

Dynojet

DIGITAL AFR MONITOR **WIDE BAND 2**



INSTALLATION GUIDE

www.dynojetwb2.com

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Wideband 2 Installation Guide

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INSTALLATION

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PARTS LIST

| quantity | description |
|-----------------|--|
| 1 | Wideband 2 Module |
| 1 | Data Acquisition Cable (optional with 15-7011 kit) |
| 1 | Bosch LSU 4.2 Wide Band Oxygen Sensor |
| 1 | Oxygen Sensor Cable |
| 1 | Oxygen Sensor Weld Bung, Plug, and Copper Washer |
| 2 | Dynojet CAN-Link Port Seals |
| 3 | Wire Tap |
| 1 | Blade Fuse Tap |
| 1 | Mini Blade Fuse Tap |
| 1 | Quick Lug |
| 1 | Terminal Strip Plug |
| 2 | Dual Lock Strips |
| 1 | Alcohol Swab |
| 3 | Zip Ties |
| 1 | Warranty Registration Card |
| 2 | Dynojet Decals |

WIDEBAND 2 SPECIFICATIONS

| description | specification |
|------------------------|--|
| Power Requirement | 11.5 - 15 VDC, 3A |
| Dimensions | 2.80"w x .56"h x 1.488"d |
| Range | .68 lambda - ambient air |
| Inputs | |
| Analog | 0 - 5 VDC |
| Digital | Square wave, 0 - 12 V nominal (coil (-) tachometer signal) |
| Outputs | |
| Gauge Driver | 0 - 5 VDC analog |
| Calibrated AFR | 0 - 5 VDC analog |
| Simulated Narrow Band | |
| Expansion Connectivity | Dynojet CAN-Link (accessory cable required) |

