shift the transmission directly if safe shift can be performed. This mode is ideal for towing where it is difficult to set the transmission up for different loads. This requires changes on the profile maps to give tiptronic more control on gears selected. Safe shift algorithms by the TCU will still override low and high engine rpm shifts.

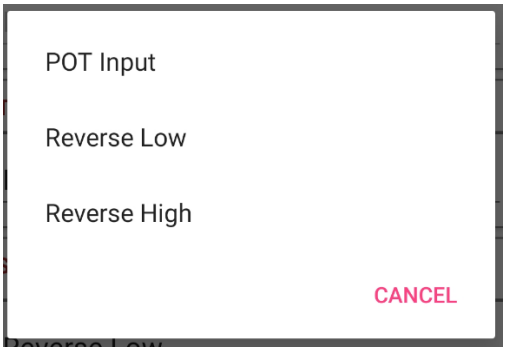
Manual
This mode is completely manual. It is used for off-road driving or Dyno tuning. The driver can select the gear while standing still and then the transmission will pull off in that gear. This is useful in sand and snow when the driver need to pull off in 2nd gear. The transmission will stay in that gear even if the engine over-rev. This is useful in 4x4 mode where a steep slippery hill must be crossed or in the dunes where wheel spin must be kept on momentum. The lockup clutch remains in automatic mode and will only engage under low load conditions. Remember that when driving in loose sand or on the Dyno. The transmission may over-heat due to the lockup that is not engaged and creating heat in the circulating oil. You may need to back off the power to engage the lockup and then put the power back on.

Shifter Sensor

For more detailed explanation look in the Shifter Sensor Manual.



This block will set up the type of shifter position sensor on different transmissions. Some will be blanked out by the firmware and other will leave the installer choices on his method of wiring. Note that the TCU is mostly concern in reverse so that it will prevent shifting gears as the shift solenoids as this action will put some transmissions in neutral or lock mode which can be detrimental.

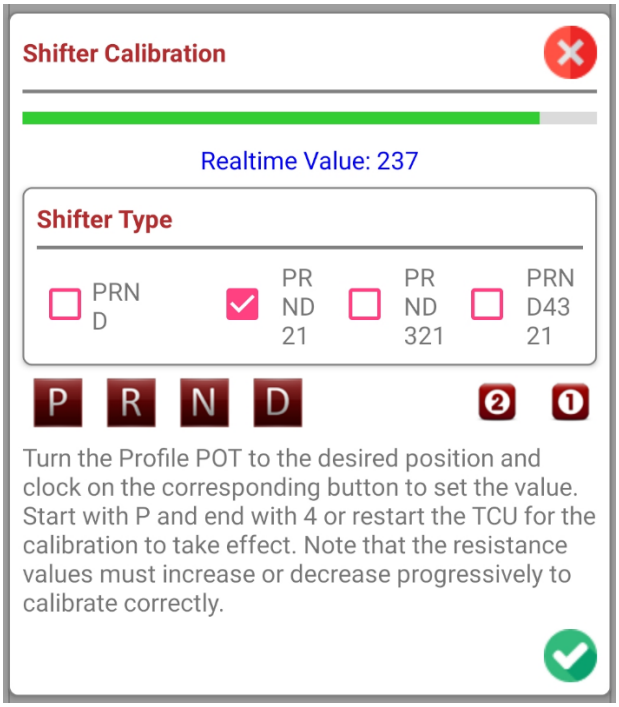


Pot Input
This selection is used when all the shifter positions are required. Some transmissions has a potentiometer output and other a serial or parallel switch combination. For these switches you need to install the serial or parallel digital to analogue converter boards from Spitronics.

Reverse Low
This setting is used where a switch is mounted on the shifter which gives a ground signal when reverse is selected. Note that the software will only indicate drive or reverse.

Reverse High
This setting is used where the signal is connected to the reverse light between the switch and the bulb. It is a positive signal that switch on the reverse lights. The bulbs need to be working as they act as pull down resistors. Note that the software will only indicate drive or reverse.

 Click on this button to enter calibration mode.



If your shifter or transmission has only 3 positions, 3 & 4 will be hidden.

Put the Shifter in Park. As a test you can go through all the positions to position up to 1st in sequence to see if the real time value change significantly. Note that the value must change for each position of the shifter. Some shifters have the same value in park and neutral then only park will be indicated on the software.

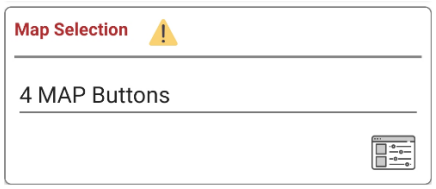
Put the Shifter in Park and click on P. It will become green. Go through the other positions R, N, D, 2 & 1. Put the Shifter in Park again and click ***Save & Close***. Then click the save to TCU button to make the calibration permanent.

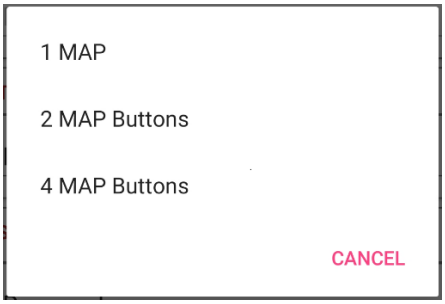
Map Selection

For more detailed explanation look in the Map Selection Manual.

The TCU has the feature of setting up to 4 different Maps for the transmission. This can be normal Automatic mode, Towing Mode, Tiptronic Mode, Racing Mode, low range mode etc.

Calibration button will only be visible in map 1. If it is not, then select 1 Map and this will force the TCU to map one. After calibration select 2 or 4 MAP and save to device. switch TCU off and on and it will now go to all the other maps. load each map when it is selected.



