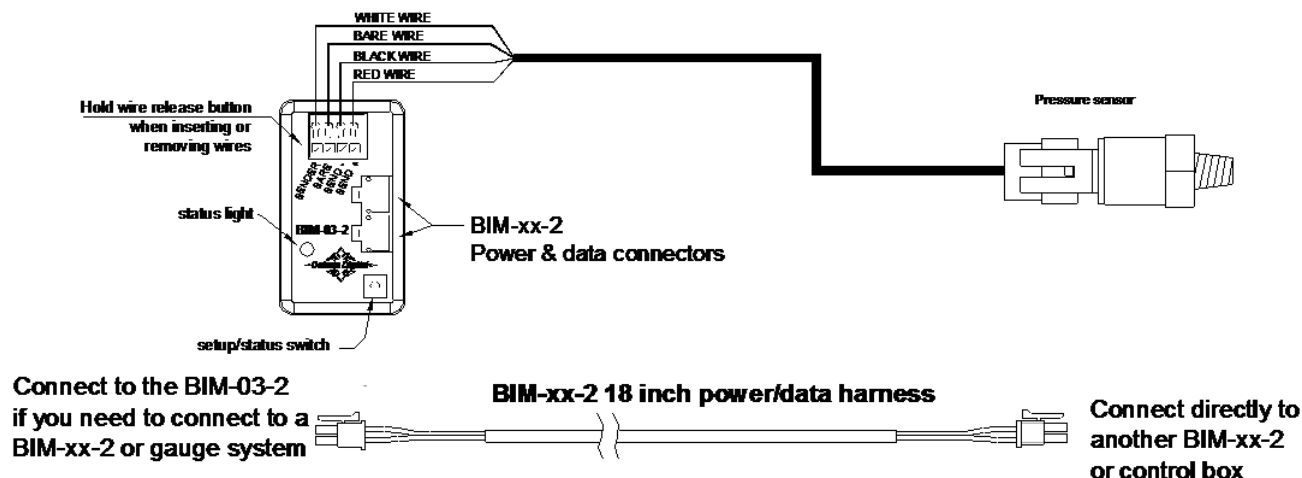




## BIM-03-2 Bus Interface Module for pressure (Sensor is sold separately)



This Bus Interface Module connects to a solid state pressure sensor. There are two power & data 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.

Each unit connected to the bus needs a unique ID number assigned to it. The unit comes preset with an ID value that should not conflict with any other BIM connected to your system. If needed the ID can be automatically reset to an unused value. The factory default label is PSI, but this can be changed in the gauge setup.

### Labels available for each input are:

- PSI - generic pressure input. This will display PSI x, Px, or PRESSURE CHx where x is a number from 1 – 8 corresponding to the module ID number. ID's over 8 will start over at 1.
- FUEL - fuel pressure input. This will display FUEL P, FP, or FUEL PRESSURE.
- AIR - air pressure input. This will display AIR P, AP, or AIR PRESSURE.
- BOOST - vacuum/boost input. This will display BOOST, BP, or VAC / BOOST.
- NOS - nitrous oxide pressure input. This will display NOS P, NP, or NOS PRESSURE.

### Specs for each input are:

	Part #	Range	Resolution	Low Warning	High Warning
PSI	SEN-03-9	0 - 300psi	1	0 – 252	48 – 300
FUEL P	SEN-03-8	0 - 100psi	0.2	0 – 63	9 – 99
AIR P	SEN-03-9	0 - 300psi	1	0 – 252	48 – 300
BOOST	SEN-09-6	30inHg - 80psi	0.2psi/1inHg.	None	7 – 69
NOS P	SEN-23-2	0 - 2000psi	10	600 – 900	900 – 1200

No warning will be active for NOS P if the pressure drops to zero due to the tank being removed.

High pressure spikes found in many diesel applications can drastically shorten the lifespan of a sending unit. In order to protect the sensor from these damaging spikes, a snubber adaptor should be added before the sensor. Due to the vehicle specific nature of these parts, a pressure snubber should be secured from your favorite diesel parts supplier.

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

The ID will not normally need to be changed. A green-red-red flash on the BIM-03-2 status light indicates an ID conflict with another connected BIM. The following procedure will allow the BIM-03-2 to automatically select a new, unused ID.

- Hold the switch on BIM while turning the key on. The BIM status light will be steady RED.
- Release the switch.
- When the status light begins flashing, it is finished.

