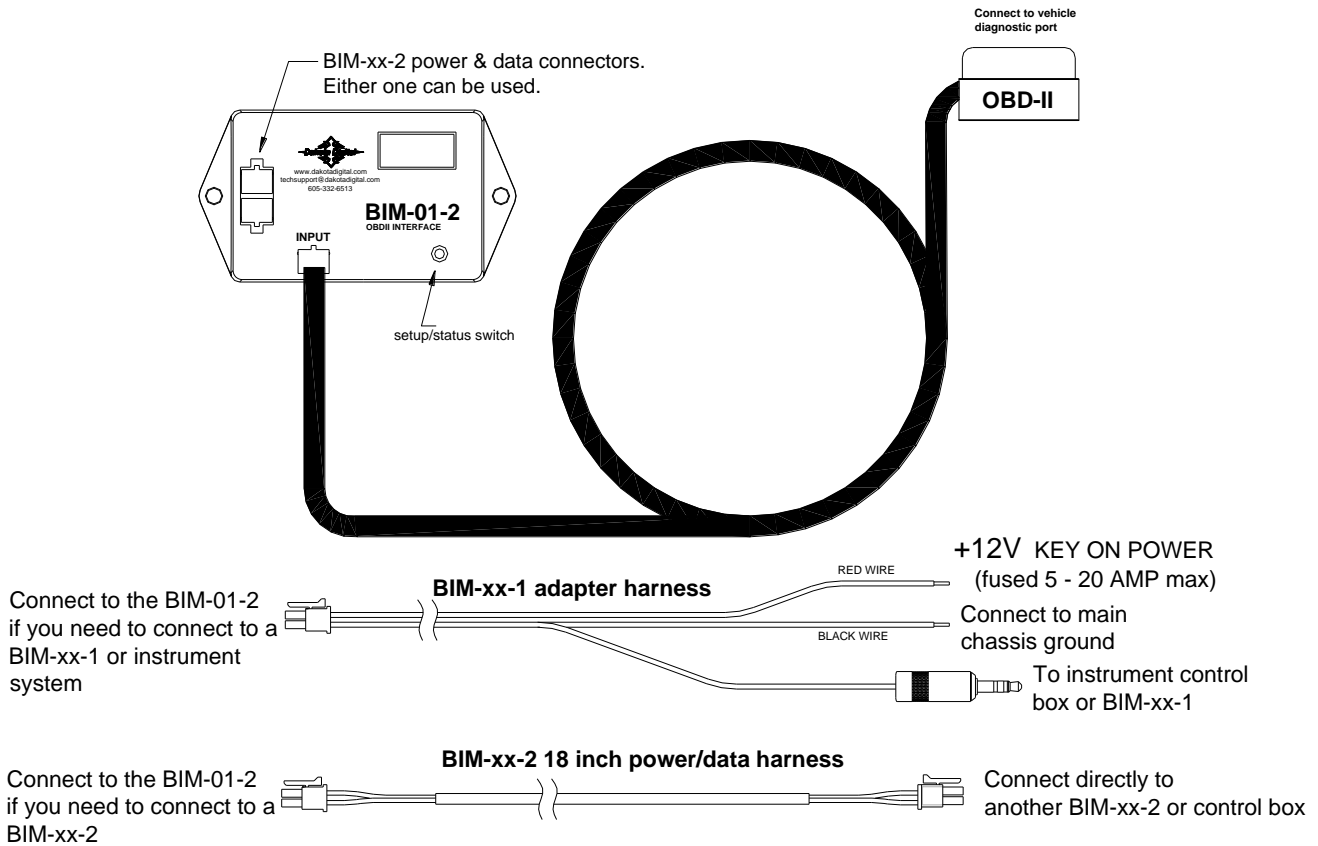


## BIM-01-2 Bus Interface Module for OBD-II vehicle interface



This Bus Interface Module has an input to read engine information from vehicles using the GM 1996-up OBD-II protocol, Ford 1996-up OBD-II protocol, some Chrysler 2000-up OBD-II protocol, or CAN OBD-II protocol. CAN OBD-II is used on all vehicles 2008 and newer and some vehicles from 2004 – 2008. 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 BIM-01-2 does not use one of the 16 available bus ID's like other Dakota Digital BIM units do. Speed and RPM data are transmitted and updated every 0.1 second. The remaining data is sent one at a time in sequence along with the speed and RPM. As an example on the first update speed, RPM, and engine temp would be sent. On the next update speed, RPM, and intake temp would be sent. This will continue with the other data that is available and then will start over again with speed, RPM, and engine temp.