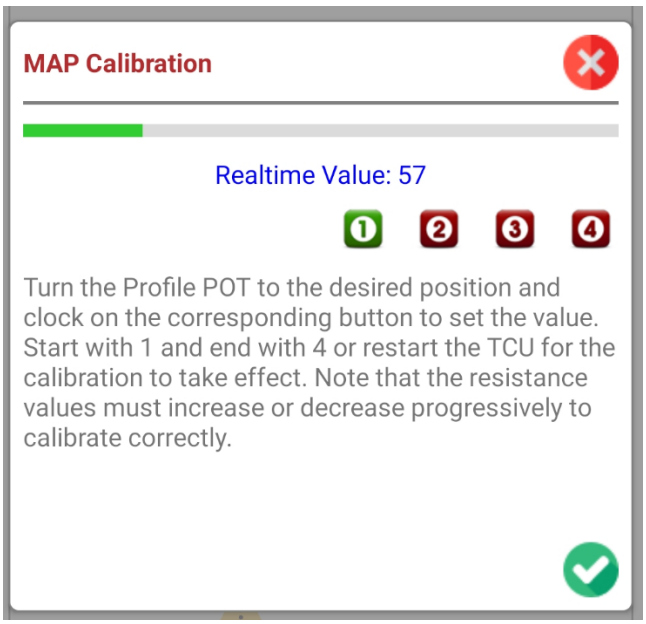


1 Map
This is for standard cars where the driver only need automatic mode.

2 Map buttons
This mode has 2 Maps and require the Tiptronic buttons to be installed. Pressing the Down button for 2 seconds will switch to Map number 2. Pressing the Up button for 2 seconds will switch to Map back to number 1. Note that the software will disconnect and then reconnect. It may take a couple of seconds. This is to read the new data from flash memory in the TCU. The TCU will do this in less than a second though. It can be done while driving. Also note that the TCU will default to Map 1 on startup.

4 Map Switch
This mode requires a rotary 4 Map switch to be installed on the TCU. Each position will activate the relevant Map to be used. Note that Map 1 and 2 may be changed while driving also 3 and 4. But 2 to 3 or 3 to 2 will only change when the car is stationary. Should you switch to them while driving, nothing will happen until the speed is 0 km/h. Note that the TCU will start in the Map where the switch is positioned. This switch must be calibrated to suit different styles and versions of the Map selection switch. Note that this calibration is always in mode one and is saved in the TCU. Loading other maps will not alter the calibration. If this button is not available, it is either Pre Ver 3.2 firmware or the TCU is currently on a Map greater than 1. In the last case click on ***1 Map*** do the calibration and then click on ***4 Map Switch*** before you save the data to TCU. The older versions were preprogrammed and could not be changed.

 Click on this button to enter calibration mode.



Put the Map switch in position 1. As a test you can go through all the positions to position 4 to see if the real time value change significantly.

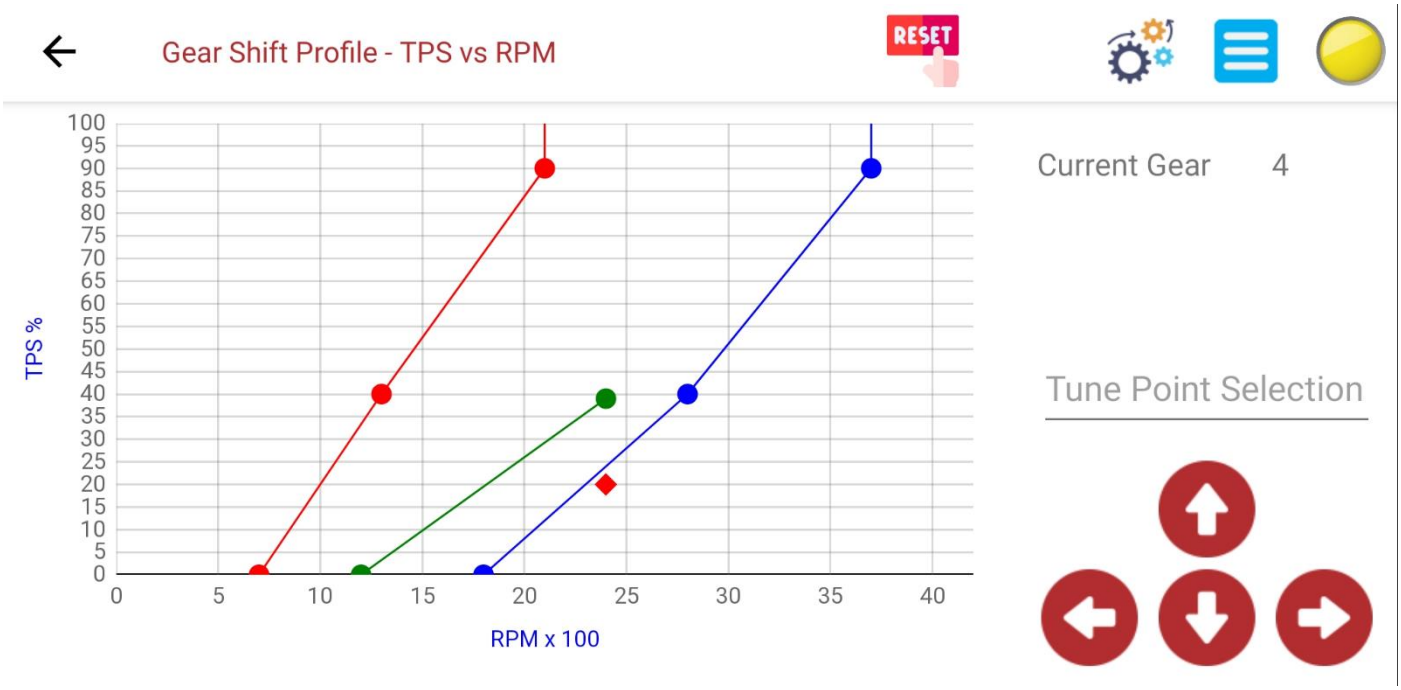
Put the Map switch in position 1 and click on 1. It will become green. Go through the other positions 2, 3 & 4. Put the map switch in position 1 again and click ***Save & Close***. Put the Switch selection to 4 Map Switch again. Then click  to make the calibration permanent.

Note that the other Maps may not have data in and then the software will indicate ***Setup data could not be read***. In this case click on ***Cancel*** and load a map into that Map memory.

