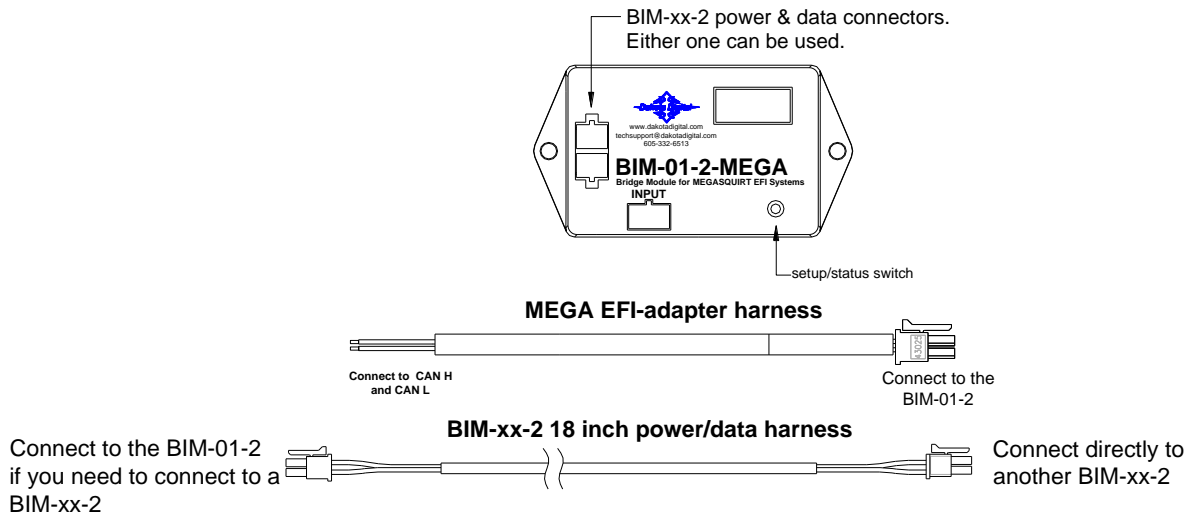




## BIM-01-2-MEGA Bus Interface Module for MEGASQUIRT EFI



This Bus Interface Module is designed to read engine information from specific MEGASQUIRT EFI kits. These kits include: Megasquirt-2, Microsquirt, MSPNP2, Microsquirt-module based ECUs with firmware MS2/Extra 3.4.x or later, Megasquirt-3, MS3-Pro, MS3-Gold, MSPNP-Pro, MS3-Pro-module based ECUs with firmware MS3 1.4.x or later. The module is connected to the MEGA through the CAN-bus CAN H and CAN L on the MEGASQUIRT harness.

There are two interface (I/O) ports on the module. Either one can be connected to the gauge system or to another module, allowing several units to be daisy chained together. Do not connect the I/O port to anything other than a Dakota Digital gauge or BIM. Do not mount the module in the engine compartment; it should be mounted in interior of the vehicle.

The information that is available from the unit depends on the EFI module programming and add-ons. The possible values are: engine RPM, vehicle speed, engine coolant temperature, intake/manifold air temperature, oil pressure, fuel pressure, average A/F ratio and boost.

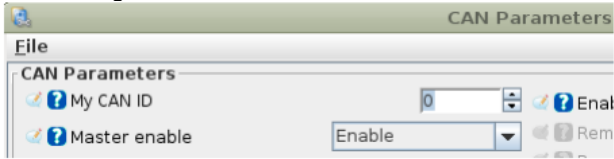
**Available readings: RPM, engine temp, intake/manifold temp, fuel pressure, A/F ratio, vehicle speed, oil pressure, boost/vacuum**

## System Setup:

### EFI system setup

#### User configuration in Megasquirt-2, Microsquirt and other MS2 based ECUs

The settings are on the CAN-Bus/Testmodes menu:



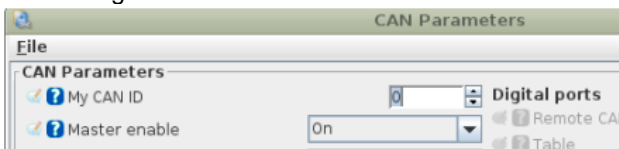
- CAN-Bus/Testmodes -> CAN Parameters Set Master enable to "Enable"



- CAN-Bus/Testmodes -> Dash Broadcasting Set Enable to "On"
- Ensure Configuration is set to 'Automatic' setting.

