

Interfacing Spartan 3 to MegaSquirt 3

Section 2 and 2.1. are optional

1. Configuring Spartan 3 to transmit Lambda to MS3 over CAN

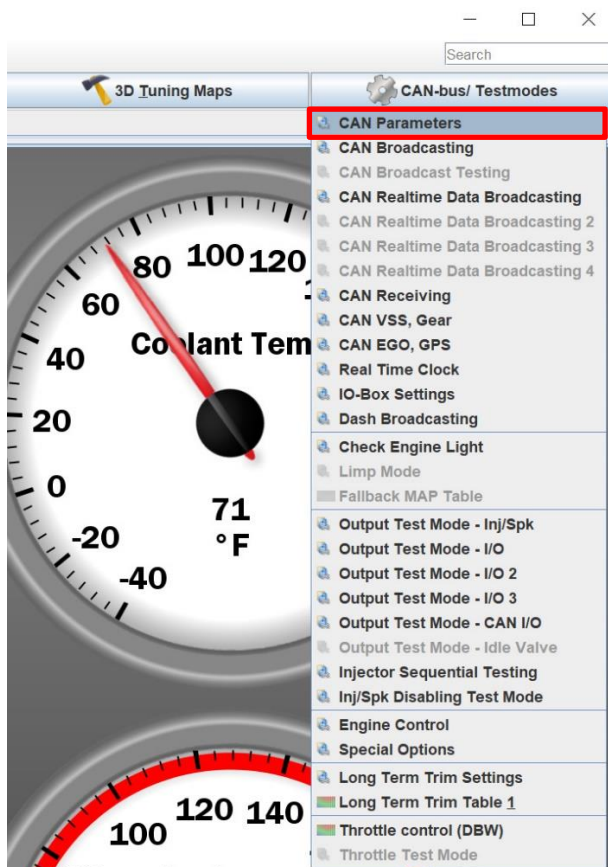
Spartan 3's default CAN Baud rate is 500kbit/s and the default CAN Format is 0 and the default CAN ID is 1024. The default settings do not need to be changed for a single Spartan 3 install. For installing Multiple Spartan 3 please refer to "Interfacing Multiple Spartan 3 to MegaSquirt 3.pdf".

Please refer to Section 11 of the Spartan 3 User manual regarding the CAN Termination Resistor.

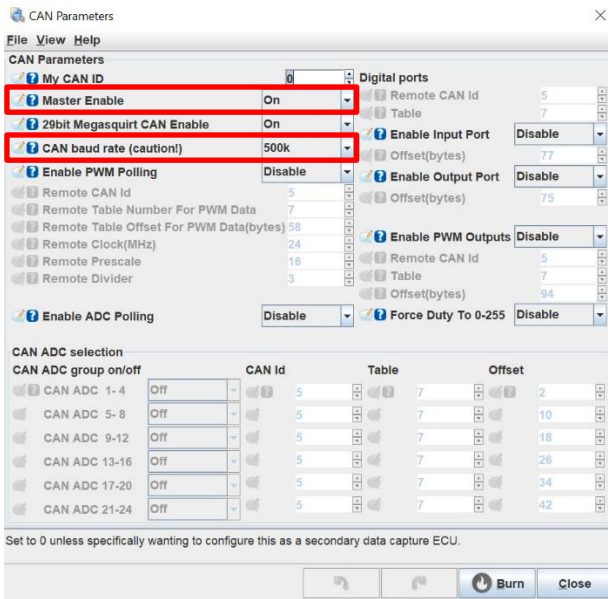
1.1. Configuring MS3 to receive Lambda from Spartan 3 over CAN

Your Megasquirt 3 ECU must be running Firmware 1.5.1 or newer, earlier firmwares have fewer user adjustable CAN settings. If you find that you are missing CAN options in Tuner Studio; you are most likely running a firmware older than 1.5.1