Graphs

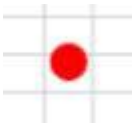
Gear Shift Profile

For more detailed explanation look in the Gear Shift Profile Manual.



These profiles are used to set up each gear to shift on its own pattern and according to certain criteria. This feature will let the installer set up the TCU for custom drive trains to the desire of his customer. The up and down shift algorithms can be manipulated with ease.

Marker



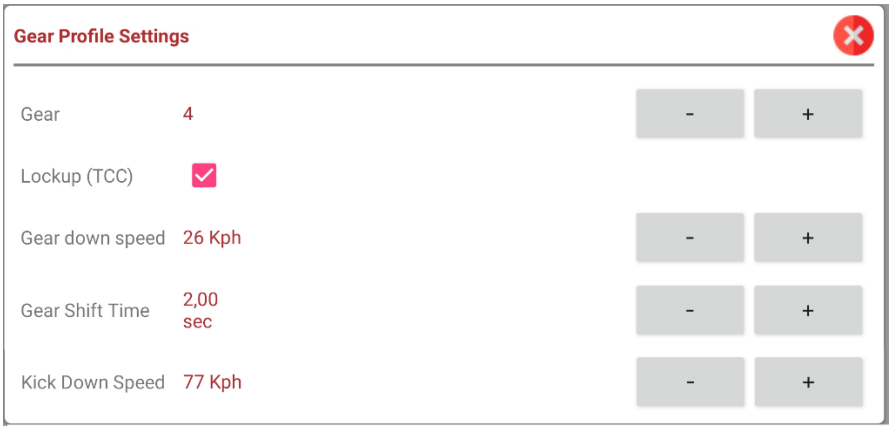
This Red circle is called the Marker. It is a graphical point on the graph that indicates the crossing point of the vertical TPS signal with the horizontal RPM signal. It let the user see where the crossing point is and when it passes the shift lines.

Red Down Shift Line
When the marker moves over to the left of this line a down shift will occur. This is usually when the RPM's drop too low in a gear or the throttle is pressed and the engine needs a lower gear to accelerate.

Blue Up Shift Line
When the marker moves over to the right of this line an up shift will occur. This is usually when the RPM's increase too high in a gear or the throttle is release after the required speed is achieved. Then the engine needs a higher gear to coast.

Green Lockup Line
When the marker moves over to the right of this line and below the TPS value of the top green dot, then the lockup will engage. The lockup clutches is not as strong so do not put the top green higher than 50% throttle. When the lockup is engaged you should not feel it.

Press this button to get to the following settings.



You may need to drag the screen up to see all the settings.

This gear setting will bring the settings for that gear up to adjust. You can set the lockup operation, Gear down speed, Gear shift time and kick down speed for each gear.

Lockup Clutch.

The lockup check box will indicate to the TCU that you want to engage lockup clutch in the torque converter for this gear. Note that lower gears normally have too little time to use this feature.

Gear Down Speed

This block is used to force a down shift to the lower gear when the road speed falls below this value.

In first gear this value is used as an upshift limit.

Gear Shift Time

This block is used to give the transmission time to complete a shift before the next shift will be made. The reason is that the transmission is mechanical and it takes up to 2 seconds to complete a shift procedure.

Kick Down Speeds.

This block is used to limit a shift down above this speed to prevent over revving.

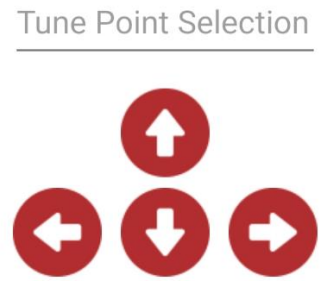
Reset Profile

This helps the tuner to put all the dots on the tuning pallet if no map is loaded in the TCU. They are not necessary placed where they should be.

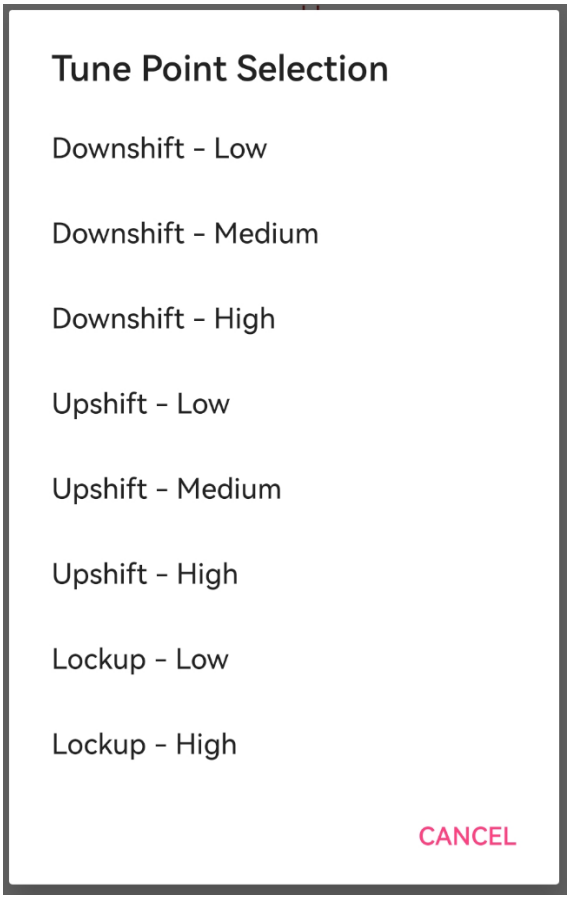
Zoom Button

This will enlarge the graph display and hide the buttons.

Adjusting Dots



Click on Tune Point Selection and select a dot to be moved. You may need to drag the screen up to see all the options.



