Installation

1. Disconnect the negative (-) battery cable.
2. Gauge can be mounted in a 2 1/16" dia. hole with brackets supplied. Gauge can also be mounted in Auto Meter Mounting Cup, or in Auto Meter Gauge Works Pods.
3. Wire gauge as shown.

Red Wire (Power): Connect to a fused and switched 12V positive source that is turned on and off with the ignition switch. Place a 3 amp automotive fuse (available commercially) in line with this connection to protect your gauge. It is recommended that vehicles without alternators connect this wire to a separate switch or direct to the vehicle’s master cutoff switch. (See Sensor Heating Element Section)

Black Wire (Ground): Connect to good engine ground.

WARNING: Sender Will Get Very Hot During Operation.

NOTICE: This sensor will not operate unless the vehicle voltage reaches 13.5V

All O2 sensors must be heated before an accurate signal is produced. Potential sensor damage can occur if the gauge begins to heat the sensor before the engine is running due to condensation that forms on the sensor tip and in the exhaust. To accommodate this, an internal trigger within the gauge will automatically begin heating the sensor when 13.5 Volts or higher is seen on the red wire. While the gauge does not require 13.5 Volts to operate (12 Volts will suffice), this voltage is used to indicate to the gauge that the engine is running as most regulated charging systems will maintain 14 volts or higher. Once the gauge sees 13.5 Volts it will begin heating the sensor and will transition from (---) to a 20 second countdown on the seven-segment display. Once the countdown is complete the sensor is heated and the gauge will begin reading air/fuel ratio in real-time.

1.  The exhaust pipe in front of the sensor should not contain any pockets, projections, protrusions, edges, flex-tubes etc. to avoid accumulation of condensation. A downwards slope of the pipe is recommended. If the exhaust pipe is parallel to the ground, the sensor must be installed in the top half of the pipe to avoid damage to due to condensation
2.  Tightening torque: 30-44 ft lbs.
3.  Avoid excessive heating of the sensor cable. Route sensor cable away from exhaust pipe.
4.  The maximum temperature of the sensor on the outside of the exhaust fitting should not exceed 900°F.

Sensor Heating Element

WARNING: Sender Will Get Very Hot During Operation.

NOTICE: This sensor will not operate unless the vehicle voltage reaches 13.5V

The Air / Fuel Ratio Monitor can be used with the following fuels.

<table>
<thead>
<tr>
<th>Fuels</th>
<th>Stoichiometric Air / Fuel Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unleaded Gasoline</td>
<td>14.7:1</td>
</tr>
<tr>
<td>Methanol</td>
<td>6.4:1</td>
</tr>
<tr>
<td>Ethanol</td>
<td>9.0:1</td>
</tr>
<tr>
<td>LPG (Propane)</td>
<td>15.5:1</td>
</tr>
<tr>
<td>CNG</td>
<td>17.2:1</td>
</tr>
</tbody>
</table>

NOTE: OK for use with Nitrous Oxide.

NOTE: Stoichiometric Air / Fuel Ratio is the chemically correct ratio where theoretically all of the oxygen and all of the fuel are consumed. The mixture is neither rich or lean.
Operation Guide

This product has many features that can be adjusted for your specific application. Use the Nexus Remote buttons to navigate menu options, confirm selections, and fine tune options to your needs.

Acronyms:
A list of acronyms and abbreviations are defined below in order to help you more clearly understand the menu operations, functions, and components available on your Auto Meter Wideband Air/Fuel gauge:

BGD – Bar Graph Display. This is the curved, multi-color, LED radial display used to indicate how “Rich” or “Lean” the current Air Fuel or Lambda reading is relative to your Stoichiometric point with respect to your upper and lower range tolerances.

SSD – Seven Segment Display. This is the digital numeric display that indicates your current Air Fuel or Lambda reading. This display is also used to help you navigate and make changes to your settings.

AFR – Air / Fuel Ratio. This is shown as a numeric value on the SSD, characterized by only having a single decimal place (i.e. 14.7). This value is also visually represented on the BGD, indicating whether the value is “Rich” or “Lean” of the selected Stoichiometric value and relative to the upper and lower range tolerances. AFR, as the name implies, represents the ratio of Air to Fuel being mixed and consumed, in real time, by the engine / vehicle upon which this instrument has been installed.

λ, Lambda, is an alternate way of expressing AFR, assuming that the stoichiometric point selected equals one and readings “rich” or “lean” will be expressed as values above or below one, characterized by a value displayed with two decimal places, (i.e. 1.00). The gauge can display data in either AFR or Lambda as needed by the user.

Real-Time Mode:
Real-Time mode is the default mode of operation for this product. When Real-Time mode is active, the instrument will display the current air/fuel ratio in either AFR or Lambda.