ELECTRICAL LAYOUT

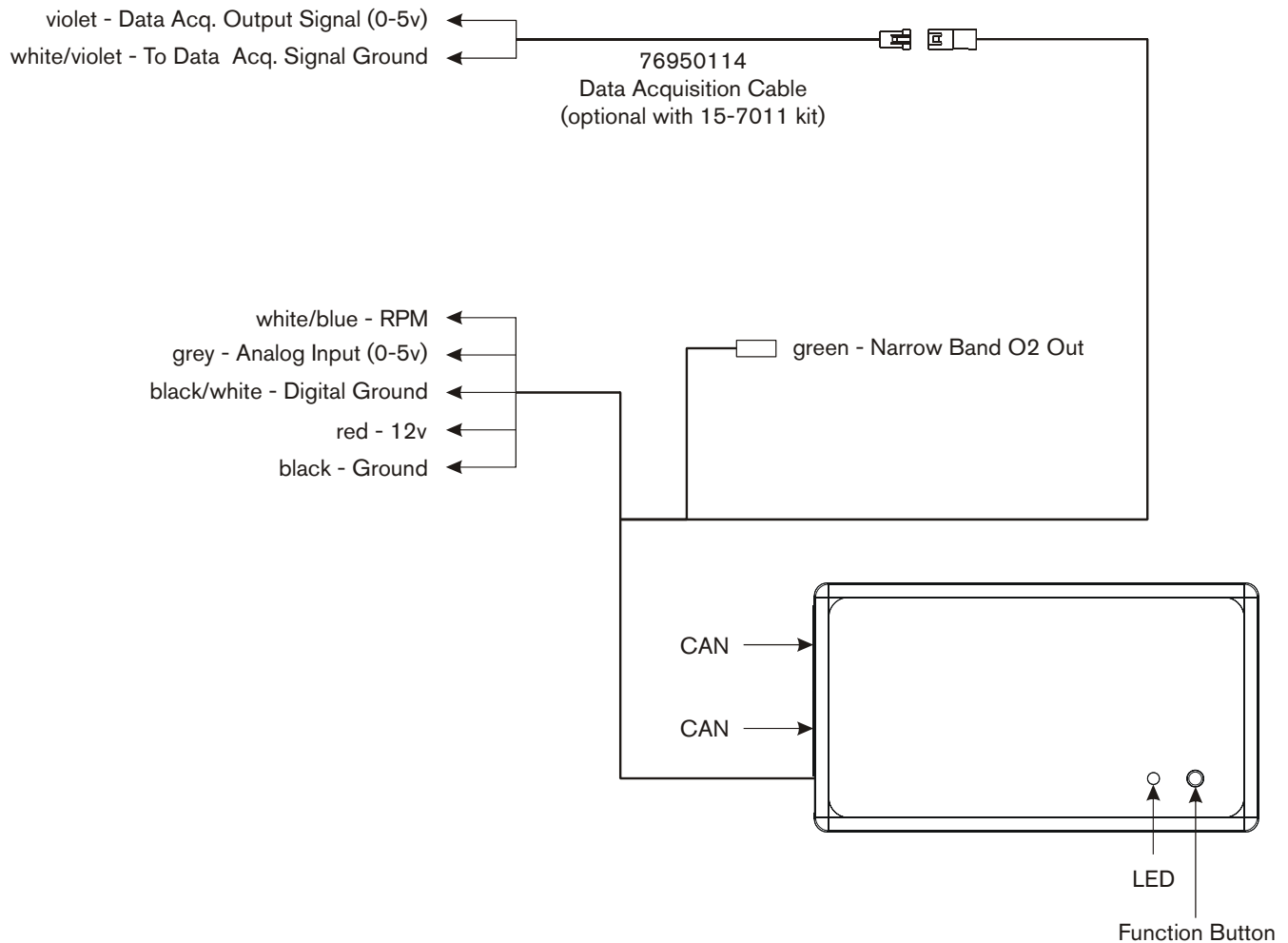


Figure A

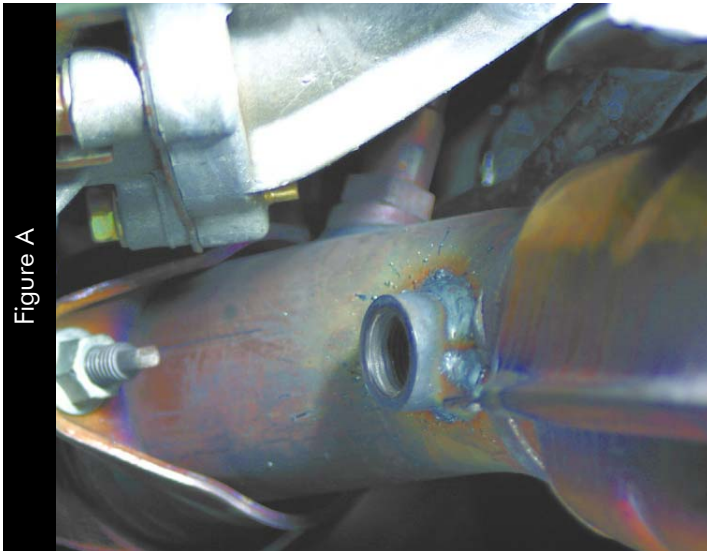


Figure B

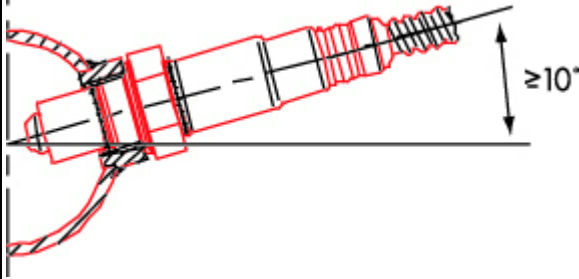


Figure C



REQUIRED CONNECTIONS

SECTION 1 - WELD BOSS AND OXYGEN SENSOR INSTALLATION

INSTALLING THE WELD BOSS—AUTOMOTIVE

- 1 Find a suitable location to install the included M18 x 1.5mm weld boss on the exhaust system as shown in Figure A.

On vehicles equipped with catalytic converters, Dynojet recommends installing the weld boss before the converters. Vehicles that do not utilize catalytic converters are free to install the boss anywhere in the exhaust, but we recommend keeping it within thirty inches of the exhaust port.

Turbocharged vehicles have rather high exhaust gas temperatures and pressures.