#### User configuration in Megasquirt-3, MS3-Pro, MS3-Gold and other MS3 based ECUs

The settings are on the CAN-Bus/Testmodes menu:



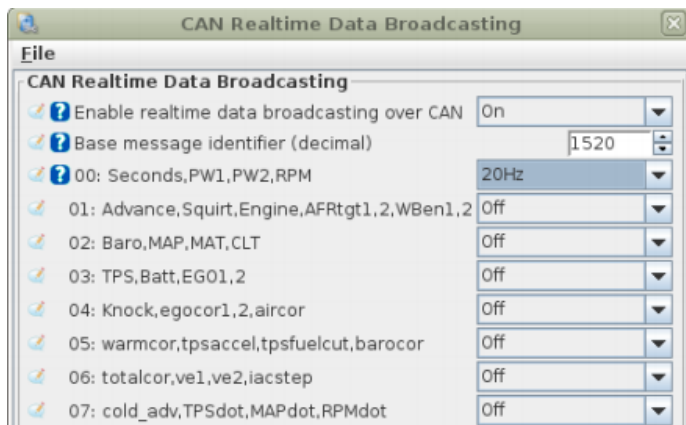
- CAN-Bus/Testmodes -> CAN Parameters Set Master enable to "On"



- CAN-Bus/Testmodes -> Dash Broadcasting Set Enable to "On"
- Ensure Configuration is set to 'Automatic' setting.

#### \*\*\*Optional\*\*\*\*\*Enable engine oil pressure and boost/vacuum

- To monitor engine oil pressure, you must have a pressure sensor connected on either 'Generic sensor input 1' or 'Generic sensor input 2'.
- Boost/vacuum pressure is measured from the MAP sensor reading.



- CAN-Bus/Testmodes -> CAN Realtime Data Broadcasting
- Set Enable realtime data broadcasting over CAN to "On"
- To enable boost CAN output set "02: Baro, MAP, MAT, CLT" to 'ON'(MS2)/50Hz(MS3)
- To enable engine oil pressure CAN output set "13: sensors 1,2,3,4" to 'ON'(MS2)/50Hz(MS3)

### EFI engine oil pressure input

This module is programmed to monitor an engine oil pressure sensor that is connected to 'Generic sensor input 1' or 'Generic sensor input 2'. If you wish to enable this reading you must enable the *EOP* (engine oil pressure) option through the setup menu. With the unit off, press and hold the button on the BIM. Cycle the ignition to the on position then release the button. Press and release the button until *EOP* is displayed. Press and hold to enter the menu. Press and release the button until *In 1* (input 1) or *In 2* (input 2) is shown. Press and hold to select which input your sensor is connected to.

### EFI boost

This module is programmed to monitor boost(PSI) data from the MAP sensor. To enable this feature, you must enable the *b5t* (boost) option through the setup menu. With the unit off, press and hold the button on the BIM. Cycle the ignition to the on position then release the button. Press and release the button until *b5t* (boost) is displayed. Press and hold to enter the menu. Press and release the button until *on* is shown. Press and hold to select.

### Display data usage

The following readings can each be used in place of dedicated sending units to the gauge control unit. These are individually selectable in the display system gauge setup menus.

\*Some gauge features require a minimum software revision or higher to be supported:

	Oil Pressure
VHX	VX04
VFD3	SE47
VFD3X	SE55

### VHX/VFD Setup:

#### Using speed from the BIM-01-2

- Hold the SW1 switch from the gauge system control box while turning the key on. The message display should show SETUP.
- Release SW1. The message display should show SPEED.
- Press and hold SW1. The message display should show SENDER. Release SW1.
- Press and release SW1 until BUS is displayed.
- Press and hold SW1 until DONE is displayed.