To Toggle Between AFR and Lambda Display Types:
- Press the peak button on the Nexus remote until the PEAK light is lit on the Air/Fuel gauge, and it is displaying the recorded peak value.
- Once the Peak value is displayed, press the Play (►II) button on the remote. “dSP” should now be shown on the gauge display, indicating the menu option to select display type, Air/Fuel Ratio or Lambda.
- Use the Fast Forward (►II) Button to scroll to your current selection. “AFr” for Air/Fuel Ratio or “LA” for Lambda.
  **Note:** Remember that AFR values have a single decimal place (i.e. 14.7), and that Lambda values have two decimal places (i.e. 1.00)
- Use the Play/Pause (►II) button and the Stop (■) button to scroll between the display types. Once you have selected the desired display type, press the Record (●) button to confirm your selection and return to the menu options.
  **Note:** To cancel or exit without saving changes, press the Rewind (◄◄) button. The previous setting will be retained.

You are now in the Air/Fuel Menu Options. This operation is detailed below.

- Peak/Recall – SSD will display current peak value and PEAK light on gauge will turn on.
- Alarm/Warning – SSD will display current warning value and WARN light on gauge will turn on.
- Record – Gauge will record all data received and allow for playback analysis using the Nexus remote. The REC light on the gauge face will be lit while you are recording data.

The next three functions require you to access the Air/Fuel Menu Options.

- Display Type – SSD will display “dSP”
- Stoichiometric AFR Setting – SSD will display “ScH”
- BGD Range – SSD will display “bAr”

To Access the Air/Fuel Menu Options:

- Press the Peak button on the Nexus remote until the PEAK Light is lit on the Air/Fuel gauge, and it is displaying the recorded peak value.
- Once the Peak value is displayed, press the Play (►II) button on the remote. “dSP” should now be shown on the gauge display. You are now in the Air/Fuel Menu Options mode. Use the Play (►II) and Stop (■) buttons on the remote to cycle through the menu choices.
- Once your selection is made (or you have exited without saving) and the gauge is showing “ScH”, use the Stop (■) button to scroll until the gauge display shows “End” then press the Right Arrow or Record (►II) and once on the display reads “YES” then press the Record (●) button to exit the menu and return to Real-Time Mode.

Peak/Recall Mode:
Peak/Recall mode provides you with a quick and easy way to find out exactly how “Lean” your engine / vehicle got during the last pull, run, or race.

To View:

- Press the PEAK button on the remote once to view all peak readings of instruments on the network. Press the PEAK button again until only the PEAK light on the Air/Fuel gauge is lit to view the Peak/Recall value on that instrument only.

To Clear:

- Press the Stop button on the remote in order to clear the current Peak/Recall value.
  If no button presses are made for 3 seconds after the Peak Value is displayed, the gauge will return to Real-Time Mode.
Alarm/Warning Mode:

Unlike other Nexus instruments, the Wideband Air/Fuel gauge will not change color to indicate a warning condition. Instead, when the alarm activates, the BGD will blink rapidly to warn the driver of the Alarm condition.

NOTE: It is possible in certain applications that your chosen alarm point setting for a wide open throttle Air/Fuel ratio alert could cause the Warning mode to be active during idle and part throttle/cruise. To help correct this issue, this product features a warning function that also references engine RPM to determine when to activate the alarm. On Nexus systems with no engine RPM signal present/connected, your Air/Fuel warning mode will be active at all times. Systems with an engine RPM signal present/connected will have an active Air/Fuel ratio warning function below 500 RPM and at 3500 RPM and above. For information about connecting an RPM signal to your Nexus system, please reference the instructions provided with your Nexus Sensor Module & Remote.

To View your current Alarm/Warning Point Setting:

Press the WARN button on the remote. The WARN light on the gauge will turn on and the SSD and BGD will indicate the current Alarm/Warning set point.

To Change your Alarm/Warning Point Setting:

Use the Fast Forward and Reverse buttons on the remote to adjust the SSD and BGD to display the desired warning point. Once the gauge displays the desired Alarm/Warning set point, make no button presses for 3 seconds and your new warning point will be saved.

Record:

To record continuous data, press the Record ( ) button on the remote. Nexus will record up to 30 sec. of continuous information from all gauges on the network including a tachometer for playback and data analysis from the time the Record ( ) button is pushed. The green Record (REC) lights in all gauges in the network will turn on to indicate recording is in process. When maximum record time has been reached the green Record lights will shut off, indicating record mode is no longer operating.

Note: You may extend record time by purchasing an SD card and inserting it into the SD card slot on top of the remote.

Stoich AFR Setting:

The Stoichiometric AFR setting allows you to adjust the gauge scale for alternate fuel types such as Ethanol. As a default this product is set up for gasoline, with a stoichiometric AFR point of 14.7:1. If you would like to adjust this product for use on an alternate fuel type or would merely like to adjust the “center” point of your BGD, please follow the instructions below.

To View your current Stoichiometric AFR Setting:

- Access Air/Fuel Menu Options (process detailed above in Menu Options). Once SSD reads “dSP” use the Stop button to scroll through menu items until the SSD reads “ScH”.
- Use Fast Forward to scroll right to have the SSD display your current Stoichiometric AFR Setting.