In these applications, it is best to install the weld boss in the down pipe as far away from the exhaust turbine as possible.

Note: Never install the sensor in the exhaust manifold between the cylinder head and the turbo.

- 2 Mount the weld boss in a manner that reduces the risk of moisture contamination on the sensor. Condensation can build up in the exhaust pipes and potentially damage the sensor.

- 3 Ideally, you should orient the weld boss so the sensor is between the 9 o'clock and 3 o'clock position (reading clockwise) as shown in Figure B. A 10° inclination off the horizontal plane should be considered a minimum.

Note: Verify you have adequate clearance for the sensor and wiring harness.

INSTALLING THE OXYGEN SENSOR—AUTOMOTIVE

- 1 Thread the sensor into the weld boss as shown in Figure C.

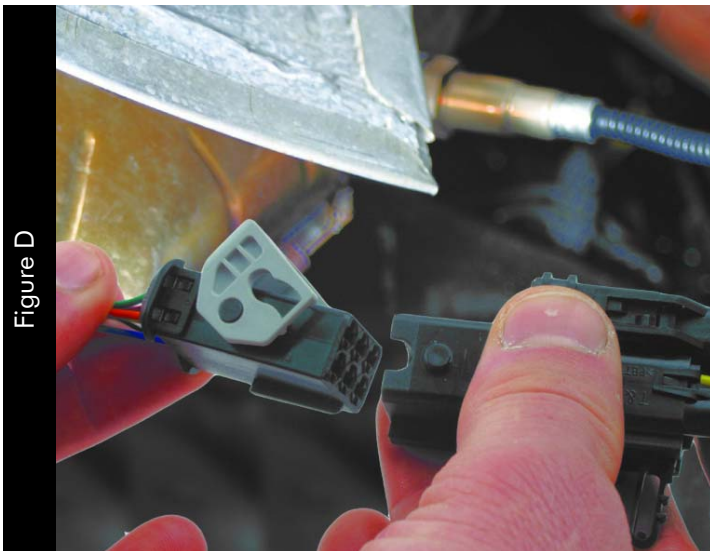


Figure D

- 2 Connect the O2 Sensor to the supplied wiring harness as shown in Figure D.

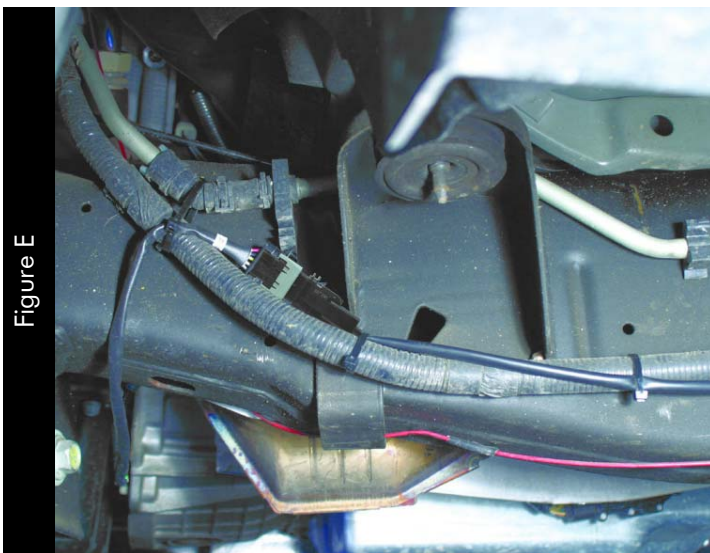


Figure E

- 3 Find a suitable location to run the wiring to the Wideband 2 control module as shown in Figure E.

Note: Verify the wiring is free and clear of abrasion and heat sources.