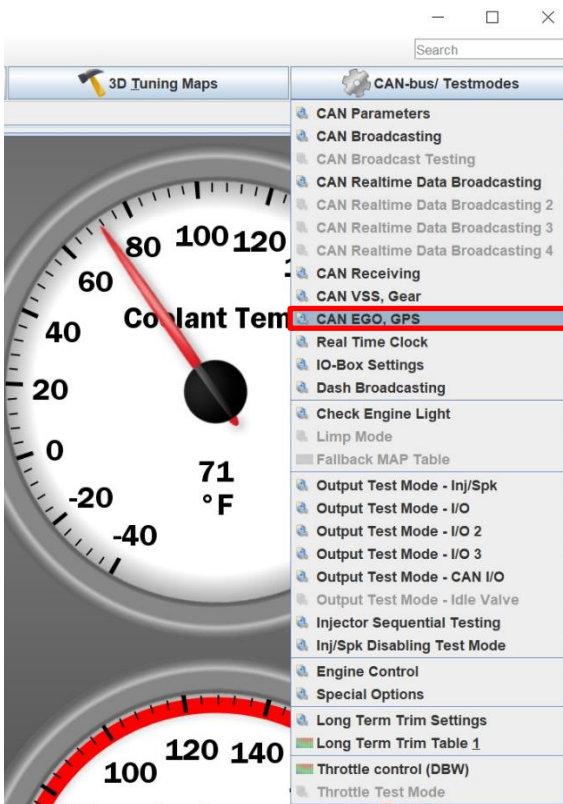
In Tuner Studio



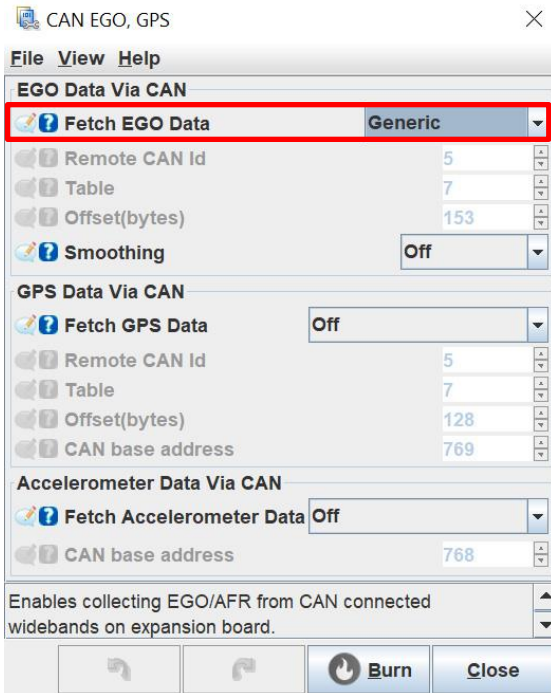
Click **CAN-bus/Testmodes** and select **CAN Parameters**.



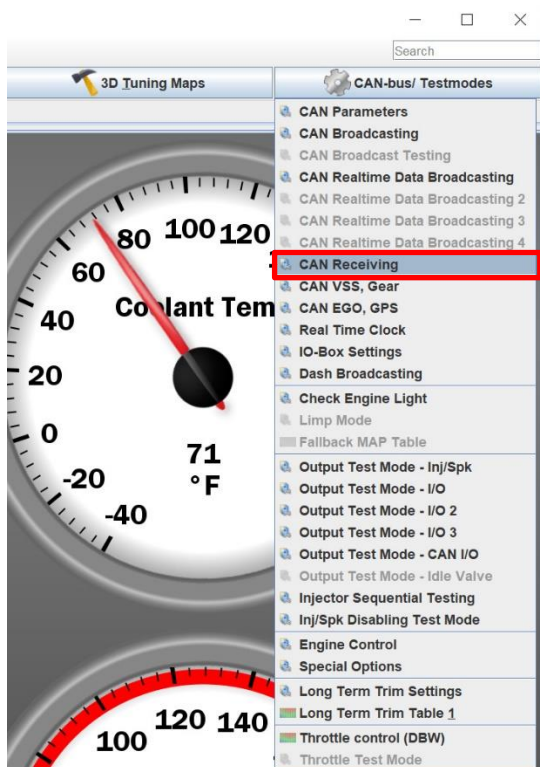
Set Master Enable to On. Set CAN baud rate to 500k.