The engine and transmission information that is available from the unit depends on the year, make, model, and options of the vehicle. Some of the possible values are: engine RPM, vehicle speed, engine coolant temperature, intake air temperature, transmission fluid temperature, transmission gear position, vacuum/boost and ambient air temperature.

**Data that should always be available: RPM, speed, engine temp, intake temp, engine indicator(MIL)**

**Data that is transmission dependent: Transmission temp, transmission gear position**

**Data that is body control/ECM dependent: ambient air temp, engine oil pressure, fuel level, vacuum/boost**

## Display data usage

The RPM, speed, and engine temperature can each be used in place of connections to the instrument control unit. These are individually selectable in the display system gauge setup menus.

The transmission gear position will be displayed in the message center if it is available. This will automatically be displayed whenever the gear changes. If a GSS-2000 gear position sender is connected, the GSS-2000 will override the BIM-01-2 data.

The malfunction indicator lamp (MIL) or service engine soon indicator will be activated from the data bus when there is an engine code set. This will not turn on the indicator for a lamp test function when the key is on, but the engine is not running. This indicator can be enabled or disabled in the BIM-01-2 setup. Some gauge features require a minimum software revision or higher to be supported:

	Engine Indicator	Oil Pressure & Fuel Level
VHX	VX03	VX04
VFD3	SE45	SE47
VFD3X	SE54	SE55

The intake air temp, transmission temp, and ambient air temp will be displayed in the message center.

## VFD3 Setup:

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

- Hold the SW1 switch from the instrument system control box while turning the key on. The message display should show SETUP.
- Release SW1. The message display should show 5E£ SPEED.
- Press and hold SW1 for at least 3 seconds and then release it. The message display should show 5E£ SENDER.
- Press and hold SW1 for at least 3 seconds and then release it. The display should show the current setting.
- Press and release SW1 until 5E£ BUS is displayed.
- Press and hold SW1 until DONE is displayed.

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

- Hold the SW1 switch from the instrument system control box while turning the key on. The message display should show SETUP.
- Release SW1. Press and release SW1 until 5E£ TACH is displayed.
- Press and hold SW1 for at least 3 seconds and then release it. The display should show 5E£ T CAL.
- Press and hold SW1 for at least 3 seconds and then release it. The display should show the current setting.
- Press and release SW1 until 5E£ T CAL is displayed.
- Press and hold SW1 until DONE is displayed.

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

- Hold the SW1 switch from the instrument system control box while turning the key on. The message display should show SETUP.
- Release SW1. Press and release SW1 until 5E£ WATER is displayed.
- Press and hold SW1 for at least 3 seconds and then release it. The message display should show 5E£ SENDER.
- Press and hold SW1 for at least 3 seconds and then release it. The display should show the current setting.
- Press and release SW1 until 5E£ BUS F or 5E£ 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 instrument system control box while turning the key on. The message display should show SETUP.
- Release SW1. Press and release SW1 until 5E£ OIL is displayed.
- Press and hold SW1 for at least 3 seconds and then release it. The message display should show 5E£ SENDER.
- Press and hold SW1 for at least 3 seconds and then release it. The display should show the current setting.
- Press and release SW1 until 5E£ BUS is displayed.
- Press and hold SW1 until DONE is displayed.

### Using fuel level from the BIM-01-2 (if available)

- Hold the SW1 switch from the instrument system control box while turning the key on. The message display should show SETUP.
- Release SW1. Press and release SW1 until 5E£ FUEL is displayed.
- Press and hold SW1 for at least 3 seconds and then release it. The message display should show 5E£ SENDER.
- Press and hold SW1 for at least 3 seconds and then release it. The display should show the current setting.
- Press and release SW1 until 5E£ BUS is displayed.
- Press and hold SW1 until DONE is displayed.