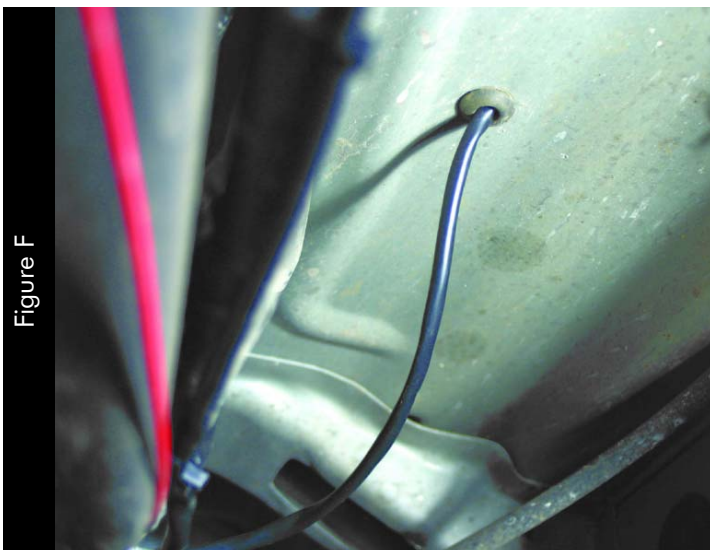


Figure F

- 4 Route the wiring through a factory grommet as shown in Figure F.

If you are unable to find a factory grommet to pass the wiring through, drill a hole large enough to accommodate the wiring. Make sure to use a grommet to protect the wiring.

Note: It is very important that the Wideband 2 Sensor is powered up when the vehicle is running. The sensor may become damaged if the vehicle is running and the Wideband 2 is not receiving power. In the event that you do not have power running to the sensor, remove the sensor and install the weld boss plug included in the Wideband 2 kit.

Note: Running the sensor in leaded fuel applications decreases the service life of the sensor.

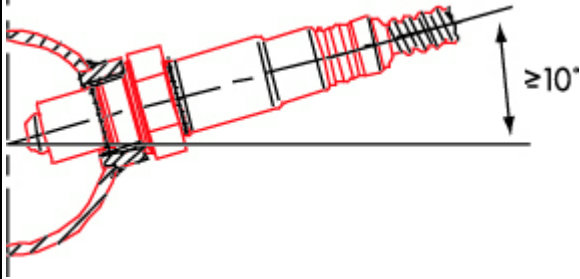
Figure G



INSTALLING THE WELD BOSS—MOTORCYCLE

- 1 If your exhaust has an o2 bung (18mm x 1.5), go ahead and screw the included Wideband Oxygen Sensor into this location. If you have to drill a hole for a new bung (mild steel bung included), we recommend doing so before the catalytic converter (if applicable). Positioning the weld bung in a location where multiple cylinders collect is the preferred location. If your application has a "2-into-2" design, it's recommend to position the weld bung /sensor approximately 6" from the exhaust port on the respective cylinder you wish to measure.

Figure H



- 2 Mount the weld boss in a manner that reduces the risk of moisture contamination on the sensor. Condensation can build up in the exhaust pipes and potentially damage the sensor.
- 3 Ideally, you should orient the weld boss so the sensor is between the 9 o'clock and 3 o'clock position (reading clockwise) as shown in Figure H. A 10° inclination off the horizontal plane should be considered a minimum.
Note: Verify you have adequate clearance for the sensor and wiring harness.

Figure I



INSTALLING THE OXYGEN SENSOR—MOTORCYCLE

- 1 Thread the sensor into the weld boss as shown in Figure I.

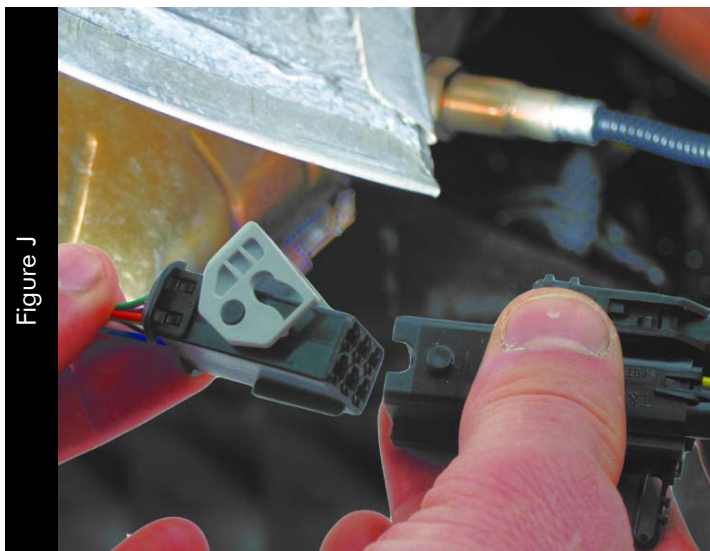


Figure J

2 Connect the O2 Sensor to the supplied wiring harness as shown in Figure J.

3 Route the wiring to the Wideband 2 module. Use the supplied zip ties to secure the wire bundle to the motorcycle.

Note: Verify the wiring is free and clear of abrasion and heat sources.

