SETUP GUIDE

DELPHI/GM MEFI-4b ECUs to CD Dash

Supported Devices

Delphi/GM MEFI-4b ECU (P/N 12584052)

CAN Bus Wiring

AEM CD has 2 separate CAN ports. For 3rd party devices, AEM recommends you use AEM CAN Bus 2, whose connections are contained in a 2 pin Deutsch DTM connector. On older harnesses it may be in an unterminated, twisted/shielded flying lead in the dash harness.

The MEFI-4b has two, 32 pin connectors J1 and J2.

MEFI CAN High → AEM CD "CAN 2" Pin 1 (CAN 2+), Gray wire in twisted/shielded pair
MEFI CAN Low → AEM CD "CAN 2" Pin 2 (CAN 2-), Black wire in twisted/shielded pair

The MEFI-4b has a 120 ohm terminating resistor installed internally. As long as the ECU is on one physical end of the CAN Network and the CD is on the other with its terminating resistor activated then no further action regarding terminating resistors is required.

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ECU Software Setup

There are many MEFI-4b software tuning programs available and engine suppliers may have custom programmed versions of the MEFI-4b ECU supplied with their engines as well. It is impossible to cover the details in all the different software programming packages so we will just cover the common essentials.

You must make sure the CAN output is activated. It is sometimes set as a flag called “CAN Bus Present” or something similar. It should be “Yes” or “On” or “Set”

There are two different CAN message address bases commonly used, the “00” base and the “183”, a.k.a. the Racepak base. The AEM CD dash has been configured to work with either base address, no changes should be required.

You must make sure your ECU is outputting the MEFI-4b CAN data stream. Some software packages allow you to set it to output in the MEFI-4a format.

If a channel is not being transmitted then it is likely not turned on in the MEFI calibration as many can be deactivated so as to not set a code when the sensor is not present.

With all questions pertaining to the MEFI calibration settings needed to activate the CAN output or specific sensors, please contact your MEFI dealer as AEM will not have any information on this

Supported Channels

The CD supports the following 61 data channels that could be transmitted by the MEFI-4b ECU:

CH	Channel Name
1	ThrottlePos
2	EngineSpeed
3	ECUBatteryVolt
4	OilPressSensorVolt
5	OilPress(note 1)
6	VehicleSpeed
7	FuelUsed
8	FuelPressSensorVolt
9	FuelPress(note 2)
10	FuelTankLevelSensorVolt

CH	Channel Name
21	ClosedThrottleIdleControlMode
22	IdleControl
23	IdleControlTargetRPM
24	IdleControlPosition
25	IdleControlTPSFollower
26	LowOilLevelInputState
27	GeneralWarning1InputState
28	GeneralWarning2InputState
29	ShiftInterruptInputState
30	EmergencyStopInputState

CH	Channel Name
41	CoolantTemp
42	IntakeManifoldAirTempSensorVolt
43	IntakeManifoldAirTemp
44	AFRBankA_Present
45	AFRBankA_LeanOrRich
46	AFRBankA_DataValidState
47	AFRBankA_ControlState
48	AFRBankA_Volt
49	AFRBankA_RichLeanCrossCounts
50	AFRBankA_LTFTCell

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11	OilTempSensorVolt(note 3)
12	EngineRunTimeTotal
13	FuelInjPulsewidthBankA
14	FuelInjPulsewidthBankB
15	FuelConsumptionRate
16	KnockMonitoringMode
17	KnockPresence
18	IgnitionTiming
19	KnockRetard
20	KnockOctaneRating

31	Load2TrollModeInputState
32	CheckGaugesLampOutputState
33	BuzzerOutputState
34	SpeedBasedOutputState
35	FuelPumpRelayOutputState
36	IntakeManifoldAirPressSensorVolt
37	IntakeManifoldAirPress
38	BoostPress
39	BaroPress
40	CoolantTempSensorVolt

51	AFRBankA_LTFTValue
52	AFRBankA_FuelMultplier
53	AFRBankB_Present
54	AFRBankB_LeanOrRich
55	AFRBankB_DataValidState
56	AFRBankB_ControlState
57	AFRBankB_Volt
58	AFRBankB_RichLeanCrossCounts
59	AFRBankB_LTFTCell
60	AFRBankB_LTFTValue
61	AFRBankB_FuelMultplier

Notes:

note 1: The MEFI-4b ECU only transmits the oil pressure sensor voltage, not actual engineering units. See "Oil Pressure Sensor Setup" below to view calibrated PSI values.
note 2: The MEFI-4b ECU only transmits the fuel pressure sensor voltage, not actual engineering units. See "Fuel Pressure Sensor Setup" below to view calibrated PSI values.
note 3: The MEFI-4b ECU does not have an identified oil temp sensor input. See "Oil Temp Sensor Setup" section below to add an Oil Temp sensor.

Layout Overview & CAN Setup

The fastest way to get something working is to use the AEM created setup for the MEFI-4b ECU names, "MEFI-4b_rev2.aemcd7" (use the newest revision available) which can be found in the same location as this document was. The is our default black layout with the MEFI-4b CAN inputs pre-configured and includes all the data channels listed earlier. If you choose this method then simply load this configuration into your dash and you are done.

If you want to create something from scratch, (it may still be quicker and easier to modify the AEM created setup described above) you can either start with a new dash layout by selecting "File" then "New" in DashDesign or you can form a pre-designed layout that has screens already designed and inserted but has the CAN inputs left blank. These are chosen by selecting "File" then "Open" and selecting one of the setups titles xzyblank.aemcd7 with the xyz representing a description of the layouts contained in the file.

To import the CAN configuration into your setup you select "Setup" then "Display" from the main DashDesign menu. Once the dialog box opens you select the "CAN receive" tab.

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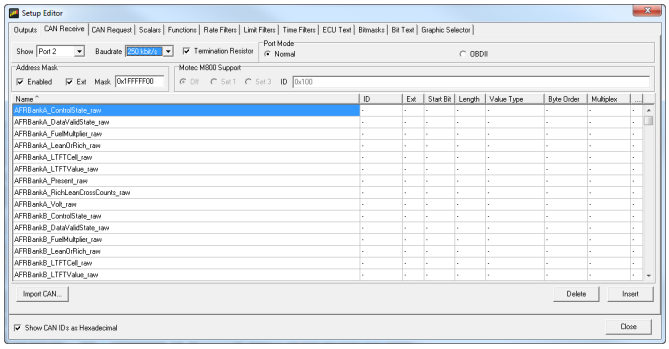
Show: "Port 2"
Baudrate: 250 kbits/s
Termination Resistor: Checked
Address Mask
Enabled: Checked
Ext: Checked
Mask: 0x1FFFFF00
M800 Support: "OFF"



Once properly configured it should look something like this →

The click on "Import CAN" on the lower left and selet the MEFI-4B CAN setup file. The new items will appear in the Outputs tab. They can now be viewed on the display or logged. You can rename, filter, or manipulate any of these channels to make them more useful.

Now you need to setup the CAN Request function in the dash to tell the ECU to send that data. Click on the "CAN Request" tab and confirm the settings are as shown below:

Show: "Port 2"
Baudrate: 250 kbit/s
Termination Resistor: Checked

Click on the "Insert" button