



Thank you for purchasing a Megasquirt (MS) ECU from www.ExtraEFI.co.uk

Before doing anything please read this and the README files on the CD! It could save you time and hassle.

Whilst every effort has been made to setup the ECU for your engine's configuration, I can NOT be held responsible for any damage that may be caused directly or indirectly by the supplied MegaSquirt ECU. After all, this is designed to be a Do-It-Yourself project.

The base VE table and Spark map I install into the ECU is NOT meant as the finished map, it may not even get your engine started, it is there as a guide to help you to understand roughly what settings are needed.

It is your responsibility to ensure all wiring, settings and all of the interfacing between your setup and the MegaSquirt ECU is correct and tested before powering up the ECU. If you are in any doubt what so ever, please contact me and I will help you.

I have supplied various diagrams on the ExtraEFI.co.uk site and on the CD, a set of comprehensive manuals, etc, for the installation to be as easy as I can possibly make it for you. It is strongly recommended that you read the manuals tuning and software sections before starting your project.

The fuel VE table and spark tables are all an estimate for your setup and are in no way meant to be the finished map. The tables will need to be tuned.

When transferring setups (msq files) from others or from the Internet or simply changing settings in Megatune please ensure that the Outputs are setup for your ECU before downloading it to your MS ECU.

To check this open Megatune (MT) open the msq file and when asked whether to burn click "N".

Go to *Spark – Spark settings*

Ensure **Spark Output Inverted = YES**

Then go to *Code Config – Codebase and Output Functions:*

Single Spark output MS ECU (MSD or Distributor or EDIS module, TFI, etc)

LED17 (D14) = SparkA
LED18, LED19 and Output3/SparkD must NOT be a Spark output

Two Spark output MS ECU (4 cylinder wasted spark)

LED17 (D14) = SparkA
LED18 (D15) and Output3/SparkD must NOT be a Spark output
LED19 (D16) = SparkB

Three Spark output MS ECU (6 cylinder wasted spark)

LED17 (D14) = SparkA
LED18 (D15) = SparkC
LED19 (D16) = SparkB
Output3/SparkD must NOT be a Spark output

Four Spark output MS ECU (8 cylinder wasted spark)

LED17 (D14) = SparkA
LED18 (D15) = SparkC
LED19 (D16) = SparkB
Output3/SparkD = SparkD

Upgrade notes:

When burning a code (firmware) due to temperature sensors or upgrading to the ECU please remove the coils that are directly driven from the ECU! Also ensure that the *Codebase and Output Functions* are set as above before re-connecting the coils. Failure to do so could damage the Spark drivers inside the ECU.

Wiring notes:

Please ensure that any directly driven spark coils from the ECU have no power to them when the MS ECU is off. The best method to supply the +12V to the ignition coil is to come from the fuel pump, as this is only switched on by the MS ECU when the engine is turning and only when the MS is powered on.

The earth wire (4mm black cable in the loom) has to be connected to a good clean earth. The chassis or the battery is the best place if possible. The screened trigger wire is earthed to the ECU in the loom, simply cut back the screening and don't connect it (insulate it), just use the 2 cores that are inside for your sensor.

For more info on the above please see the manuals I've compiled, these would have been installed onto your PC during the MegaTune installation. The Base Config Manual has more info if your in doubt.

This must be completed before your computer will communicate with your MS ECU

To install the tuning software MegaTune:

Run the file "**Megatune_Extra029t_Installer.exe**" file.

If you are going to run using the standard MAP (manifold air pressure) mode then leave the default settings as it is, if not select your desired setup.

If you have an LC-1 Wideband sensor or a Techedge sensor I have written the installer so all you have to do is select the sensor and the tuning software will be set up for that sensor.

If you have another type of wideband sensor then you will need to Edit the Settings file. Install the MegaTune software in its default settings.

Then run MegaTune and select:

File – Configurator

You will have a list of files on the left side of the screen.

Click on:

Car1 – Settings.ini – Settings – Lambda_Sensor

You will now have a box at the top of the screen with NARROW BAND EGO in it. Change this to your sensor's name. Then select File – Save and close the program. Now MegaTune is setup for your wideband.

Before attempting to start your engine please measure the resistance of your injectors (ensure they are totally disconnected from the wiring loom before doing the measurement)

If you are running **high-impedance injectors** (greater than 10 Ohms), then the settings in the **Engine Constant Page** should be :

PWM Current Limit (%) 100%.

PWM Time Threshold 25.5 msec

If you have **low-impedance injectors** (less than 4 Ohms), then the settings in the **Engine Constant Page** will need tuning, see the **Setting the PWM Criteria** section in the **Tuning Manual**. This is a starting point:

PWM Current Limit (%) 30%

PWM Time Threshold 1.0 msec