Note: It is very important that the Wideband 2 Sensor is powered up when the vehicle is running. The sensor may become damaged if the vehicle is running and the Wideband 2 is not receiving power. In the event that you do not have power running to the sensor, remove the sensor and install the weld boss plug included in the Wideband 2 kit.

Note: Running the sensor in leaded fuel applications decreases the service life of the sensor.



Figure K

SECTION 2 - WIDEBAND 2 MODULE INSTALLATION

AUTOMOTIVE

1 The module is robust and water resistant and can be mounted inside the vehicle or under the hood. Verify the CAN-Link Ports are accessible for data transfer.

Note: Install the CAN-Link Expansion Port seals when the ports are not in use.

2 Mount the module using the supplied dual lock strips or other suitable means as shown in Figure K.

When using the dual lock strips, please clean the surfaces thoroughly with the supplied alcohol swab.



Figure L

MOTORCYCLE

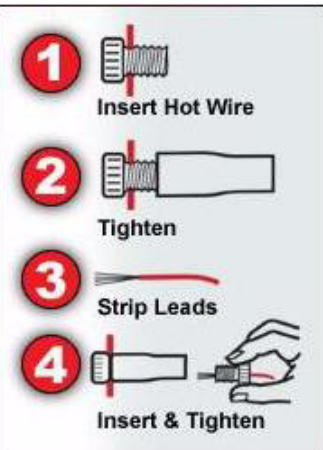
1 On most motorcycle applications the best place to mount the Wideband 2 module is under the seat or in the tail section of the motorcycle. Verify the CAN-Link Ports are accessible for data transfer.

Note: Install the CAN-Link Expansion Port seals when the ports are not in use.

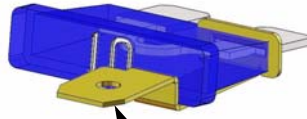
2 Mount the module using the supplied dual lock strips or other suitable means as shown in Figure L.

When using the dual lock strips, please clean the surfaces thoroughly with the supplied alcohol swab.

install the wire tap



choose a fuse tap based on fuse type



fuse tap installed on fuse

Figure M

SECTION 3 - POWER AND GROUND WIRE INSTALLATION

CONNECTING THE POWER WIRE—AUTOMOTIVE AND MOTORCYCLE

Connect the red power wire to a 12 volt "Fused Key On" power source.

This type of power source only has power when the ignition switch is turned on. A wire tap, along with two different sizes of blade fuse taps and a quick lug, is included for easy installation. Refer to Figure M.

Note: If you are not sure, please refer to a workshop manual or electrical diagram for your vehicle or consult a specialist.

CONNECTING THE GROUND WIRE—AUTOMOTIVE

Connect the black and the black/white wires to a good ground location with the eyelets provided. Refer to Figure N.

When using the Analog Input on the Wideband 2, you may need to run the black/white wire to the sensor ground. For example, using the Analog Input to measure TPS voltage, you would tie the black/white wire to the TPS sensor ground.

CAUTION

Never connect the black wire to a sensor ground.

Note: Verify the wiring is free and clear of abrasion and heat sources.

CONNECTING THE GROUND WIRE—MOTORCYCLE

Connect the black and the black/white wires to a good ground location with the eyelets provided. Refer to Figure O.

When using the Analog Input on the Wideband 2, you may need to run the black/white wire to the sensor ground. For example, using the Analog Input to measure TPS voltage, you would tie the black/white wire to the TPS sensor ground.

Note: Consult your motorcycle's service manual for more information on wire definitions and colors.

CAUTION

Never connect the black wire to a sensor ground.

