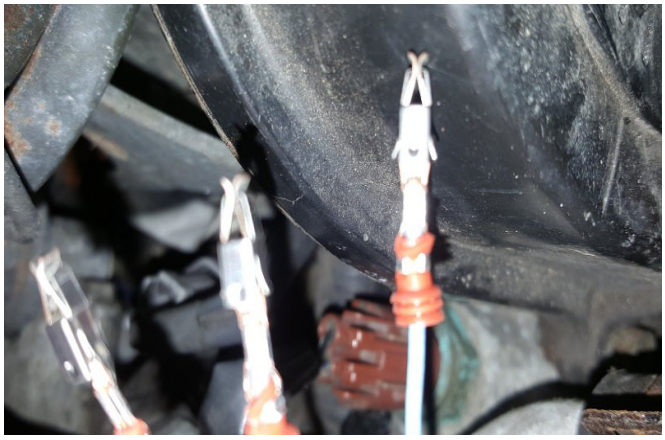
Skuzzle Motorsport Ltd

TPS Upgrade Installation Guide

This Throttle position sensor upgrade kit is intended for use with standalone engine management systems and strictly not for use on the factory ECU. Failure to realise this could result in permanent ECU damage.

Wiring

1. Locate the original Throttle Position Switch 3 pin connector. We have pre wired this with the SM1e ECU to give 5v, GND and TPS signal back to the ECU.
2. Making sure that the ignition is switched off and battery disconnected, cut off the original connector. The loom is fairly short, so the choice available is to either cut the wires as close to the connector as possible to maintain plenty of wire length for the new sensor, or cut the wires off further back and extend them, leaving you with a pigtail on the old connector in case you wish to easily revert back to factory.
3. You will now need to crimp the 3 pins onto the wires that are included with the TPS upgrade kit along side the 3 pin black JPT connector, rubber weather seals and rubber boot.
4. The method for doing this is pictured below. You need to strip approximately 3mm of insulation from the wire, slip a rubber weather seal down the wire just past the stripped part and then crimp the pin on so that the larger area of the crimp on pin encases the rubber weather seal and the insulated part of the wire and the smaller crimp area holds the stranded core of the wire. We recommend using the correct crimping pliers for the Junior Power Timer series of connectors, however it is possible to simply fold over the crimp flares to lightly grip the wire and then run a small amount of solder into the join to create a permanent and secure connection.

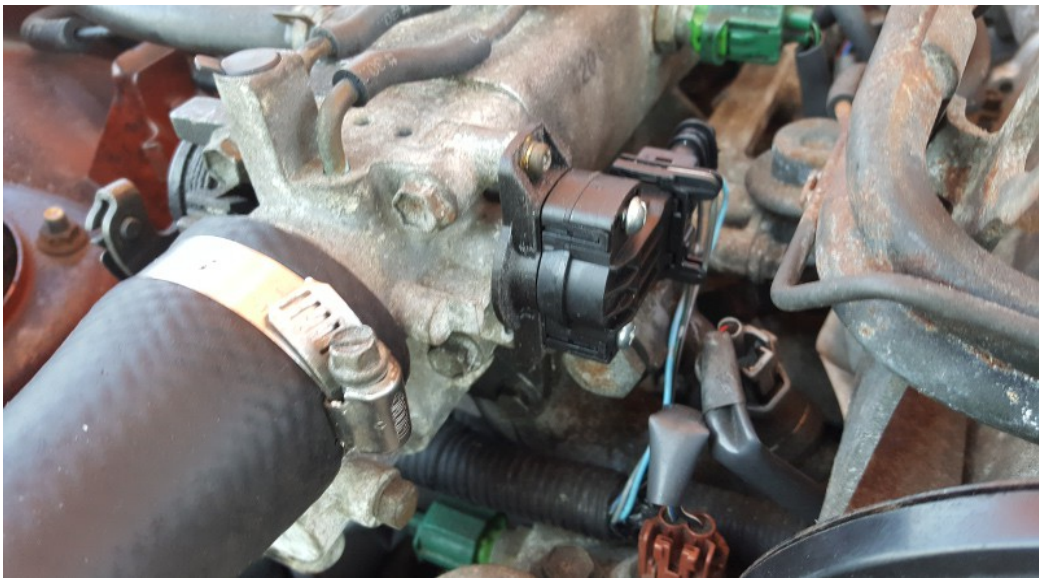


5. Once the pins are firmly secure on the wires slide the large rubber boot over the wires, they now require pushing into the JPT connector in the specific order shown below. The JPT connector is numbered to assist in correct wiring. Note the connector shows number 1 at the bottom of the photo.

