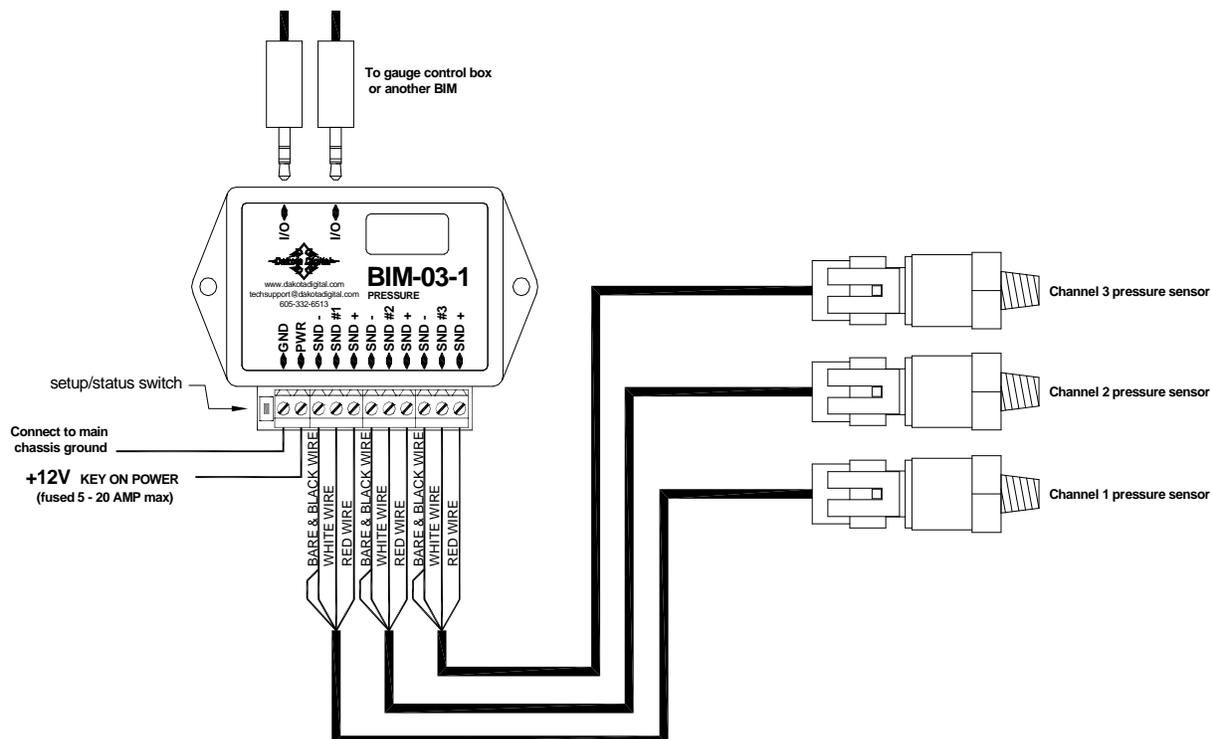




BIM-03-1 Bus Interface Module for pressure (Sensors are sold separately)



This Bus Interface Module has inputs for up to three solid state pressure sensors. Each input can be configured individually. 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.

Each sensor connected to the bus needs a unique ID number assigned to it. This module has three inputs so it can use one, two, or three ID numbers. Each of the three inputs can be assigned an ID from 1 – 16, or turned off. The factory default ID numbers are 9, 10, and OFF for the three inputs respectively. The factory default labels are PSI for all inputs.

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

To set or change the ID numbers:

- Hold the switch beside the BIM terminal strip 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 “-[-”.
- Press the switch. The BIM display will show “[- 1”.
- Release the switch. The display will show the current ID for channel 1.
- Press and release the switch to change the setting from 1-15 or OFF.
- Press and hold the switch to save the setting. The BIM display will show “[- 2”.
- Release the switch. The display will show the current ID for channel 2.
- Press and release the switch to change the setting from 1-15 or OFF.
- Press and hold the switch to save the setting. The BIM display will show “[- 3”.
- Release the switch. The display will show the current ID for channel 3.
- Press and release the switch to change the setting from 1-15 or OFF.
- Press and hold the switch to save the setting. The BIM will restart with the new settings.

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.

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, 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 bus activity. Flashing indicates it is communicating on the bus.

To see the sensor and channel status on the BIM display, press and hold the switch. The display will cycle through four screens. The first will show the sensor input status. Each digit on the display will show the status for one of the channels. 'E' indicates there is a bus ID conflict on that channel ID. '-' indicates the sensor is connected properly. 'H' indicates the sensor is not connected or the signal is too high. 'L' indicates the sensor is not connected, shorted to ground, or is too low. 'C' indicates that a vacuum/boost sensor is getting ready to self calibrate its zero offset. 'D' indicates that a vacuum/boost sensor has completed self calibrating its zero offset. If the input is turned off the digit, will be blank.

The second screen will show the ID assigned to channel 1. The third screen will show the ID assigned to channel 2. The fourth screen will show the ID assigned to channel 3.

Troubleshooting guide.

Problem	Possible cause	Solution
Sensor does not show on gauge readout. BIM will not light up at all.	PWR terminal does not have power.	Connect to a location that has power.
	GND terminal does not have a good ground.	Connect to a different ground location.
	Module is damaged.	Return for service. (see instructions)
Sensor does not show on gauge readout. BIM has a steady dot lit	Interface cable is not connected.	Connect the supplied 3.5mm data cable between the BIM unit and the gauge control box.
	Interface cable is loose.	Make sure both ends of the cable are seated in securely.
	On VHX systems, the BIM display for this channel is disabled. Another BIM is set with the same channel IDs.	Follow instructions in VHX manual to enable the BIM display screen. Test module works when connected to control box alone. Change ID's on one of the modules so each module uses unique IDs.
Gauge lights up, but does not read correctly.	Loose connection on sensor wires.	Inspect and reconnect wires.
	Connector not seated on sensor.	Reattach the sensor plug, making sure the locking tab clicks in place.
	Channel sensor label setup is incorrect.	See the label and warning setup in the manual.
	Incorrect sensor is connected.	Match desired label and range with the correct sensor.
Gauge lights up, but displays "L". ('L' on BIM)	Voltage or wiring problem in the vehicle wiring harness.	Check wiring harness for loose or damaged wires.
	Sensor wire is shorted to ground.	Check wire for damaged insulation. Replace if necessary.
	Sensor is not connected to BIM.	Connect terminals on module to sensor wires. (see wiring diagram)
	Sensor wire is damaged.	Test and replace wire.
Gauge lights up, but displays "EEE". ('H' on BIM)	Sensor is damaged.	Replace sensor.
	Module is damaged.	Return module for service. (see instructions)
	Sensor is not connected to BIM.	Connect terminals on BIM to sensor wires. (see wiring diagram)
BIM display shows "BB-B"	Wire between BIM and sensor is broken.	Test and replace wire.
	Sensor is damaged.	Replace sensor.
	Data cable is damaged.	Inspect and replace 3.5mm data cable.
BIM display shows "BB-B"	Another module on the bus is damaged or connected improperly.	Inspect other modules on the data bus.

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

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 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.

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.



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