Note: Verify the wiring is free and clear of abrasion and heat sources.

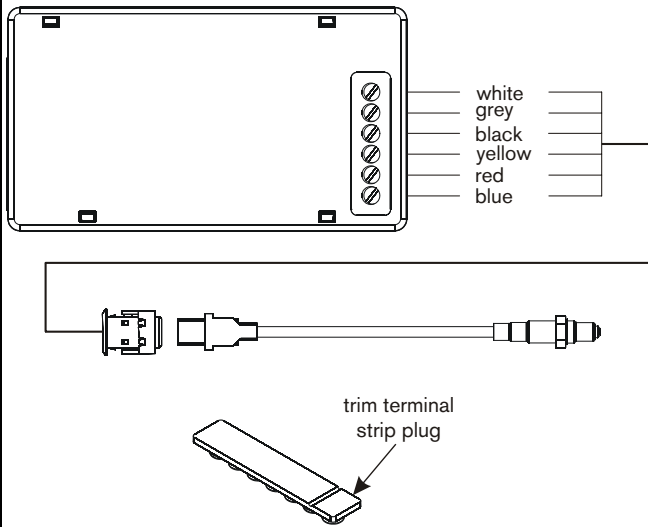


Figure N



Figure O

Figure P



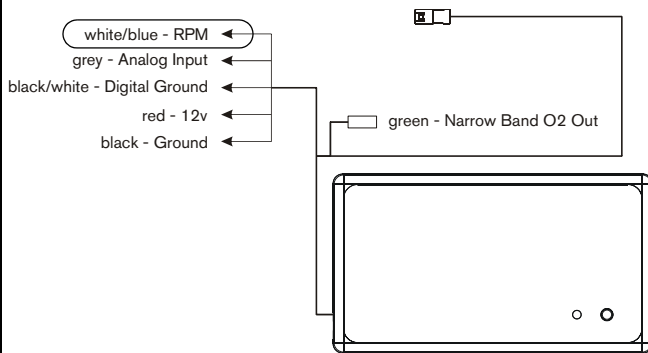
CONNECTING THE O2 SENSOR CABLE

Attach the O2 Sensor wiring harness wires to the screw terminal as shown in Figure P.

- 1 Using the color coded decal on the Wideband 2 module, install the wires into the correct location. The wires pierce a foam gasket.
- 2 Install the supplied terminal strip plug when mounting the Wideband 2 under the hood or in an area that may be exposed to moisture or dirt.

Note: The supplied terminal strip plug may need to be trimmed before installation.

Figure Q



OPTIONAL CONNECTIONS

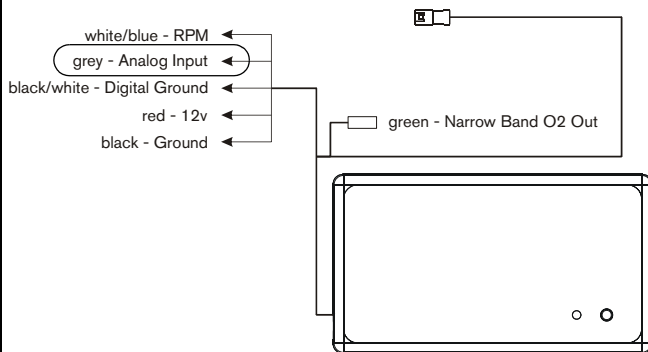
SECTION 4 - DIGITAL INPUT (RPM) WIRE

There is one digital RPM input channel built into the Wideband 2.

- 1 Locate the white/blue wire in the main harness as shown in Figure Q.
- 2 Using a supplied wire-tap, connect the white/blue wire to the negative side of the ignition coil.

This provides a stable RPM signal without the need for a special "tach adaptor".