#### Using RPM from the BIM-01-2

- Hold the SW1 switch from the gauge system control box while turning the key on. The message display should show SETUP.
- Release SW1. Press and release SW1 until TACH is displayed.
- Press and hold SW1. The message display should show T CAL or ENGINE. Release SW1.
- Press and release SW1 until BUS is displayed.
- Press and hold SW1 until DONE is displayed.

#### Using engine temperature from the BIM-01-2

- Hold the SW1 switch from the gauge system control box while turning the key on. The message display should show SETUP.
- Release SW1. Press and release SW1 until WATER is displayed.
- Press and hold SW1. The message display should show SENDER. Release SW1.
- Press and release SW1 until BUS F or BUS C is displayed depending on your unit choice.
- Press and hold SW1 until DONE is displayed.

#### Using oil pressure from the BIM-01-2 (if available)

- Hold the SW1 switch from the gauge system control box while turning the key on. The message display should show SETUP.
- Release SW1. Press and release SW1 until OIL is displayed.
- Press and hold SW1. The message display should show SENDER. Release SW1.
- Press and release SW1 until BUS is displayed.
- Press and hold SW1 until DONE is displayed.

\*\*\*Intake/manifold air temp, Fuel PSI, boost and A/F ratio will be displayed in the message center if activated through the display menu setup.

## **HDX setup (Can also be completed using the Bluetooth app):**

### **Using speed from the BIM-01-2**

- With ignition on. Press and hold both switches to enter SETUP.
- Press and release either switch until SPEED is selected. Press and hold either switch to enter SPEED menu.
- Press and release either switch until INPUT is displayed. Press and hold either switch to enter INPUT menu.
- Press and release either switch until BIM is displayed. Press and hold either switch to select BIM.

### **Using RPM from the BIM-01-2**

- Press and hold both switches to enter SETUP.
- Press and release either switch until TACH is selected. Press and hold either switch to enter TACH menu.
- Press and release either switch until INPUT is displayed. Press and hold either switch to enter INPUT menu.
- Press and release either switch until CYLINDER is displayed. Press and hold either switch to select CYLINDER.
- Press and release either switch until BIM is displayed. Press and hold either switch to select BIM.

### **Using engine temperature from the BIM-01-2**

- Press and hold both switches to enter SETUP.
- Press and release either switch until WATER is selected. Press and hold either switch to enter WATER menu.
- Press and release either switch until INPUT is displayed. Press and hold either switch to enter INPUT menu.
- Press and release either switch until BIM is displayed. Press and hold either switch to select BIM.

### **Using oil pressure from the BIM-01-2 (if available)**

- Press and hold both switches to enter SETUP.
- Press and release either switch until OIL is selected. Press and hold either switch to enter OIL menu.
- Press and release either switch until INPUT is displayed. Press and hold either switch to enter INPUT menu.
- Press and release either switch until BIM is displayed. Press and hold either switch to select BIM.

### **Troubleshooting quick tips:**

While the BIM is operating, the dot in the upper left corner of the display will indicate the status. On steady indicates it is powered up but not receiving any BIM bus activity. Flashing indicates it is communicating on the BIM bus.

If the display shows “BUS” then it is scanning to try and communicate with the EFI system bus but cannot get an answer. To see the sensor and channel status on the BIM display, press and hold the switch. The display will cycle through several screens.

The first will show the bus type (“EF5” MEGASQUIRT EFI). The next screens will indicate which (if any) extended data is available: “IAL” for intake/manifold temp, “EOP” for engine oil pressure.

### **To set or change the ID number:**

The ID will not normally need to be changed. The fuel PSI and A/F ratio readings both use bus ID's so if you have other BIM units connected along with this one there is a chance of ID conflicts. This can easily be resolved. If fuel PSI or A/F ratio is not showing up in the BIM setup menu on your system you may need to resolve an ID conflict. The following procedure will allow the BIM-01-2 to automatically select a new, unused ID.

- Hold the switch on BIM while turning the key on. The BIM will show the current software code.
- Release the switch.
- Press and release the switch until “ID” is shown on the display.
- Press and hold. “UPD” will be shown while the BIM is scanning the bus for other BIM units.
- When you see “dNE” shown on the display release the switch.
- The BIM unit will now go back to normal operation.

