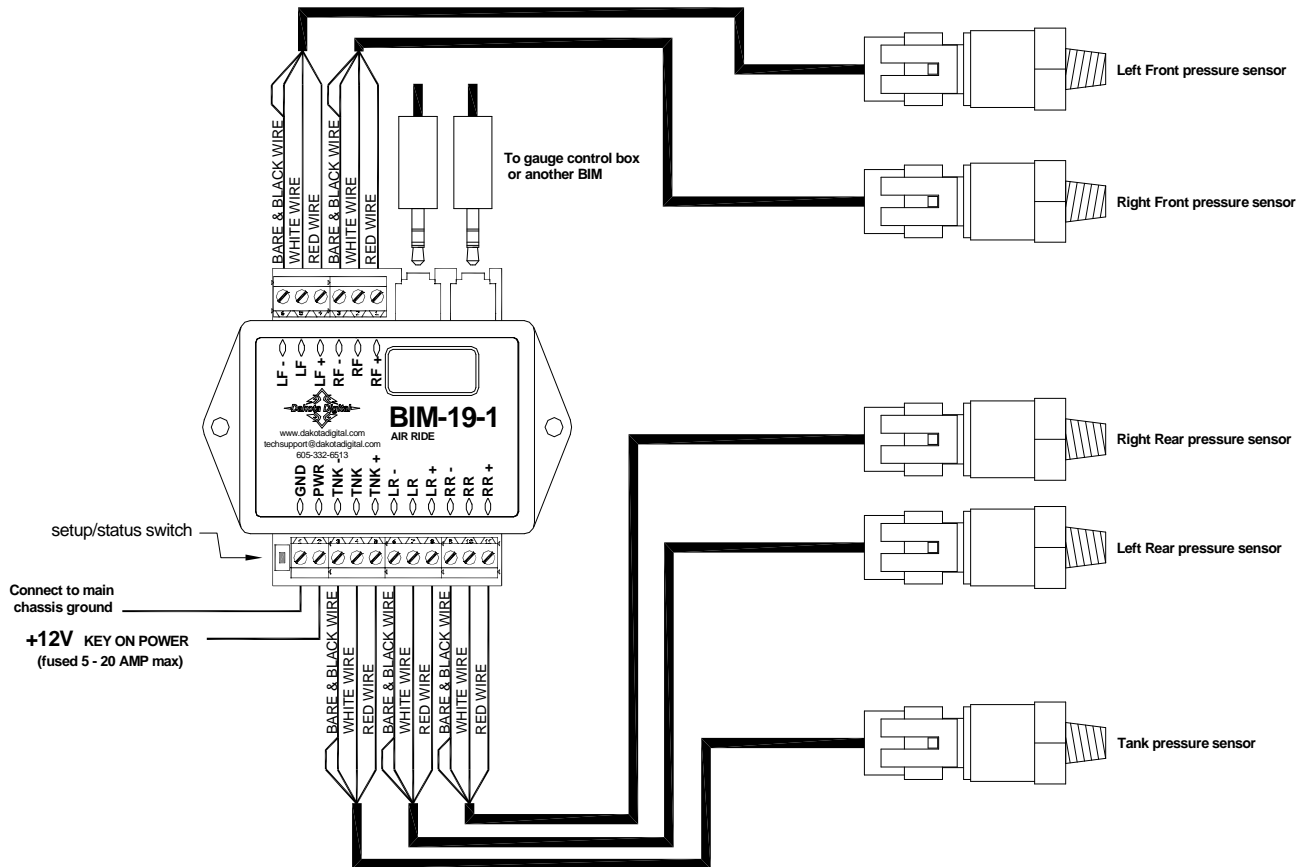


BIM-19 Bus Interface Module for air ride pressure (Sensors are sold separately)



This Bus Interface Module has inputs for up to five 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 five inputs so it can use one, two, three, four, or five ID numbers. The module is assigned an ID from 1 – 16 or turned off and will auto detect how many sensors are connected and use additional ID's as needed. The factory default ID numbers are 12 – 16 with all five sensors connected.

Air Ride setup options:

	4 bag	3 bag	Front/Rear	Left/Right
LR	LEFT REAR	REAR	REAR	LEFT
RR	RIGHT REAR	not connected	not connected	RIGHT
LF	LEFT FRONT	LEFT FRONT	FRONT	not connected
RF	RIGHT FRONT	RIGHT FRONT	not connected	not connected
TNK	TANK (optional for all bag setups)			

Specs for each input are:

Part #	Range	resolution	low warning	high warning
SEN-03-9	0 - 300psi	1	0 – 252	48 – 300

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 the first channel.
- Press and release the switch to change the setting from 1-16 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 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.

Special air ride display screens:

	4 bag	3 bag	Front/Rear	Left/Right	Tank
VHX	000 ^{L-FRONT-R} 000 000 ^{L- REAR-R} 000	000 ^{L-FRONT-R} 000 AIR 000 RIDE	AIR 000 FRONT RIDE 000 REAR	LEFT AIR RIDE RIGHT 000 000	AIR RIDE TANK 000 PSI
	Tank pressure is displayed by pressing and holding the switch to toggle between screens.				
VFD3X	AIR 000 F 000 000 000 R 000	AIR 000 F 000 000 000 REAR	AIR 000 FRONT 000 000 REAR	AIR FRONT PSI 000 R 000	
	Tank pressure is displayed in lower left corner (or PSI if there is no sensor)				

VFD3 systems can only display one pressure at a time on the message center, so pressure readings are displayed the same as other messages and are preceded with TK, LF, RF, LR, or RR.

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 three screens. The first will show the sensor input status. The first digit shows the status for the tank sensor. The second digit shows the status for the Left Front and Left Rear. The third digit shows the status for the Right Front and Right Rear. 'E' indicates there is a bus ID conflict on that channel ID. A solid '-' indicates the sensor is connected properly (tank uses center dash, front uses top dash, and rear uses bottom dash). A flashing '-' indicates the sensor signal is too low or too high. Blank indicates that there is no sensor connected.

The second screen will show the beginning ID number assigned. The third screen will show the number of sensors connected.

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. GND terminal does not have a good ground. Module is damaged.	Connect to a location that has power. Connect to a different ground location. Return for service. (see instructions)
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. Another BIM is set with the same channel IDs.	Connect the supplied 3.5mm data cable 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. 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. Connector not seated on sensor. Voltage or wiring problem in the vehicle wiring harness.	Inspect and reconnect wires. Reattach the sensor plug, making sure the locking tab clicks in place. Check wiring harness for loose or damaged wires.
Gauge reading is blank and no '-' on BIM	Sensor is not connected to BIM.	Connect terminals on BIM to sensor wires. (see wiring diagram)
Gauge lights up, but displays "----". (flashing '-' on BIM)	Sensor wire is shorted to ground. Wire between gauge and sensor is damaged or broken. Sensor is damaged. Module is damaged.	Check wire for damaged insulation. Replace if necessary. Test and replace wires. Replace sensor. Return module for service. (see instructions)
Gauge lights up, but displays "EEE". (flashing '-' on BIM)	Wire between gauge and sensor is damaged or broken. Sensor is damaged.	Test and replace wires. Replace sensor.
BIM display shows "BB-B"	Data cable is damaged. Another module on the bus is damaged or connected improperly.	Inspect and replace 3.5mm data cable. 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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