Figure R



SECTION 5 - ANALOG INPUT WIRE

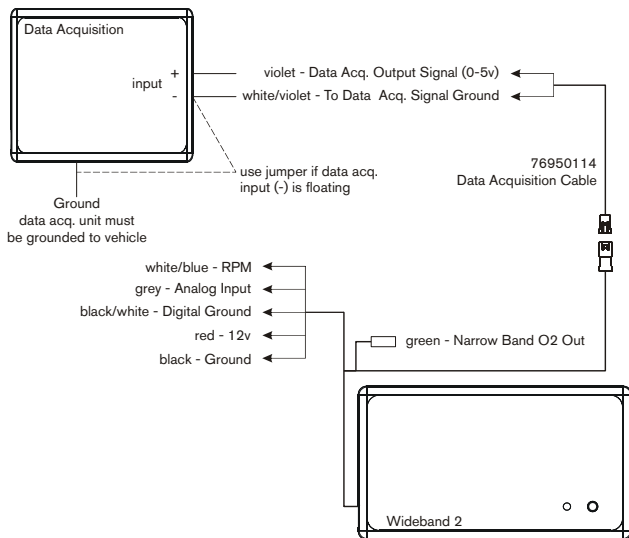
There is one analog input channel built into the Wideband 2.

- 1 Locate the grey wire in the main harness as shown in Figure R.
- 2 Connect the grey wire to a 0-5v "variable voltage" analog signal.

Most 0-5v type sensors (such as TPS, MAF, or MAP) have three wires:

- +5 volt reference
- ground
- 0 - 5 volt signal

Figure S



SECTION 6 - DATA ACQUISITION OUTPUT WIRES

The Data Acquisition cable is designed to produce a calibrated lambda/AFR output voltage that ranges from 0 - 5 volts.

Your data acquisition device, or flash tuner device, should have a provision in their software to define the analog input. Enter the following formula:
 $(Volts * 1.6) + 10 = AFR$.

The Data Acquisition cable has two wires as shown in Figure S:

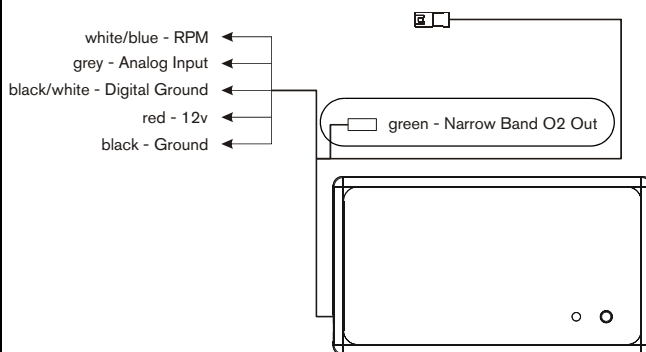
- violet wire is the 0 - 5 volt signal
- white/violet wire connects to the data acquisition device ground reference

Note: The white/violet wire is not a ground; however, it needs to be connected to a ground. It is important the data acquisition device has its own ground to the vehicle.

Data acquisition device types are varied. Some may be grounded by connecting to the vehicle's diagnostic port. If no other ground exists, you must run a ground wire from the data acquisition system to the vehicle chassis ground as shown in Figure S.

Refer to the data acquisition documentation for more information.

Figure T

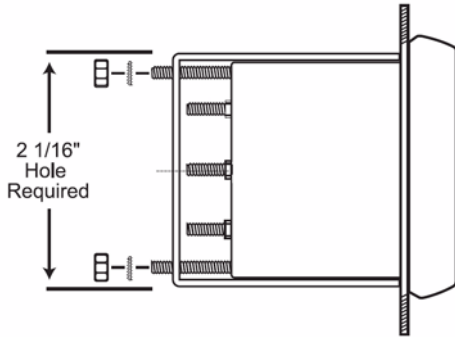


SECTION 7 - SIMULATED NARROW BAND OUTPUT WIRE

The Wideband 2 provides a Simulated Narrow Band Output signal as shown in Figure T.

Contact Dynojet for more details on this feature.

Figure U



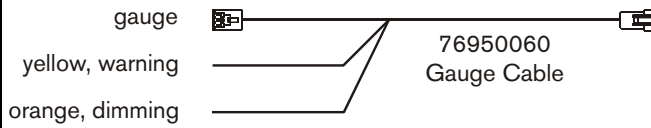
OPTIONAL ACCESSORY CONNECTIONS

SECTION 8 - ELECTRICAL GAUGE IN VEHICLE DASH INSTALLATION

A 2 1/16th diameter hole is required for the gauge, as shown in Figure U, which can be mounted in-dash or in an aftermarket gauge pod.