   Black with a green stripe to pin 1
   Grey to pin 2
   Blue to pin 3

Installing the TPS adapter bracket and TPS

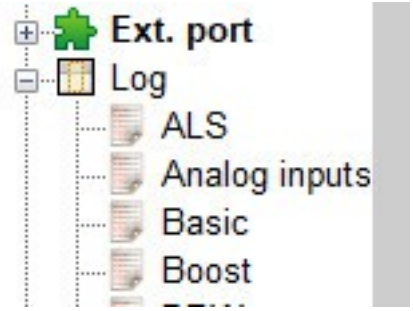
1. Remove the throttle body for access. This is achieved by unscrewing the six 10mm headed m6 bolts that hold it on as per the service manual.
2. The factory TP Switch is held on to the throttle body spindle by 2 screws. These are usually a cross head style screw, but I have also seen 7mm hex head bolts on some cars. Undo these screws and the TP Switch should now gently lever off of the D shaped throttle spindle shaft.
3. The new TPS adapter bolts straight on where the sensor was removed. The smooth / shiniest side toward the throttle body. You can reuse the original screw. Tighten these screws until until they offer some resistance on the adapter bracket and then turn a further 90 degrees. The fixing holes are slotted, this is for ease of servicing in the future. For now it is suggested that you try to locate the bracket in the middle of the slots. The sensor will be calibrated later in the ECU so it is not critical.
4. The new throttle position sensor can now be installed over the adaptor bracket. Due to the design of the new sensor, it requires the connector to be facing in the opposite direction to the original sensor. Install it this way. Once it is in place over the D shaft it requires fixing in place with the 2 supplied 4mm x 20mm self tapping screws. We have provided 2 aluminium spacer washers which are to be installed on the screws before the screws are installed through the throttle position sensor. It is important that the spacer washers are installed as with out them the screws will bottom out on the throttle body before becoming fully tightened and they also act as a cushion washer to dampen high frequency vibration which could introduce noise to the TPS signal.
5. Tighten the 2 screws in a similar fashion to the previous 2, i.e. until they offer a small amount of resistance on the face of the TPS but this time with 45 degrees more.
6. Test the throttle gently at first to confirm that you have full travel. If you have installed the TPS backwards then you will find you have a very restricted travel before you reach the stop limits of the TPS, in which case take the sensor off and turn it around 180 degrees and refit.



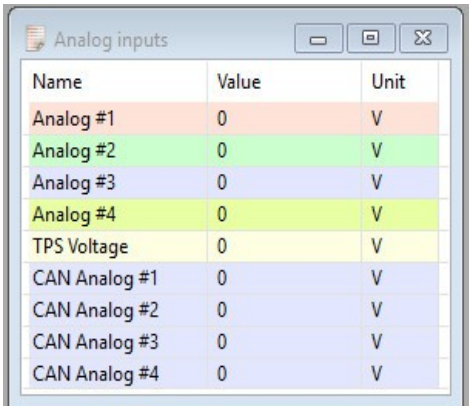
Calibrating the TPS in the ECUMaster Tuning Software.

It doesn't matter which tab you do this inside as you are able to open windows and close them easily within a tab.

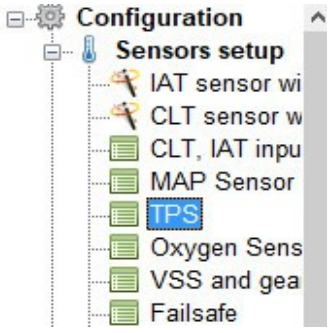
First locate on the left hand side index of tuning strategies, the LOGS menu. From here double click on Analog Inputs to bring up a window showing analog input voltages.

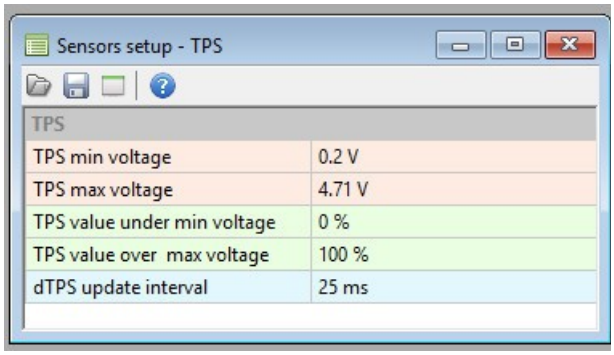


Look for the TPS voltage, with the ignition on write down the voltage with the throttle fully closed, then write down the voltage shown with the throttle fully open.



Back on the left hand side now locate, much nearer the top of the list, the Sensors section, expand this menu and look for TPS. Double click this to open the TPS calibration wizard. You can now input the minimum voltage and maximum voltage that you wrote down earlier. Click the icon at the top left corner to permanently save this information to the ECU.





You have now unlocked the ability to use the TPS in your tuning strategies. This can give a better control over idle, boost control, acceleration enrichment along with many other possibilities like alphaN for ITBS, TPS triggered outputs etc.