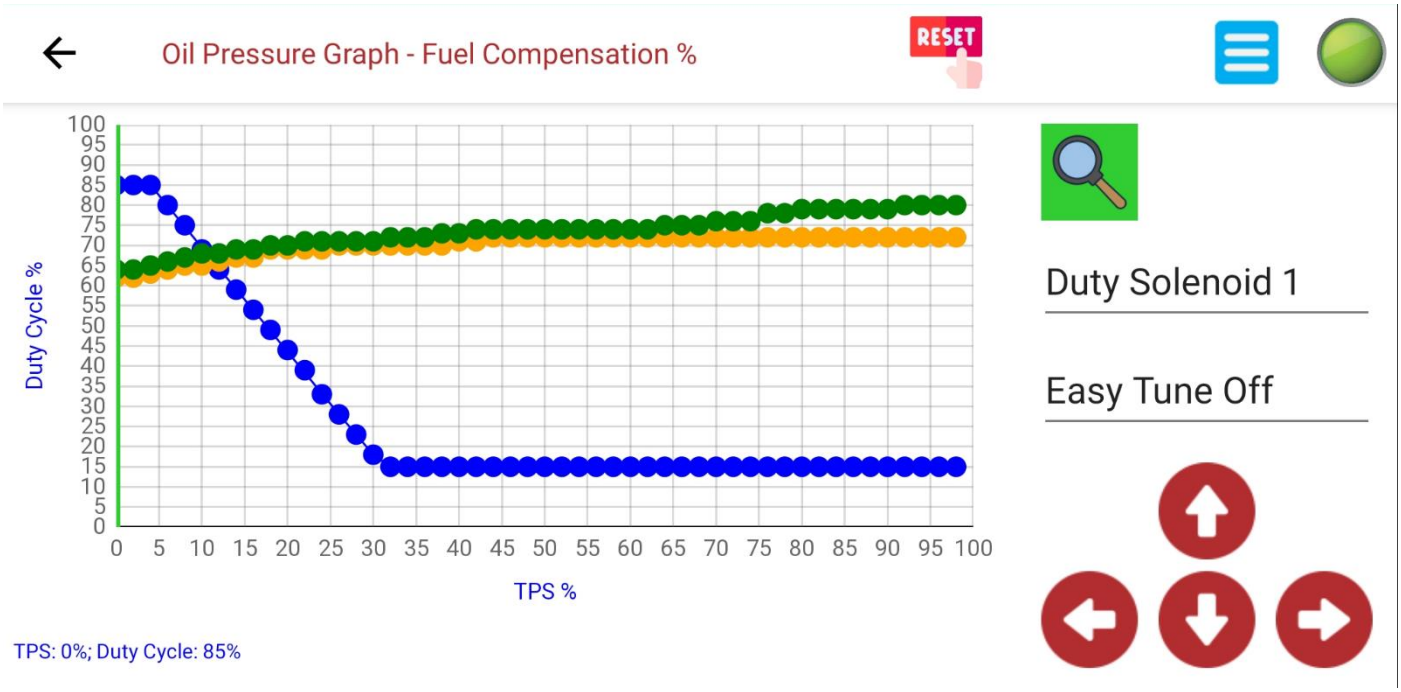
Now use the red arrows to move the dot in the relevant position. Some my move in 1 dimension only.

Save Button

Remember to click on the save button to make your changes permanent.

Pressure Graph

For more detailed explanation look in the Pressure Graph Manual.

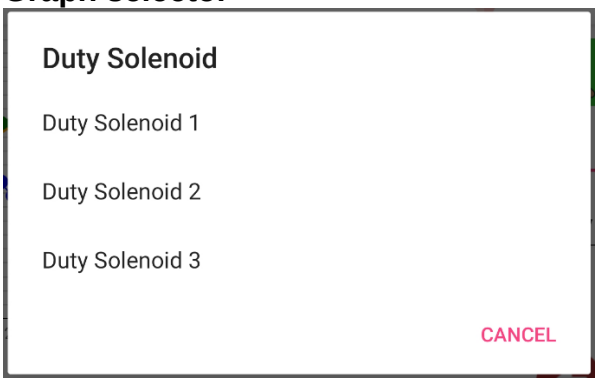


This graph will determine the line pressure which acts on the clutches. This pressure is a pulse width modulation signal and is calculated according to the throttle position.

Duty solenoid 1
This is usually for the line pressure. The higher the Duty Cycle, the less the line pressure will be on the clutches. Never go higher than around 70% Duty Cycle at light throttle as this may damage some control solenoids. Always go for the lowest value without the shift being too harsh. If you feel slippage during shift, back off the throttle immediately and decrease the graph setting at that TPS value. These clutches are not made to endure slippage and will damage permanently.

Duty solenoid 2 & 3
These lines are used for firmware specific transmissions and has different meanings. See the Specific Instructions for each transmission.

Graph selector



Click on the dropdown menu to select a graphs to tune. You may press the “T” button to toggle between them. The “H” button will hide or show all 3. Note that some firmware will only allow 1 graph to be available.

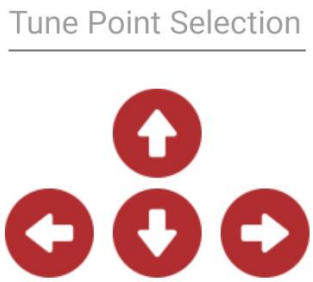
Reset Line

This button will set the active graph in a straight horizontal line to the same value where the green line cross the graph.

Zoom Button

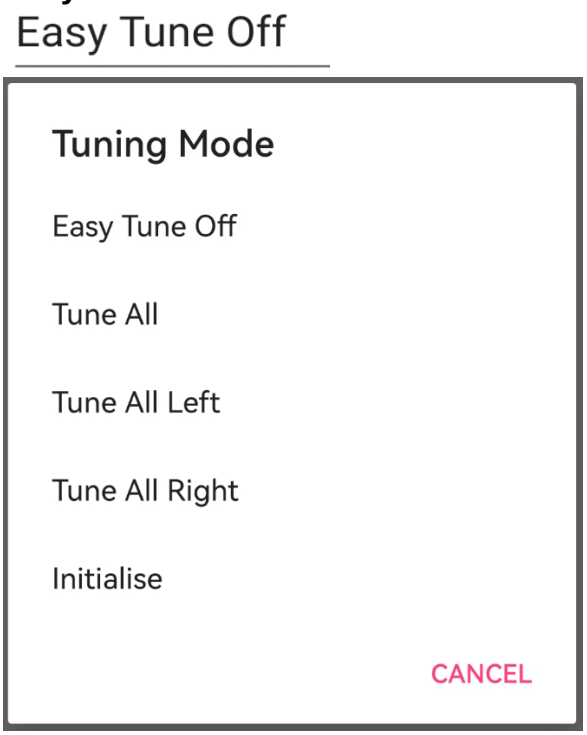
This will enlarge the graph display and hide the buttons.

