AiM Infotech

Megasquirt
Simplified Broadcast
(MS2/MS3/Microsquirt)

Release 1.00

1 Models

This document explains how to connect AiM devices to the Engine Control Unit (ECU) data stream. Supported models are:

- Megasquirt-2, Microsquirt and MS2 based ECUs
- Megasquirt-3, MS3-Pro, MS3-Gold and MS3 based ECUs

Warning: compatibility between Megasquirt MS2 and MS3 ECUs and AiM devices depends on the ECUs firmware version:

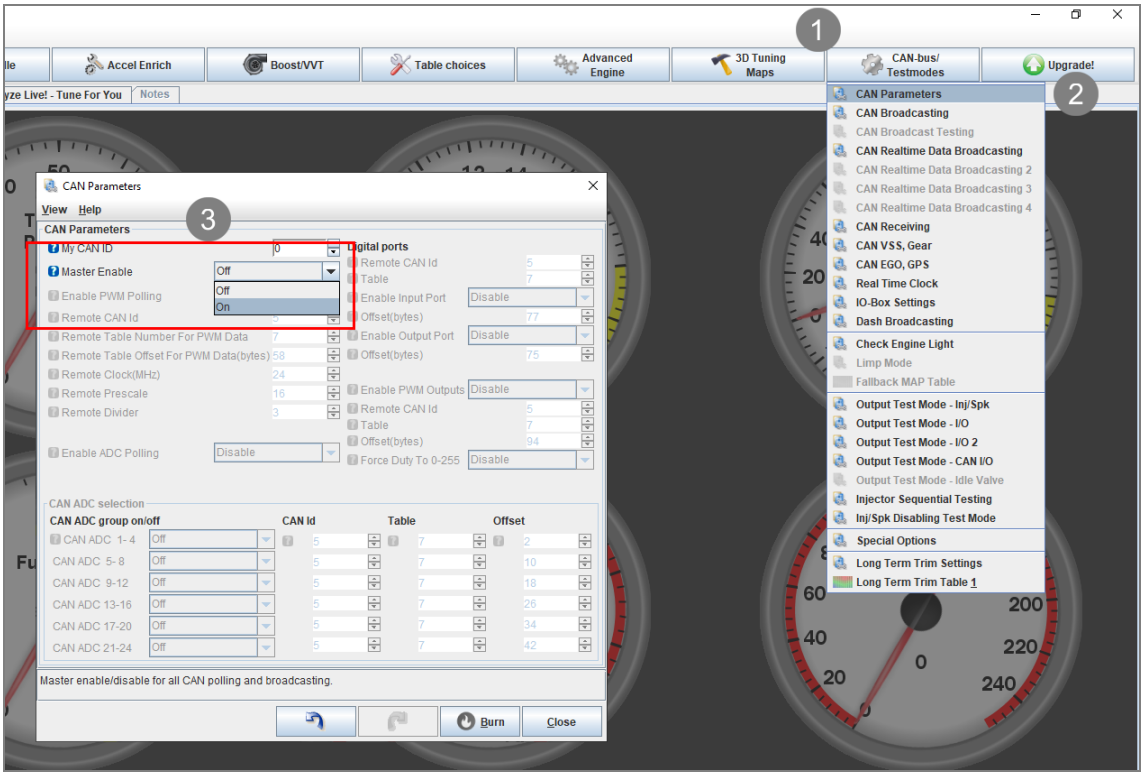
- Megasquirt-2, Microsquirt, Microsquirt-module based ECUs: from **firmware MS2/Extra 3.4.x onwards**
- Megasquirt-3, MS3-Pro, MS3-Gold, MS3-Pro-module based ECUs: **from firmware MS3 1.4.x onwards**