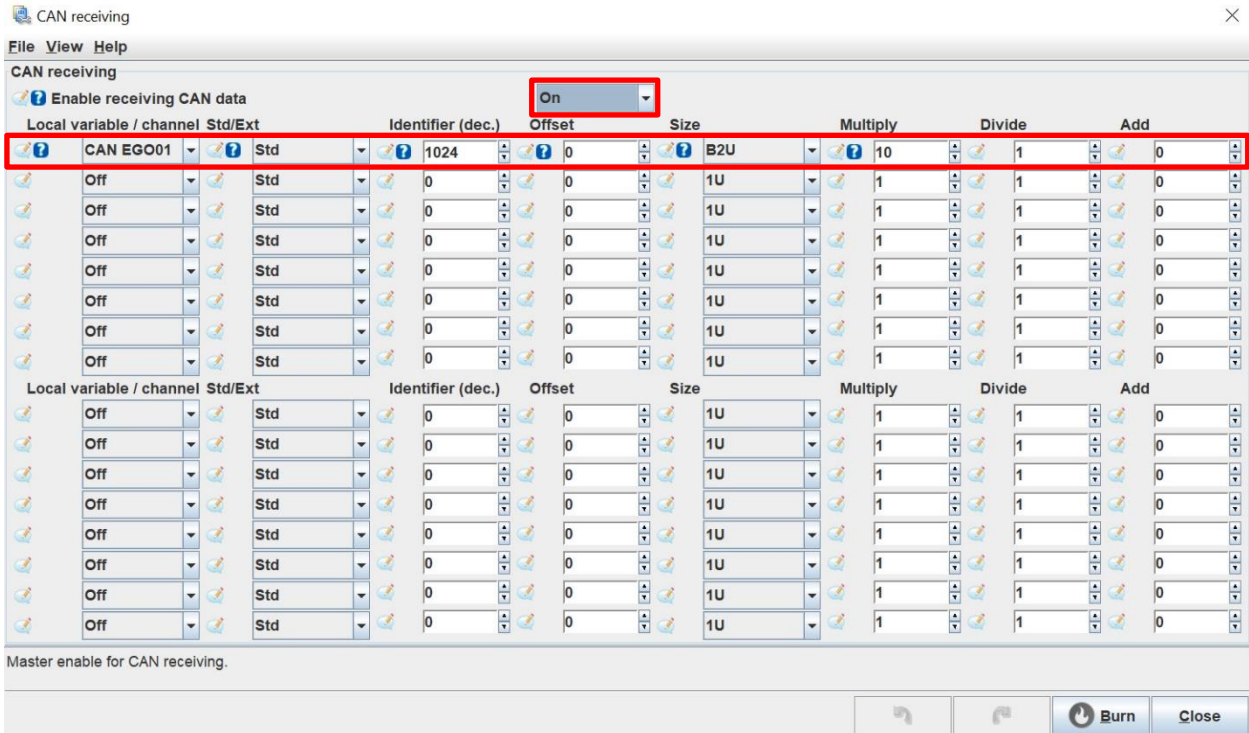
Click CAN-bus/Testmodes and select CAN EGO, GPS