Adjusting Dots



These buttons will move the green vertical line from left to right. The up and down arrows will adjust the active graph dot value. When Easy Tune is on then parts or whole line may be adjusted at the same time.

Easy Tune



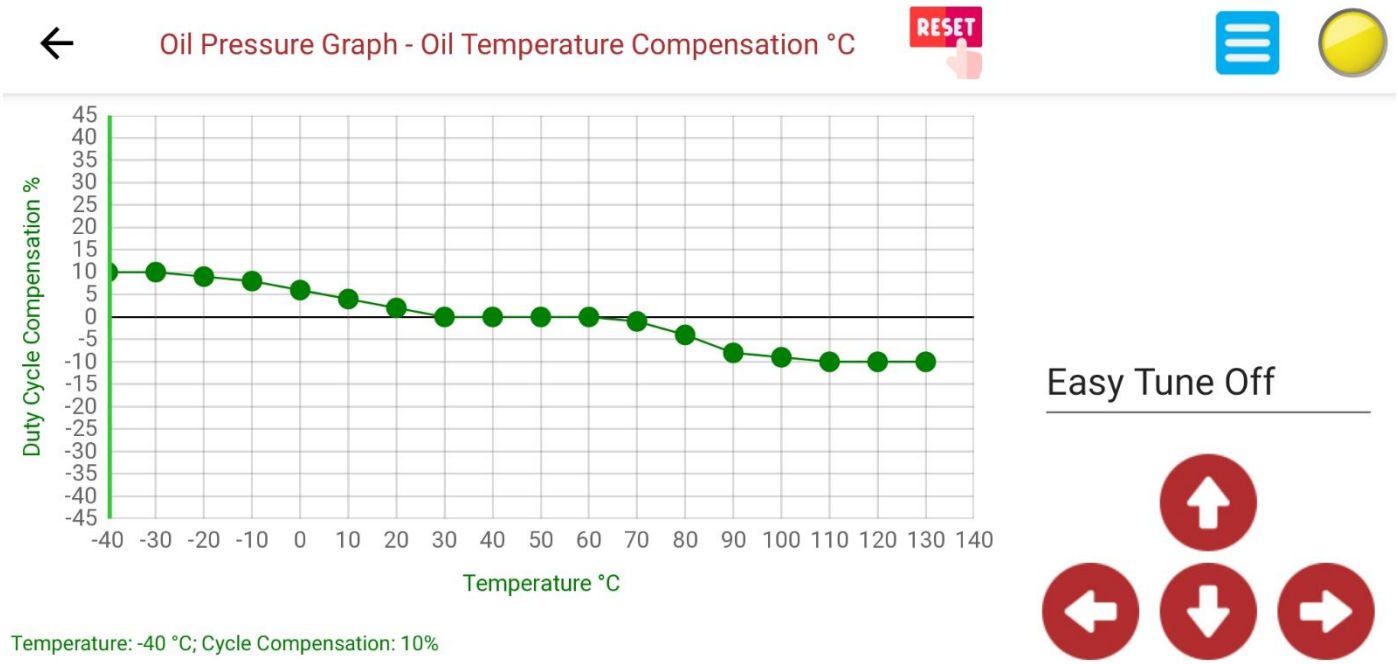
Select how the adjustments must be made.

Save Button

Remember to click on the save button to make your changes permanent.

Temperature Compensation

For more detailed explanation look in the Temperature Compensation Manual.



This graph is used to compensate line pressure with temperature. A cold transmission will shift harder. Depending on specific firmware this graph will compensate either line pressure or shift control pressure. The example above is line pressure. If it is for shift pressure the graph may have a rising slope. See the Specific Instructions for each transmission.

When tuning a transmission from the start disable the temperature sensor. Then afterwards enable it and modify this graph when it is cold so that it could shift softly. Don't go too soft as it may slip in some cases. Note that this graph should cross the zero line at working temperature.

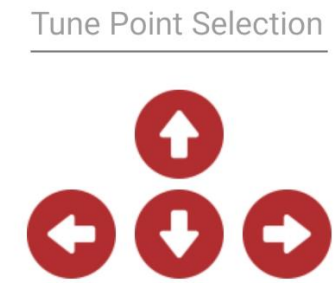
Reset Line

This button will set the graph in a straight horizontal line to the same value where the green line cross the graph.

Zoom Button

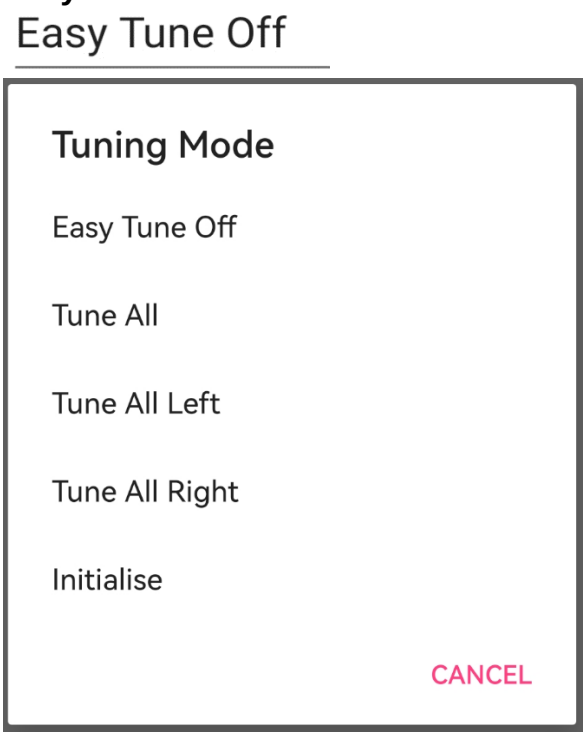
This will enlarge the graph display and hide the buttons.