**The labels and warning points are set up through the gauge display system.****Only VFD3/3X controls with a plastic case support adding BIM's.****For VFD3, VFD3X, and VHX systems follow these steps:**

- Make sure the BIM units are all connected to the gauge control box with the 3.5mm data cables.
- 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 BIM is shown on the message display.
- Press and hold SW1. The message display should show SCAN followed by the number of BIM channels detected. Release SW1.
- If 0 is shown, check all connections and then press and hold SW1 with SCAN shown to retry reading the modules.
- Otherwise, if any other number is shown, press and release SW1 until SETUP is shown.
- Press and hold SW1 until the speed display shows "—" or the message changes.
- Release SW1. On the VFD3 systems the message display will show the label assigned to the first channel found and the speed display will show "C" followed by the channel ID number. On the VHX systems the message display will show "CH" followed by the channel ID number on one line and the label currently assigned on the second line.
- Press and release SW1 until the desired channel ID number is shown.
- Press and hold SW1. The message display will show "LABEL".
- Release SW1. The message display will show the label assigned to this channel.
- Press and release SW1 until the desired label is shown.
- Press and hold SW1. The message display will show "WARN".
- Release SW1. The message display will show "L" followed by the current low warning point or will flash the warning point.
- Press and release SW1 to change the low warning point to the desired value.
- Press and hold SW1 until the speed display shows "—".
- Release SW1. The message display will show "H" followed by the current high warning point or will flash the warning point.
- Press and release SW1 to change the high warning point to the desired value.
- Press and hold SW1. The message display will now show "DONE".
- This can be repeated for additional channels, or the key can be turned off to exit setup.

**For HDX and RTX systems follow these steps:**

- Make sure the BIM units are all connected to the gauge control box.
- HDX: With the ignition on, press and hold both switches to enter SETUP. With external switches hold either one while turning the ignition on. Release the switches when SETUP is shown.
- RTX: With the ignition off, press hold the toggle switch in either direction, and then turn the ignition on to enter SETUP. Release the switch when SETUP is shown.
- Press and release either switch until BIM is selected. Press and hold either switch to enter BIM setup menu.
- Release the switch. A list of the BIM's found should be shown. If NONE FOUND is displayed then check connections to the BIM-03-2.
- Press and release either switch until BIM-03-2 is selected. The status LED on the BIM will flash RED-GREEN.
- Press and hold either switch to enter setup for this module.
- Release the switch. The menu will show FORMAT, LABEL, WARN LO, WARN HI, CALIBRATE, BACK. Any menu that does not apply to this BIM will be grey and cannot be selected.
- Use either switch to select the option you wish to change, (refer to the HDX manual for specifics).
- When you are finished select BACK to return to the BIM selection menu.
- When you are finished, select BACK to return to the BIM list menu, select BACK to return to the main menu, and then select EXIT SETUP to return to normal operation.

**With HDX/RTX systems, the setup can also be done with the Dakota Digital app for Apple and Android devices.**

## Vacuum/Boost setup.

If a Vacuum/Boost sensor is connected to one of the channels, there is an additional step to correct for atmospheric pressure offsets due to elevation. After the BIM unit and sensor are connected and working, turn on the ignition key without starting the engine and wait for 30 seconds. This will zero out the Vacuum/Boost sensor.

## Troubleshooting quick tips:

While the BIM is operating normally, the status light will flash green.

A steady green indicates it is powered up but not receiving any bus activity.

A flashing yellow-red (steady red with a flashing green) indicates an open or shorted temperature sensor connection.

A green flash-red flash indicates the BIM is currently selected in the gauge setup menu.

A green-red-red flash indicates an ID conflict with another connected BIM.

## 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 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 has a steady green light.	Interface cable is not connected. Interface cable is loose. Another BIM is set with the same channel ID. On VHX systems, the BIM display for this channel is disabled.	Connect the supplied 3.5mm data cable between the module and the gauge control box. Make sure both ends of the cable are seated in securely. Test module works when connected to control box alone. Change ID on one of the modules so each module uses a unique ID. Follow instructions in VHX manual to enable the BIM display screen.
Sensor does not show on gauge readout. BIM light is flashing green-red-red	Another BIM is set with the same channel ID.	Test module works when connected to control box alone. Change ID on one of the modules so each module uses a unique ID.
Gauge lights up, but does not read correctly.	Loose connection on sensor wires. Connector not seated on sensor. Channel sensor label setup is incorrect. Voltage or wiring problem in the vehicle wiring harness. Vacuum/Boost sensor is not zeroed.	Inspect and reconnect wires. Reattach the sensor plug, making sure the locking tab clicks in place. Change label by entering BIM setup through gauge system. Check wiring harness for loose or damaged wires. Turn on the ignition key without starting the engine and wait for 30 seconds.
Gauge lights up, but displays "___".	SND terminal is shorted to ground. Sender is damaged.	Check wire for damaged insulation. Replace if necessary. Replace sender.
Gauge lights up, but displays "EEE".	Sender is not connected to gauge. Wire between gauge and sender is broken. Sender is damaged. Module is damaged.	Connect SND terminal on gauge to sender terminal. Test and replace wire. Replace sender. Return module for service. (see instructions)

Sensor voltage tests: (test with BIM powered and sensor connected.)

red wire: 4.5 – 5.0 V

white wire: 0.4 – 4.5V (0.4 – 0.6V with 0 psi)

black wire: 0 volts

With the SEN-09-6 vacuum/boost sensor the 0 psi gauge value will be approximately 1.0 – 1.2V depending on the barometric pressure and altitude.

## **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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