HDX TIP: Intake/manifold air temp, Fuel PSI, boost and A/F ratio will be displayed in the group screens if activated through the displays>>group set menu setup.

<b>Troubleshooting guide</b>		
<b>Problem</b>	<b>Possible cause</b>	<b>Solution</b>
<ul style="list-style-type: none"> <li>○ BIM will not light up at all</li> </ul>	<ul style="list-style-type: none"> <li>• PWR wire does not have power.</li> <li>• Connect to a different ground location</li> <li>• Power/data harness is damaged.</li> <li>• Module is damaged.</li> </ul>	<ul style="list-style-type: none"> <li>• Connect to a location that has +12V key-on power.</li> <li>• Inspect harness and repair or replace.</li> <li>• Return for service. (See Instructions below)</li> </ul>
<ul style="list-style-type: none"> <li>○ BIM display is scanning "bU5"</li> </ul>	<ul style="list-style-type: none"> <li>• EFI adapter harness is not connected</li> <li>• The EFI system is not compatible</li> <li>• The EFI is not powered on.</li> <li>• The system isn't configured to Dash Broadcasting 'Enable'</li> </ul>	<ul style="list-style-type: none"> <li>• Connect the appropriate harness to the EFI CAN.</li> <li>• Verify compatibility.</li> <li>• Verify EFI system is powered on.</li> <li>• Verify CAN settings within EFI software.</li> </ul>
<ul style="list-style-type: none"> <li>○ BIM has a steady dot lit</li> </ul>	<ul style="list-style-type: none"> <li>• Interface cable is not connected</li> <li>• Interface cable is loose.</li> <li>• On VHX systems, the BIM display for this is disabled.</li> </ul>	<ul style="list-style-type: none"> <li>• Connect the supplied data cable between the BIM unit and the gauge control box.</li> <li>• Make sure both ends of the cable are seated.</li> <li>• Follow instructions in VHX manual to enable the BIM display screen.</li> </ul>
<ul style="list-style-type: none"> <li>○ BIM display shows "88:8"</li> </ul>	<ul style="list-style-type: none"> <li>• Data cable is damaged.</li> <li>• Another module on the bus is damaged or connected improperly.</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect and replace the data cable.</li> <li>• Inspect other modules on the bus.</li> </ul>

### **SERVICE AND REPAIR**

DAKOTA DIGITAL offers complete service and repair of its product line. In addition, technical consultation is available to help you work through any questions or problems you may be having installing one of our products. Please read through the Troubleshooting Guide. There, you will find the solution to most problems.

**Should you ever need to send the unit back for repairs, please call our technical support line, (605) 332-6513, to request a Return Merchandise Authorization number.** Package the product in a good quality box along with plenty of packing material. Ship the product by UPS or insured Parcel Post. Be sure to include the RMA number on the package, and include a complete description of the problem with RMA number, your full name and address (street address preferred), and a telephone number where you can be reached during the day. Any returns for warranty work must include a copy of the dated sales receipt from your place of purchase. Send no money. We will bill you after repair.

### **Dakota Digital Limited Lifetime Warranty**

DAKOTA DIGITAL warrants to the ORIGINAL PURCHASER of this product that should it, under normal use and condition, be proven defective in material or workmanship for the lifetime of the original vehicle it was installed in, such defect(s) will be repaired or replaced at Dakota Digital's option.

This warranty does not cover nor extend to damage to the vehicle's systems, and does not cover diagnosis, removal or reinstallation of the product. This Warranty does not apply to any product or part thereof which in the opinion of the Company has been damaged through alteration, improper installation, mishandling, misuse, neglect, or accident. Dakota Digital assumes no responsibility for loss of time, vehicle use, owner inconvenience nor related expenses. Dakota Digital will cover the return standard freight once the product has been evaluated for warranty consideration, however the incoming transportation is to be covered by the owner.

This Warranty is in lieu of all other expressed warranties or liabilities. Any implied warranties, including any implied warranty of merchantability, shall be limited to the duration of this written warranty. No person or representative is authorized to assume, for Dakota Digital, any liability other than expressed herein in connection with the sale of this product.

**⚠ WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)



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