Adjusting Dots



These buttons will move the green vertical line from left to right. The up and down arrows will adjust the graph dot value. When Easy Tune is on then parts or whole line may be adjusted at the same time.

Easy Tune

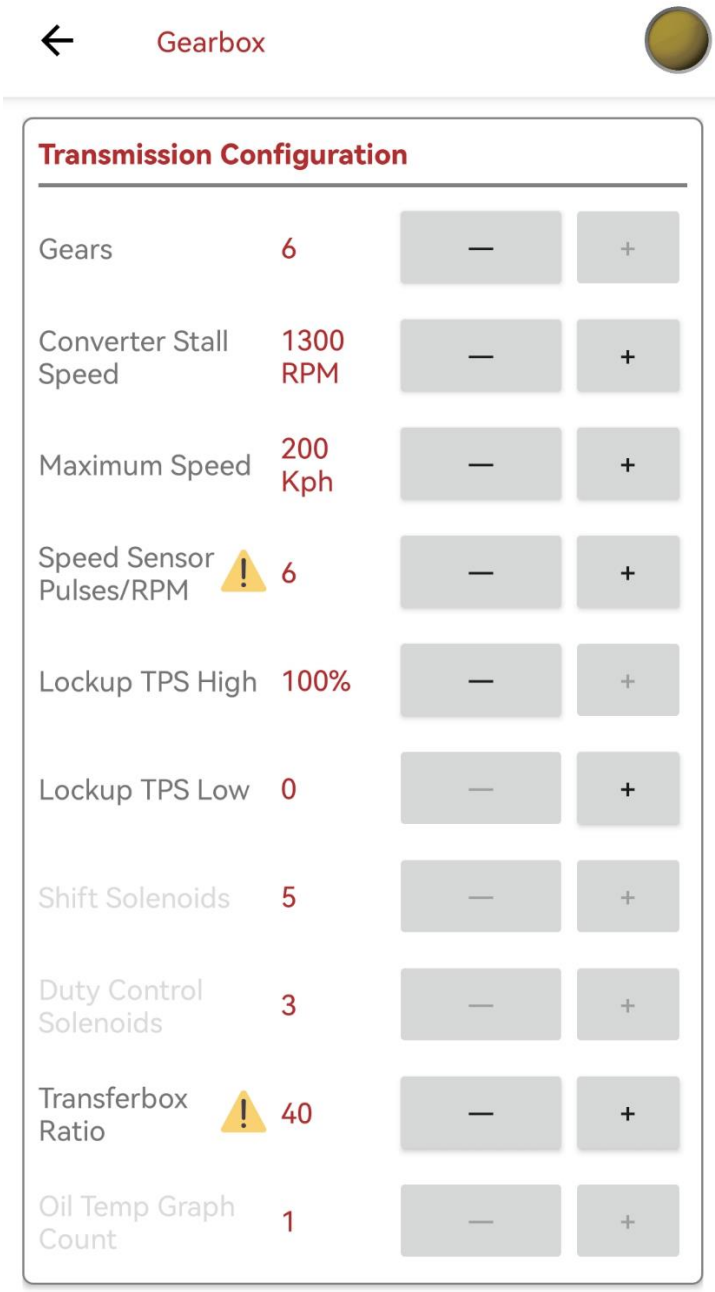


Select how the adjustments must be made.

Save Button

Remember to click on the save button to make your changes permanent.

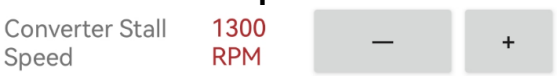
Transmission Settings



Gears

This setting tells the TCU how many forward gears are allowed for the specific Map. The user may select any number up to the maximum number of gears for that specific transmission. This is handy for low range or towing where you do not want to engage overdrive or too high gear.

Converter Stall Speed



This setting is used in some firmware programs to control the lockup minimum engage RPM’s.

Maximum Speed

This setting is mainly used to adjust the maximum speed calibration of the analogue speedometer display.

Speed Sensor Pulses / RPM

This critical setting is the number of pulses per one prop shaft revolution received from the Speed sensor. It is used for correct speedometer calculation in conjunction with the Speedometer Calibration value. You may see this as a course adjustment but the main advantage is that uneven pulses may be used like a 36-1 gear where you would then use a value of 35 pulses. For finer calibration you need to adjust the speedometer calibrate at the sensor settings page.

Lockup TPS Low

When the TPS value drop below this setting in %, the lockup will be disengaged. This will smooth the down shifting of the Transmission. This features can be set 0% and 100% to deactivate it if you require the lockup to stay on.

Lockup TPS High

When the TPS value rise more than this setting in %, the lockup will be switched disengaged. This will protect the TCC with hi torque engines. This features can be set 0% and 100% to deactivate if you require the lockup to stay off or on.

Shift Solenoids

This setting tells the software how many shift solenoids the transmission has. In most firmware programs this setting is forced and cannot be changed.

Duty Control Solenoids

This setting tells the software how many control solenoids the transmission has. In most firmware programs this setting is forced and cannot be changed.

Transfer Box Ratio

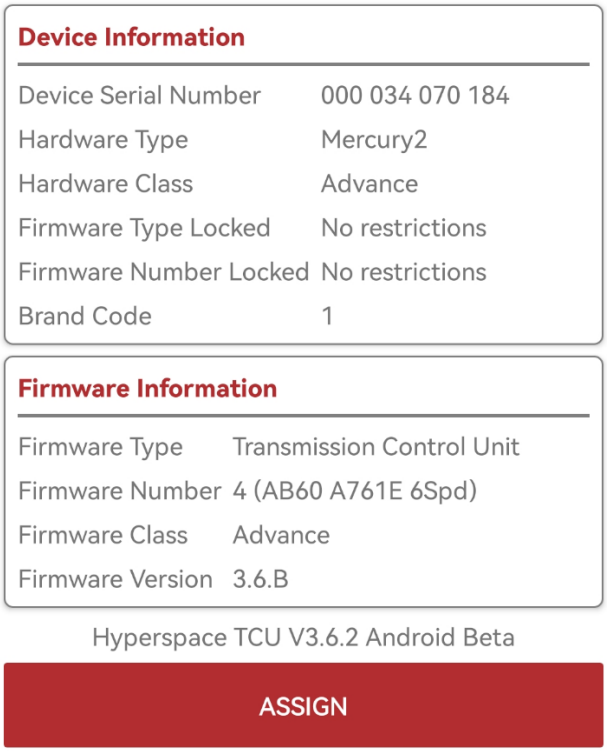
This critical setting tells the software what the transfer gearbox ratio is so that when low range is selected the speed settings on the gear profiles can be adjusted.