## **VHX Setup:**

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

- Hold the SW1 switch from the instrument system control box while turning the key on. The message display should show SETUP.
- Release SW1. The message display should show SETUP SPEED.
- Press and hold SW1 for at least 3 seconds and then release it. The message display should show SPEED SENDER.
- Press and hold SW1 for at least 3 seconds and then release it. The display should show the current setting.
- Press and release SW1 until SENDER BUS is displayed.
- Press and hold SW1 until DONE is displayed.

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

- Hold the SW1 switch from the instrument system control box while turning the key on. The message display should show SETUP.
- Release SW1. Press and release SW1 until SETUP TACH is displayed.
- Press and hold SW1 for at least 3 seconds and then release it. The display should show TACH ENGINE.
- Press and hold SW1 for at least 3 seconds and then release it. The display should show the current setting.
- Press and release SW1 until ENGINE 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 instrument system control box while turning the key on. The message display should show SETUP.
- Release SW1. Press and release SW1 until SETUP WATER is displayed.
- Press and hold SW1 for at least 3 seconds and then release it. The message display should show WATER SENDER.
- Press and hold SW1 for at least 3 seconds and then release it. The display should show the current setting.
- Press and release SW1 until SENDER BUS F or SENDER 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 instrument system control box while turning the key on. The message display should show SETUP.
- Release SW1. Press and release SW1 until SETUP OIL is displayed.
- Press and hold SW1 for at least 3 seconds and then release it. The message display should show OIL SENDER.
- Press and hold SW1 for at least 3 seconds and then release it. The display should show the current setting.
- Press and release SW1 until SENDER BUS is displayed.
- Press and hold SW1 until DONE is displayed.

### **Using fuel level from the BIM-01-2 (if available)**

- Hold the SW1 switch from the instrument system control box while turning the key on. The message display should show SETUP.
- Release SW1. Press and release SW1 until SETUP FUEL is displayed.
- Press and hold SW1 for at least 3 seconds and then release it. The message display should show FUEL SENDER.
- Press and hold SW1 for at least 3 seconds and then release it. The display should show the current setting.
- Press and release SW1 until SENDER BUS is displayed.
- Press and hold SW1 until DONE is displayed.

## **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**

- With ignition on. 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**

- With ignition on. 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)**

- With ignition on. 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.

### **Using fuel level from the BIM-01-2 (if available)**

- With ignition on. Press and hold both switches to enter SETUP.
- Press and release either switch until FUEL is selected. Press and hold either switch to enter FUEL 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.

## **BIM setup:**

### **Enable or disable engine indicator status from the BIM-01-2**

- Hold the switch on the BIM-01-2 case while turning the key on. The BIM display will show the current revision code while this is held.
- Release the switch.
- Press and release the switch until the display shows "ENG" (engine). Press and hold to enter this menu.
- When you see "---" on the display release the switch.
- The display will show the current state of the engine indicator enable ON (enable) or OFF (disable).
- Press and release the switch to change the state.
- To save setting press and hold the switch until you see "---" on the display then release the switch.
- The display will show "END". Press and hold the switch to exit setup or press and release to choose another menu option.

### **Enable or disable gear position output from the BIM-01-2**

- Hold the switch on the BIM-01-2 case while turning the key on. The BIM display will show the current revision code while this is held.
- Release the switch.
- Press and release the switch until the display shows "G P" (gear position). Press and hold to enter this menu.
- When you see "---" on the display release the switch.
- The display will show the current state of the gear position ON (enable) or OFF (disable).
- Press and release the switch to change the state
- To save setting press and hold the switch until you see "---" on the display then release the switch.
- The display will show "END". Press and hold the switch to exit setup or press and release to choose another menu option.

## Enable or disable vacuum/boost output from the BIM-01-2

**\*\*Note:** This reading is taken from the MAP sensor. A functional MAP sensor is required for an accurate reading. Vacuum reading is in inHg and boost is in PSI.