2
Software configuration

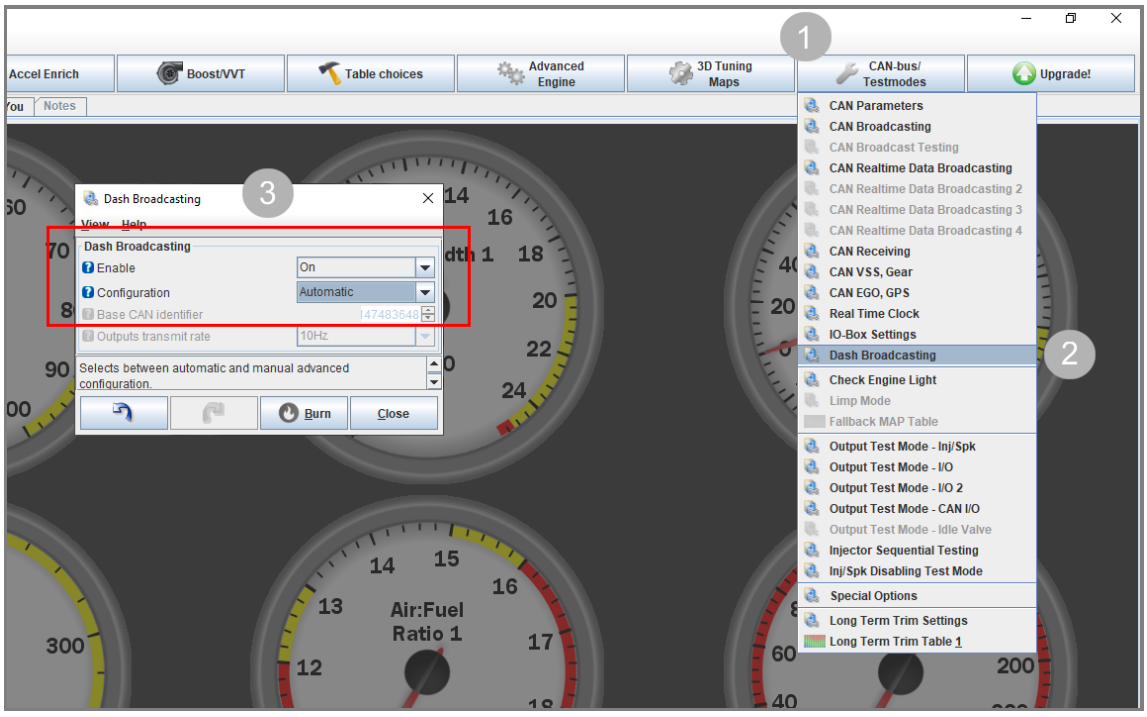
For Megasquirt MS2 and MS3 ECUs to correctly communicate with AiM device, it is necessary to set them up using the dedicated software (TunerStudio MS). The steps to follow are different, according to the model of ECU in use.

2.1
Megasquirt-3, MS3-Pro, MS3-Gold and other MS3 based ECUs

Open the CAN-bus/Testmodes drop-down menu **(1**; image below**)**, then click “CAN Parameters” **(2)**. From the CAN Parameters window **(3)**, set the Master Enable as “On”

