

VEI Systems Installation Instructions

V1-WBA-Mx – Wideband AFR Display

Please read these instructions completely before beginning installation to ensure that you have the tools and skills necessary for installation and operation of this instrument. If you are not sure that you can perform the installation safely, then consult a qualified installer. Further instructions available at www.VEISystems.com/technical.html.

FEATURES

The Wideband Air-Fuel Ratio display accepts an analog signal within the range of 0 to 5 volts and displays this as a linearly-mapped air-fuel ratio value. The specific linear range (displayed output) is user-programmable into the gauge, and can have a positive or negative slope. In other words, the displayed value at 5V can be lower than the displayed value at 0V. You only need to set the 2 endpoints of the line, and the gauge will interpolate the rest depending on the input received at any time. The gauge also has powerful user-adjustable software-filtering levels. The gauge will store the endpoints, and other relevant settings in non-volatile memory, such that the gauge will still remember the user settings even if the battery is disconnected.

This gauge requires an independent wideband air-fuel ratio controller that outputs a 0-5V analog signal representing a linear AFR value. Most of the popular wideband controllers do.

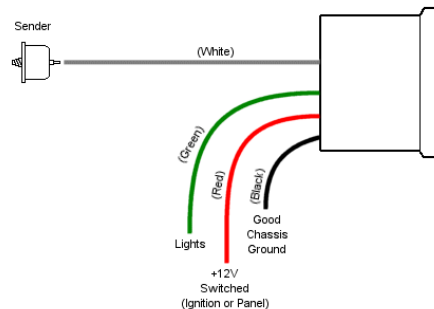
MOUNTING

Install the unit through the front of the mounting hole in the dash pod or panel. If you are making a custom dash panel, you will need to drill a 2-1/16" hole. Slide the clamp onto the 2 studs on the back of the instrument. Secure with the 2 thumb-nuts. Use a small drop of threadlocker or nail polish on the thumb-nuts to prevent them from loosening under vibration.

Install the controller as per the instructions supplied with that.

WIRING

The wires should be connected as below using crimp-on butt-splice connectors, or soldered and sealed with heat-shrink tubing. Before connecting any wires, you should either disconnect the battery power, or carefully connect the wires in the order shown. If not, you may damage the instrument. Use an existing fuse in the fuse panel, or an external fuse to supply power to the instrument. The V1 series instruments use an average of 105mA of current, and a maximum of about 175mA, so ensure the fuse is sized appropriately. For a typical 6- or 7-gauge setup, a single 5 Amp fuse is good.



- BLACK -- connect to a solid chassis ground under the dashboard, or directly to the battery. You may need to expose the metal connection point under the dash by scraping or lightly sanding it. A ring terminal and a screw should work well in most cases.
- RED -- connect this to a source of **switched** +12V power. This will usually be found at or near the ignition switch, and will usually have a relay wired through the ignition switch. An alternate source of this is a switched power line from a nearby light or accessory (radio, etc). If you are unsure that the wire can supply the power required for the instrument, then use an external relay.
- GREEN -- connect this wire to the positive line (+12V) from the headlight switch. When this line receives a positive voltage, the gauge will use the "park-lights" brightness setting. Alternatively, if setting up a racing-mode display, this can be connected to a separate mode switch (12V or 0V signal).
- WHITE -- connect this wire to output of the wideband controller. Note that the input of the WBA has an input impedance of no less than 25 Kilo-ohms, which is quite high and poses minimal load to the signal source. But if possible, you should verify anyway that this is acceptable to your sender/controller.

OPERATION

There are 2 settings sections – one for configuring the data to be displayed, and another for general settings. The data setup should be performed first as follows: with the ignition key off, press the button on the gauge and hold it down. While down, turn the ignition key to the ON position (do not start the vehicle) so that the gauge powers up. It will go directly into the first mode of the data configuration section. Here you will set the endpoints for the linear data-set to be displayed, the range, and the software-filtering level.

In this data-configuration section, press and hold the button for a few seconds to change the mode. Press and release quickly (tap the button) to change the setting in any mode. Some of this may take time, so plan everything first and you'll save yourself some hassles. Data configuration modes are as follows:

MODE	DISPLAY	SETTINGS
Set range	0 . 00	Tap button to select between the range – either 0.00 to 9.99, 0.0 to 99.9 or 0 to 999.
Set 0V endpoint	Ya	Sets the Y-value (output/display value) represented by an input voltage of 0V.
Set 5V endpoint	Yb	Sets the Y-value (output/display value) represented by an input voltage of 5V.
Set software filter level	Iir	Sets the filter level from 1 (soft/slow) to 15 (hard/fast), or off.

Once the data points have been set, you can continue around back to the first data-configuration mode, or you can switch off the ignition key. When the gauge is powered up again, it will go into the regular operational section. In this section, modes are as follows:

MODE	DISPLAY	SETTINGS
Normal	(Output value)	Tap button to reset bargraph peak indication.
Peak mode	P . On	Sets the peak mode On or Off.
Bargraph mode	bg . b	Sets the bargraph mode to bar or dot.
Brightness Regular	Br . 9	Last digit shows regular brightness level from 1 to 9.
Brightness park-lights on	BP . 1	Last digit shows brightness level with lights on from 1 to 9.

WARRANTY & LIABILITY

Neither VEI Systems, nor its dealers or agents shall be liable in any way, for any damage, loss, injury or other claims, resulting from the installation or use of this product. By purchasing or installing this product, you assume all liability of any kind connected with the use and/or application of this product. If you are unsure that you can safely install and use this product, consult a qualified installer or mechanic. The warranty on this product covers only the product itself for a period of 1 year from the date of purchase, and it will be at our discretion to repair or replace the affected parts. No user serviceable parts inside. Warranty void if product enclosure opened.