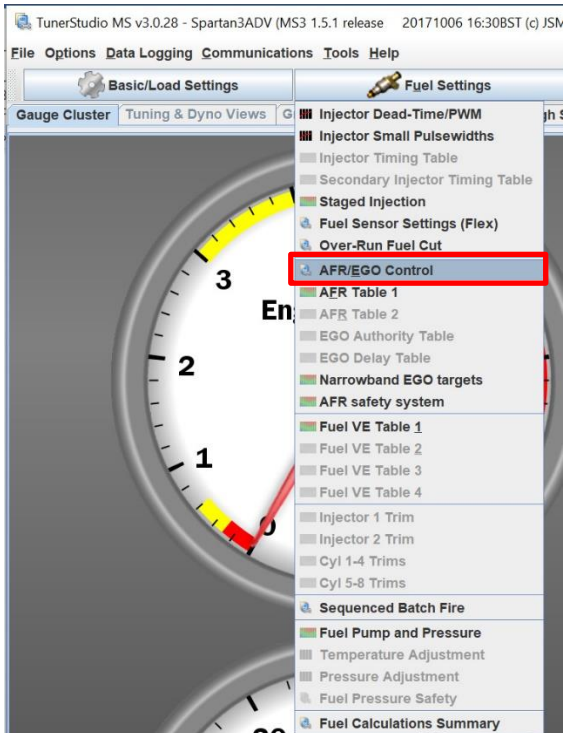
Set Fetch EGO Data to Generic



Click CAN-bus/Testmodes and select CAN Receiving



Set Enable receiving CAN data to On



Click on **Fuel Settings** and select **AFR/EGO Control**

AFR / EGO Control

File View Help

AFR / EGO Control

Algorithm: Simple

EGO Sensor Type: Narrow Band

Use EGO Delay Table: Use IGN events

Ignition Events Per Step: 16

EGO Sensor Response Time(ms): 50

Controller Step Size(%): 1

Use Authority Table: Off

Remember to Calibrate and set Project Properties

Controller Auth +/-(%): 15

Only Correct Above:(AFR): 9.0

And Correct Below:(AFR): 20.0

Active Above Coolant(°F): 160.0

Active Above RPM: 1300

Active Below TPS(%): 70.0

Active Below Load(%): 90.00

Active Above Load(%): 20.00

EGO Delay After Start(s): 30

PID Proportional Gain(%): 100

PID Integral(%): 20

PID Derivative(%): 0

EGO ports	
EGO 1 Port	CAN EGO
EGO 2 Port	EGO
EGO 3 Port	EGO
EGO 4 Port	EGO
EGO 5 Port	EGO
EGO 6 Port	EGO
EGO 7 Port	EGO
EGO 8 Port	EGO

AFR / EGO Sensor Mapping

Injector - Uses Sensor

MS3X Inj A	EGO1
MS3X Inj B	EGO1
MS3X Inj C	EGO1
MS3X Inj D	EGO1
MS3X Inj E	EGO1
MS3X Inj F	EGO1
MS3X Inj G	EGO1
MS3X Inj H	EGO1
V3 Inj 1	EGO1
V3 Inj 2	EGO1

None - no fuel changes are made in response to oxygen sensor readings.
Simple - This method of closed-loop EGO control is well-suited to use with a narrowband O2 sensor.

Burn Close

Set EGO 1 Port to CAN EGO

2. Configuring Spartan 3 to read engine RPM from MS3 Simplified Dash Broadcasting

Section 2 and 2.1. are optional

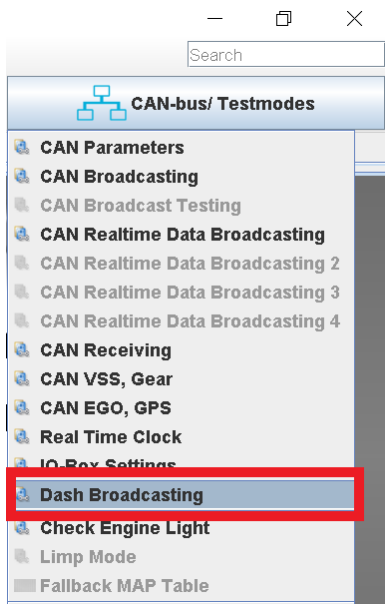
By default, Spartan 3 will immediately start heating the oxygen sensor as soon as power is applied. If the serial command, see sections 6 to 8 of the Spartan 3 User manual, "SlowHeat2" is sent to spartan 3 then Spartan 3 will receive engine RPM from MS3 Simplified Dash Broadcasting over CAN and only start heating the sensor once the engine is running. Spartan 3 will wait a maximum of 10 minutes for the engine to run, after 10 minutes Spartan 3 will start heating the oxygen sensor regardless of engine RPM.

This feature requires Spartan 3 to running firmware 1.04 or later. Use the serial command, see section 6 to 8 of the Spartan 3 User manual, "GETFW" to see the firmware version.

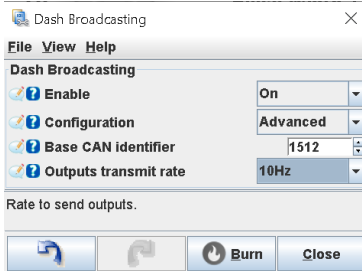
Spartan 3 reads engine RPM via the MS3 Simplified Dash Broadcasting. Both Simplified Dash Broadcasting and Advanced Real-Time Data broadcast can operate at the same time.

2.1. Configuring MS3 to transmit Simplified Dash Broadcasting

In Tuner Studio



Click **CAN-bus/Testmodes** and select **Dash Broadcasting**.



Set **Enable** to **On**, set **Configuration** to **Advanced**, set **Outputs transmit rate** to **10Hz**, and set **Base CAN Identifier** to **1512**.

You can change **the Outputs transmit rate** to any value without problems. The lower the value the less burden there is on the ECU and less traffic there is on the CAN Bus.