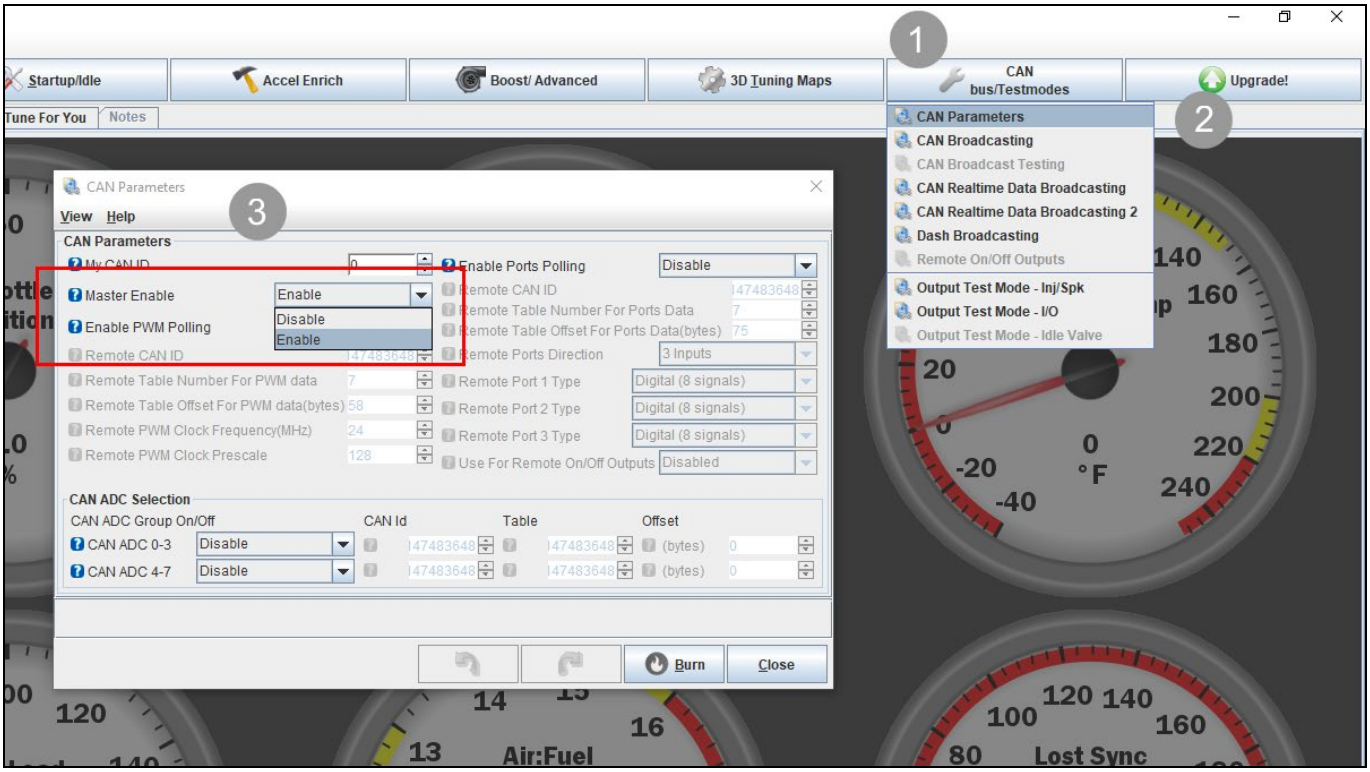


Open the CAN-bus/Testmodes drop-down menu **(1)**, then click “Dash Broadcasting” **(2)**. From the Dash Broadcasting window **(3)**, set Enable as “On”. Set the Configuration as “Automatic”: in this case, the base CAN ID is locked at 1512 (hex.: 5E8) and the ECU broadcasts 50 times per second.

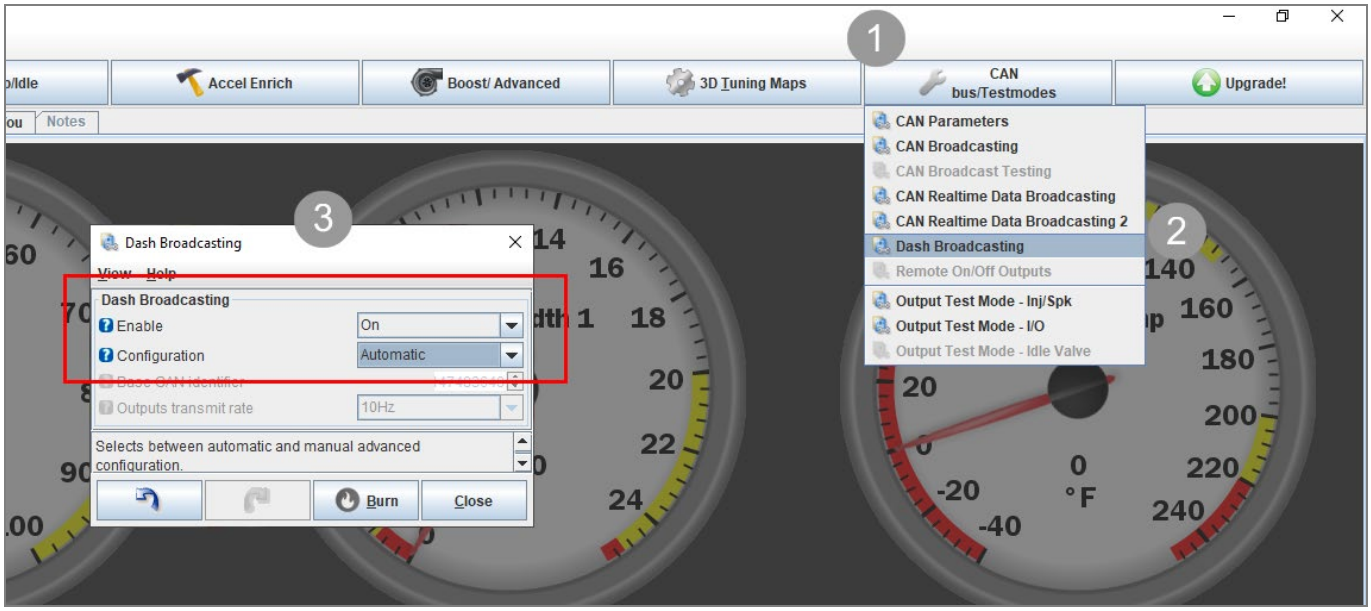


2.2
Megasquirt-2, Microsquirt and other MS2 based ECUs

Open the CAN-bus/Testmodes drop-down menu **(1**; image below**)**, then click “CAN Parameters” **(2)**. From the CAN Parameters window **(3)**, set the Master Enable as “Enable”



Open the CAN-bus/Testmodes drop-down menu **(1)**, then click "Dash Broadcasting" **(2)**. From the Dash Broadcasting window **(3)**, set Enable as "On". Set the Configuration as "Automatic": in this case, the base CAN ID is locked at 1512 (hex.: 5E8) and the ECU broadcasts 20 times per second.