Oil Temp Graph Count

This setting tells the software how many oil temperature graphs is active. In most firmware programs this setting is forced and cannot be changed.

Device

For more detailed explanation look in the ECU Home Screen Manual.



The device information screen displays vital information regarding the Spitronics TCU that has been connected. Note: Firmware is the program that is loaded into the TCU to make the electronics operate in a specific way. This is normally Firmware file which is loaded into the product by a USB debug programmer or BootLoader. Software is the tuning interface that runs on the computer and it is used to tune the product's parameters.

Device Information

Device Serial Number
There is a unique number assigned to each product. It is saved on maps and recognized by the database on its status etc.

Hardware Type
Displays which type of device has been connected to the software. In this case and an Orion2 Transmission Control Unit.

Hardware class
Displays the Hardware class of the product that has been connected to the software. The hardware class will determine which firmware can be uploaded onto the product. This feature allows the unit to open certain or all functions of the electronics. The amount of features determines the price of the unit. This feature can be changed over on the internet to allow for remote upgrades of the unit. The hardware classes are as follows:

1. Micro
2. Basic
3. Standard
4. Intermediate
5. Advance
6. Ultimate
7. Commercial

8. Racing

Firmware Type Locked
This block will indicate which type of firmware are allowed on the unit. If it indicates ***No Restriction,*** it means that any Type of Firmware for Orion2 can be programmed into the unit like ECU, TCU TxW etc. This feature is for sponsored units or specials which was approved by the manufacturer.

Firmware Number Locked
This block will indicate which firmware number in the firmware range are allowed on the unit. If it indicates ***No Restriction,*** it means that any firmware number for Orion2 can be programmed into the unit. This feature is for sponsored units or specials which was approved by the manufacturer.

Brand Code
This represent a specific brand like Spitronics which is 1. Orion2 may also be rebranded to large distributors which means this code will change. Once a brand is changed the unit will only connect to the software of that brand. This will bring exclusivity to that brands customers.

Firmware Loaded Information

Firmware Type
This block will indicate which type of firmware are loaded on the unit like ECU, TCU TxW etc.

Firmware Number
This block will indicate which firmware number is loaded and a short description.

Firmware Class
Displays the class of the firmware that has been downloaded onto the device. Each firmware program supplied will have a certain class according to the features used. You may load any firmware for a specific product into the unit as long as the firmware class does not outrank the hardware class of the Orion2. The firmware classes are as follows:

1. Micro
2. Basic
3. Standard
4. Intermediate
5. Advance
6. Ultimate
7. Commercial
8. Racing

Firmware Version
This block displays the software version as well as the firmware version that is loaded into the product. In the example 3.6 is the software version which is required to communicate with the product. The B is the firmware version which has no effect on the software version. Always use the latest versions available.