To Change your Stoichiometric AFR Setting:

- When your current Stoichiometric set point is displayed, use the Play( ) & Stop ( ) buttons to scroll the value shown on the SSD up or down.
- When your new desired Stoichiometric set point is displayed, press the Record ( ) button to confirm your selection. To cancel or exit without saving changes, press the Rewind ( ) button. The previous setting will be retained.
- Once your selection is made (or you have exited without saving) and the gauge is showing “ScH”, use the Stop ( ) button to scroll until the gauge display shows “End” then press the Right Arrow or Record ( ) Button so display reads “YES” then press the Record ( ) button to exit the menu and return to Real-Time Mode.

BGD Range Setting Mode:

The Bar Graph Display (BGD) Range Setting Mode allows you to fine tune the resolution of this instrument for your specific application. With upper and lower set point adjustability, you can set the BGD to utilize the exact range that the engine / vehicle operates within and see exactly how rich or lean you are running in relation to your current set up and tune.

To View your current BGD Range HI / Lean setting or LO / Rich setting:

- Access Air/Fuel Menu Options (process detailed above in Menu Options). Once SSD reads “dSP” use the Stop button to scroll through menu items until the SSD reads “bAr”.
- Use Fast Forward to scroll right to have the SSD display HI. Press the Stop button to scroll to LO. Once the desired choice (HI or LO) is displayed. Use the Fast Forward button to scroll right to have the SSD display the current selected upper or lower BGD range value setting.
  
  Note: When your selection is made and the numeric range value is shown, LEDs in the BGD will light to indicate which set point you are viewing. If the LEDs to the left of center or Stoichiometric are lit, you are viewing the “LO” or Rich set point. If the LEDs to the right of center or Stoichiometric are lit, you are viewing the “HI” or Lean set point.

To Change your current BGD Range HI / Lean setting or LO / Rich setting:

- When the current BGD HI or LO setting is displayed, use the Play/Pause( ) & Stop ( ) buttons to scroll the value shown on the SSD up or down.
- When your new desired BGD HI or LO set point is displayed, press the Record( ) button to confirm your selection. To cancel or exit without saving changes, press the Rewind ( ) button. The previous setting will be retained. Once your selection is made (or you have exited without saving) and the gauge is showing “bAr”, use the Stop ( ) button to scroll until the gauge display shows “End” then press the Right Arrow or Record ( ) Button so display reads “YES” then press the Record ( ) button to exit the menu and return to Real-Time Mode.
Fouling and/or permanent damage to the oxygen sensor over time will result if used with any of the following:

- Leaded gasoline and fuel additives containing lead
- 2 cycle gasoline (gas/oil mix)
- Diesel fuel
- Nitromethane
- Excessively rich mixtures

If the Air/Fuel Ratio Monitor responds sluggish, the oxygen sensor is probably partially fouled and should be replaced.

**Warning**

**LED Chart**

<table>
<thead>
<tr>
<th>Range</th>
<th>LED's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lean Range</td>
<td>Eight red LED's</td>
</tr>
<tr>
<td>Stoichiometric Range</td>
<td>Fourteen green LED's</td>
</tr>
<tr>
<td>Rich Range</td>
<td>Eight amber LED's</td>
</tr>
</tbody>
</table>

**SERVICE**

For service send your product to Auto Meter in a well packed shipping carton. Please include a note explaining what the problem is along with your phone number. Please specify when you need the product back. If you need it back immediately mark the outside of the box “RUSH REPAIR,” and Auto Meter will service product within two days after receiving it. ($10.00 charge will be added to the cost of “RUSH REPAIR.”) If you are sending product back for warranty adjustment, you must include a copy (or original) of your sales receipt from the place of purchase.

**12 MONTH LIMITED WARRANTY**

Auto Meter Products, Inc. warrants to the consumer that this product will be free from defects in material and workmanship for a period of twelve (12) months from date of the original purchase. Products that fall within this 12 month warranty period will be repaired or replaced at Auto Meter’s option to the consumer, when it is determined by Auto Meter Products, Inc. that the product failed due to defects in material or workmanship. This warranty is limited to the repair or replacement of parts in the Auto Meter instruments. In no event shall this warranty exceed the original purchase price of the Auto Meter instruments nor shall Auto Meter Products, Inc. be responsible for special, incidental or consequential damages or costs incurred due to the failure of this product. Warranty claims to Auto Meter must be transportation prepaid and accompanied with dated proof of purchase. This warranty applies only to the original purchaser of product and is non-transferable. All implied warranties shall be limited in duration to the said 12 month warranty period. Breaking the instrument seal, improper use or installation, accident, water damage, abuse, unauthorized repairs or alterations voids this warranty. Auto Meter Products, Inc. disclaims any liability for consequential damages due to breach of any written or implied warranty on all products manufactured by Auto Meter.