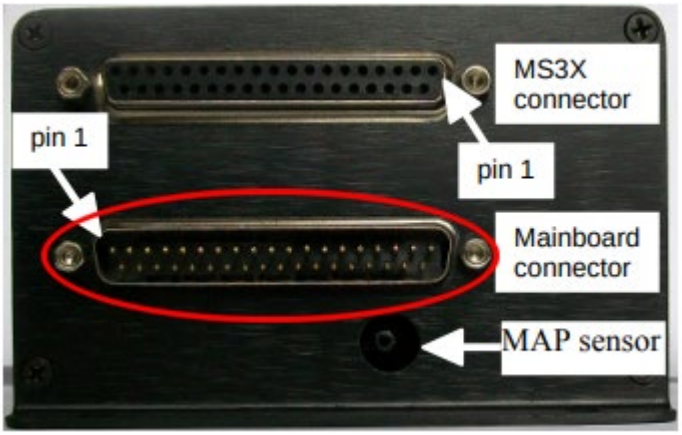


3
Connection

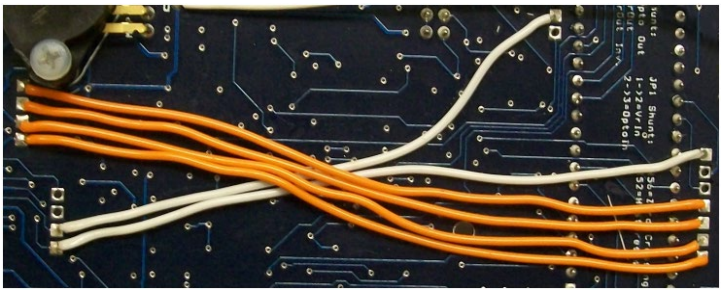
These models feature a bus communication protocol based on CAN, accessible through different ECUs connectors. For this installation refer to the following pinout of each ECU (front view).

3.1
Megasquirt-3/Megasquirt-2

For Megasquirt-3, Mainboard connector must be used (following left image); for Megasquirt-2, Main plug connector must be used (following right image):



Pin	Function	AiM cable
3 (pin name: SPR1)	CAN H	CAN +
4 (pin name: SPR2)	CAN L	CAN -



To enable both these ECUs CAN communication, jumper wires must be added as shown on the left (white leads), between the following pins:

- SPR1 – JS6
- SPR2 – JS8

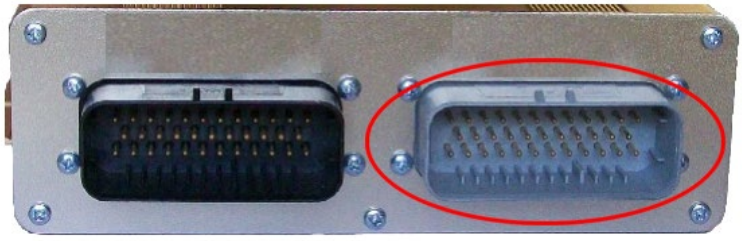
3.2
MS3 Pro Evo/Ultimate

For both ECU versions, 35pins AMP white connector must be used:

Pin	Function	AiM cable
33	CAN L	CAN -
34	CAN H	CAN +

3.3
MS3 Gold

35 pins AMP grey connector must be used:



Pin	Function	AiM cable
13	CAN H	CAN +
14	CAN L	CAN -

3.4 Microsquirt

35 pins AMP black connector must be used:

Pin	Function	AiM cable
2	CANH	CAN +
3	CANL	CAN -

4 Race Studio configuration

Before connecting the AiM device to the ECU, set all functions using AiM software Race Studio. The parameters to select in the AiM device configuration are:

- ECU manufacturer: **Megasquirt**
- ECU Model: **CAN simpl bcast (MS2/MS3/Microsquirt)**

5
“Megasquirt – CAN simpl bcast” protocol

Channels received by AiM devices configured with “Megasquirt – CAN simpl bcast” protocol are:

CHANNEL NAME	FUNCTION
RPM	RPM
WaterTemp	Water temperature
ManAirTemp	Manifold air temperature
EGT1	Exhaust gas temperature 1
ManAirP	Manifold air pressure
FinIgnSparkAdv	Final ignition spark advance
KnockRetard	Knock retard
tcRet	Traction control retard
LaunchCtrlTim	Launch control timing
Throttlepos	Throttle position
EGOCorrCyl1	EGO correction cylinder 1
BatteryVolt	Battery voltage
Bank1AFRtrg	Bank 1 AFR target
AFRcyl1	AFR cylinder 1
MainPulseWidth1	Main pulsewidth bank 1
MainPulseWidth2	Main pulsewidth bank 2
SeqPulseCyl1	Sequential pulsewidth for cylinder 1
Gen SensIn1	Generic input 1
Gen SensIn2	Generic input 2
Veh Spd1	Vehicle speed 1