- Hold the switch on the BIM-01-2 case while turning the key on. The BIM display will show the current revision code while this is held.
- Release the switch.
- Press and release the switch until the display shows “b5t” (boost). Press and hold to enter this menu.
- When you see “- - -” on the display release the switch.
- The display will show the current state for boost enable *on* (enable) or *off* (disable).
- If turning *on* ensure the BIM is connected to a VHX/HDX/VFD system because the BIM will automatically choose a BIM channel on the system.
- Press and release the switch to change the state.
- To save setting press and hold the switch until you see “- - -” on the display then release the switch.
- The display will show “End”. Press and hold the switch to exit setup or press and release to choose another menu option.

When using the pre-CAN bus GM J1850 or Ford J1850 protocols the unit must have a unique ID to identify itself on the bus. By default, this is set to use an instrument system bus ID and should not normally need to be changed. If there is some other module already using this ID, then another can be selected. Some vehicles may require F1 or F2 ID's to be selected for proper operation. 61 and 62 are gauge ID's and F1 and F2 are scan tool ID's.

### To set or change the diagnostic bus ID numbers:

- Hold the switch on the BIM-01-2 case while turning the key on. The BIM display will show the current revision code while this is held.
- Release the switch. The display will show “- id”.
- Press and hold the switch to enter the “- id” menu. The BIM will then display the currently selected bus ID.
- When you see “- - -” on the display release the switch.
- Press and release the switch to change the setting from 61, 62, F1, or F2.
- To save setting press and hold the switch until you see “- - -” on the display then release the switch.
- The display will show “End”. Press and hold the switch to exit setup or press and release to choose another menu option.

### BIM-xxx-1 adapter harness wiring tip:

When connecting to a VFD3 or VHX display system you can easily get power and ground from the control box FUEL+ and FUEL- terminals. These terminals are normally not used. Connect the BIM-xx-1 adapter harness RED wire to the FUEL+ terminal and connect the BIM-xx-1 adapter harness BLACK wire to the FUEL- terminal.

### 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. A dot in the upper center indicates that there is an engine code set (MIL active).

If the display is sequencing through “- U-”, “- F-”, and “- C-” then it is scanning to try and communicate with the vehicle bus but cannot get an answer.

To see the sensor and channel status on the BIM display, press and hold the switch. If “BUS” is shown, the module cannot communicate with the vehicle. The display will cycle through several screens. The first will show the bus type (“U” for GM or Chrysler J1850, “F” for Ford J1850, “C” for CAN) and the number of control modules answering. The next screens will indicate which extended data is available: “IRT” for intake temp, “EOP” for engine oil pressure, “FL I” for fuel level, “EFE” for transmission temp, “G P” for gear position, and “ARL” for ambient air temp.

### Emissions note:

If your vehicle requires emissions testing in your area, the check engine feature of this unit cannot be used to operate the Check Engine or Service Engine indicator.

## Troubleshooting guide.

Problem	Possible cause	Solution
Sensor does not show on gauge readout. BIM will not light up at all.	PWR wire does not have power. GND wire does not have a good ground. Power/data harness is damaged. Module is damaged.	Connect to a location that has +12V key-on power. Connect to a different ground location. Inspect harness. Repair or replace any damaged areas. Return for service. (see instructions)
Sensor does not show on gauge readout. BIM display is scanning "J", "F", "C"	OBD-II Interface cable is not connected. The vehicle bus is not compatible. The bus ID is not compatible.	Connect the supplied OBD-II cable between the BIM unit and the vehicle diagnostic plug. Vehicles using the ISO 9141-2 protocol are not compatible with the BIM-01-2. Some vehicles require the bus ID to be changed to F1, or F2.
Sensor does not show on gauge readout. BIM has a steady dot lit.	Interface cable is not connected. Interface cable is loose. On VHX systems, the BIM display for this channel is disabled.	Connect the supplied harness between the BIM unit and the gauge control box. Make sure both ends of the cable are seated in securely. Follow instructions in VHX manual to enable the BIM display screen.
BIM display shows "88:8"	Data cable is damaged. Another module on the bus is damaged or connected improperly.	Inspect and replace harness or power/data harness. Inspect other modules on the data bus.

## 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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