Software Version

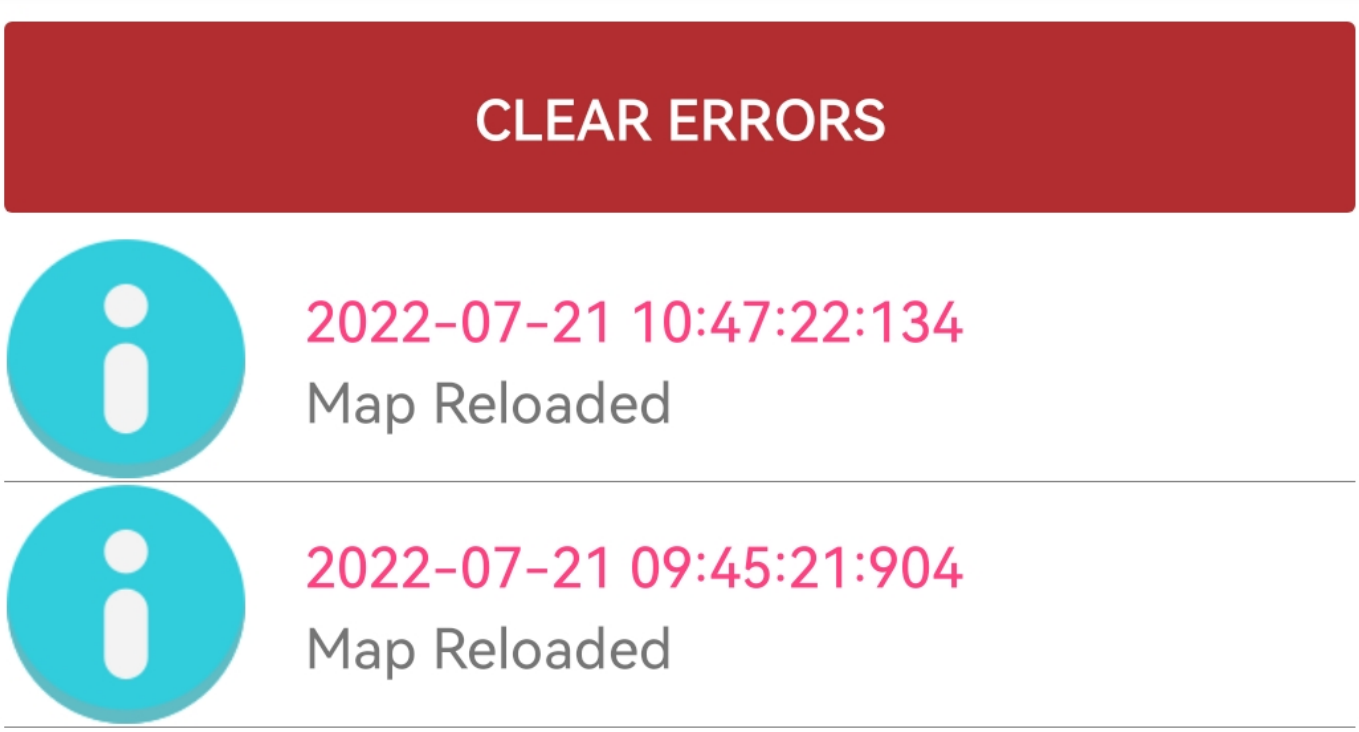
Hyperspace TCU V3.6.2 Android Beta

Note that Software version 3.6 will be used with the Firmware version 3.6.
The first 3 is version 3 PC Software.
The second 6 is the protocol version between the PC software and the firmware. When new features are programmed into the unit, this protocol version will change in the PC software and in the Firmware.

The .2 at the end is a sub version and has no effect on the firmware. This version will indicate corrective or improved Android software. Always use the latest version available. When the Android software is started you will also find the product software version.

Assign
This red bar is a button that will activate features on new devices. Some features could be bought over the internet and then activated on the device.

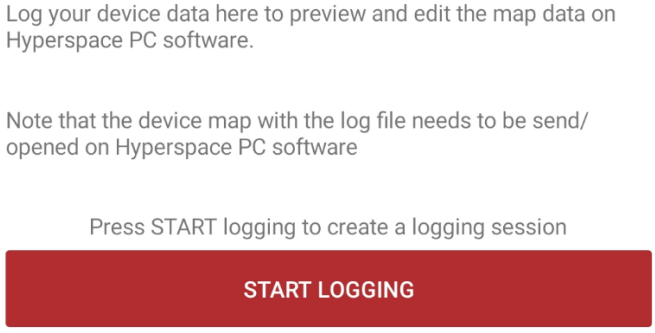
Errors



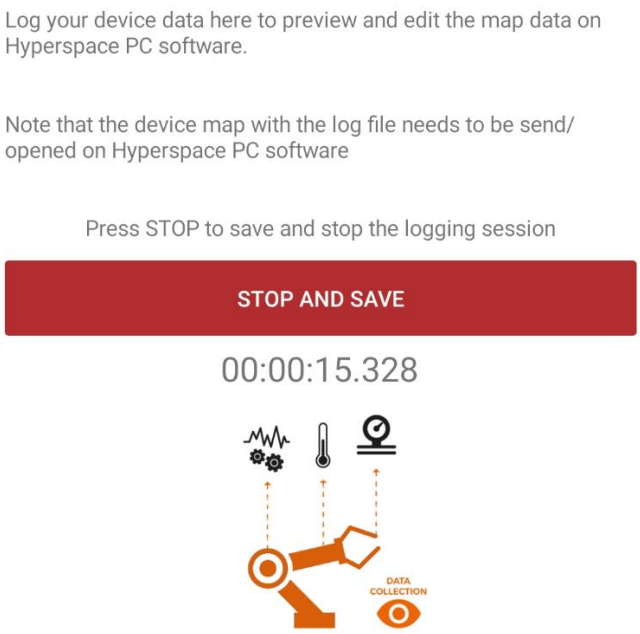
The TCU software has limited Error, Warning and Information codes displayed in the Status tool bar at the bottom. These codes will help the tuner to find problems during startup and tuning, also to see if the ECU is functioning correctly. Some of the functions on the ECU will indicate to the tuner what is happening. He can then see if these functions are operating correctly.

Press the ***Clear Errors*** bar to clear the list.

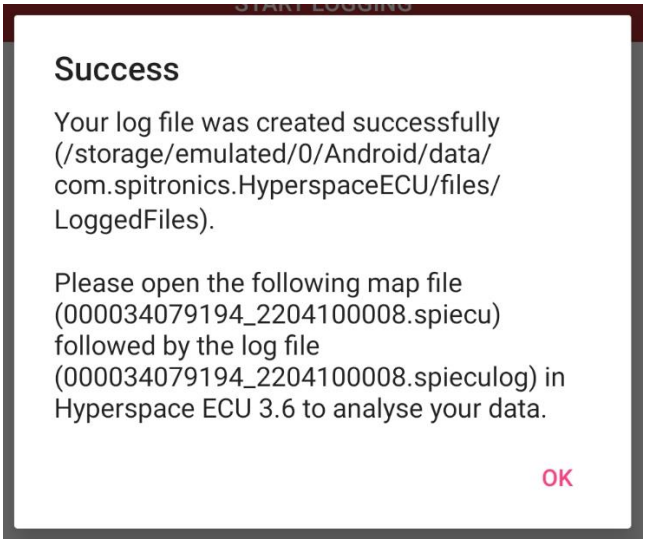
Data Logger



The data logger is very useful for taking running information and displaying it at a later stage or sending it to a remote tuner. Press the Start Logging button.

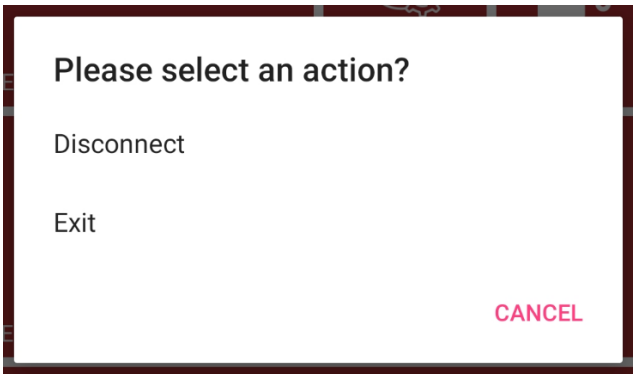


After the run press the Stop and Save button.



This block will tell you where the MAP and the Data log file is saved. You will need to open yours phones File Browser and then send the files from there.

Exit



This block is to exit the software or disconnect from the TCU while keeping the offline map active.