The gauge cable must be routed to the Wideband 2 Module and connected to the four pin connector or to the optional Data Acquisition/Gauge Cable (P/N 76950118).

Figure V



When the yellow wire is grounded, as shown in Figure V, the warning light will turn on and the alarm will sound. The alarm is selectable with a dip switch on the back of the gauge.

Apply 12v to the orange wire to dim the backlighting to nighttime intensity as shown in Figure V.

Gauge Part Numbers:

| part number | description |
|-------------|-------------------------|
| 15-7018 | White Analog Gauge Kit |
| 15-7019 | Black Analog Gauge Kit |
| 15-7020 | White Digital Gauge Kit |
| 15-7021 | Black Digital Gauge Kit |

Figure W



SECTION 9 - OPTIONAL LCD

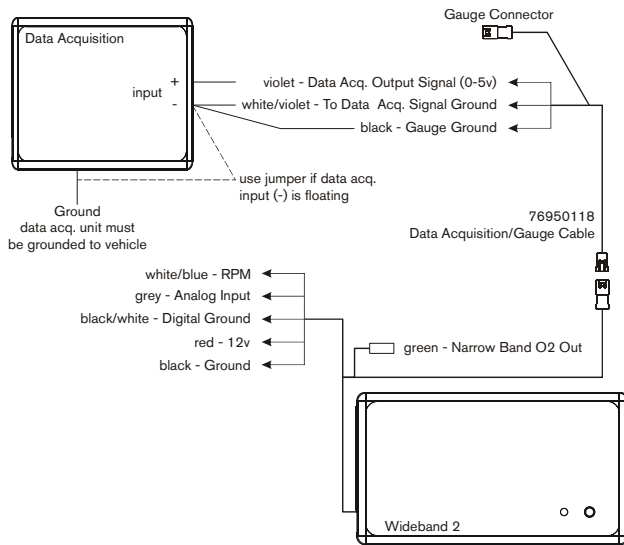
The optional LCD Display allows you to view and record data from the Wideband 2 and other Dynojet devices.

Visit www.DynojetWB2.com for more information.

The LCD Display includes a cable to connect to one of the CAN ports on the Wideband 2.

Note: Be sure to use a CAN termination plug in the CAN connection port not being used.

Figure X



SECTION 10 - OPTIONAL DATA ACQUISITION/GAUGE HARNESS INSTALLATION

The Data Acquisition/Gauge Cable (P/N 76950118) allows you to use the data acquisition output and one of the optional gauges at the same time. Refer to Figure X.

Note: Before connecting the Data Acquisition/Gauge cable, be sure to read and understand “Section 6 - Data Acquisition Output Wires”.

The Data Acquisition/Gauge cable has three wires as shown in Figure X:

- violet wire is the 0 - 5 volt signal
- white/violet wire connects to the data acquisition device ground reference
- black wire is the ground for the gauge

Note: This black wire is the ground for the gauge and is not a ground coming from the module. The data acquisition device needs to have its own ground to the vehicle.

Data acquisition device types are varied. Some may be grounded by connecting to the vehicle's diagnostic port. If no other ground exists, you must run a ground wire from the data acquisition system to the vehicle chassis ground as shown in Figure X.

Refer to the data acquisition documentation for more information.

SENSOR TEST

SECTION 11 - SENSOR CONDITION TEST

The Wideband 2 has a built in circuit which allows you to test the sensor accuracy and condition.

- 1 Verify the sensor is exposed to clean ambient air.
- 2 Verify the Wideband 2 has been on for at least one minute.
- 3 Press and hold the function button for three seconds and release the button.

The LED light will blink rapidly, pause for a moment, and then begin to flash.

- 4 Count the number of flashes and refer to the Sensor Condition Chart as shown in Figure Y.

If the sensor is out of the range shown on the chart, the Wideband 2 will show quick continuous blinks. This indicates a bad sensor. Turn the power off and replace the sensor before continuing.

- 5 Retest the sensor if there is any question as to the purity of the air during the test.

Figure Y

