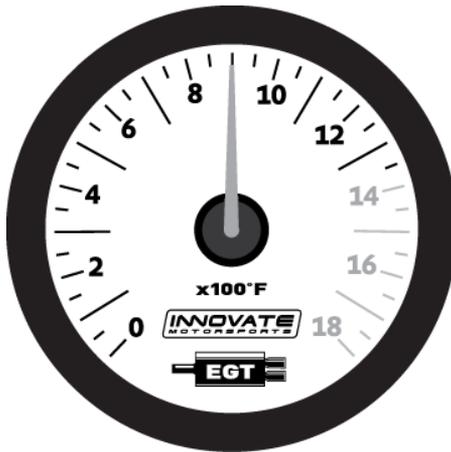




# MTX-A Exhaust Gas Temperature (EGT) Gauge User Manual



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# 1. Installation

## 1.1 Gauge Mounting

The MTX-A gauge fits in any standard 2 1/16" (52mm) gauge pod. Mounting of the gauge should be done in such a manner that the cables are not being forcefully pulled and strained from the gauge itself. Route the sensor cable avoiding contact with sharp and hot sources that could damage the cable. Also avoid routing the cables near ignition components or other sources of RF (radio frequency) and EMI (Electromagnetic interference) noise.

The MTX-A gauge is splash resistant (not water proof) and can be mounted so that it is exposed to the outdoor elements. The MTX-A should not be submerged and special consideration should be taken to protect the gauge from direct water spray (water coming from a pressurized source.) When replacing the bezel and/or gauge face verify that the o-ring is properly seated. When replacing the bezel and/or gauge face verify that the o-ring is properly seated.

## 1.1 EGT probe

1. Select the header tube in which you wish to mount the probe.
2. Locate the sensor location point on the pipe.
3. Once the spot is located, drill a .313" (5/16") inch diameter hole in the header pipe.
4. Remove the plastic protector from the probe.
5. Center the weld-in bung over the hole and weld it to the header pipe a full 360 degrees. TIG welding is best.
6. Installation the compression cap and ferrule on the welded base and bring it up to finger tight.
7. Now measure the distance from the tip, up the hot leg of the sensor that is equal to the height of the compression fitting plus the desired immersion depth that the sensor will extend into the exhaust stream. Mark that length using a marker or pen on the sensor sheath.
8. Insert the sensor probe through the installed mounting hardware until the mark touches the top of the cap and tighten compression nut using a 9/16" open-end wrench. Make sure sensor transition and spring is at a 90-degree angle to the exhaust pipe, if room permits. This will position the sender tip correctly in the exhaust stream.

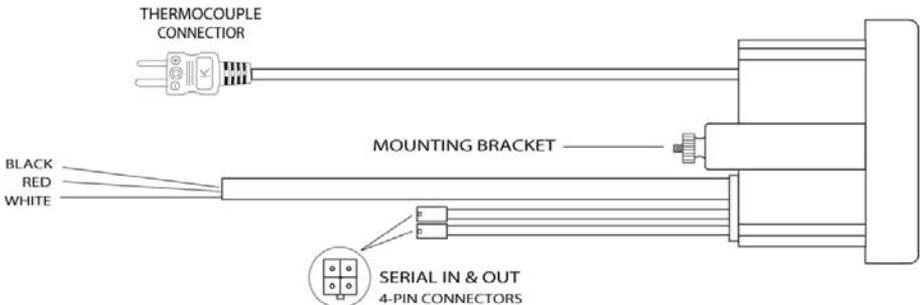


**Lead Wire Installation: DO NOT HARNESS THE LEAD WIRE TIGHTLY !** Make long sweeping bends and loosely guide the lead-wire to the instrument using the harness ties provided. This will allow the wire to absorb the engine vibration along the wires length. Prevent the wire from touching the exhaust pipe when the hood is in the down position. The warranty does not cover burnt lead wires or wires that are smashed or twisted off.

### 1.1.1 Changing the MTX-A's Gauge Bezel

1. Lay the MTX-A face down and remove the three #2 phillips screws from the outside rim of the back plate.
2. Carefully lift out the bezel from the gauge cup.
3. Configure the gauge as desired making sure not to disturb the needle.
4. Make sure every piece is positioned correctly using the locating tab and reassemble the gauge.
5. Reinstall the 3 #2 phillips screws.

### 1.2 Main Gauge Wiring



1. Connect the **RED** wire to an isolated switched 12V source in your vehicle. A switched 12V source goes ON as soon as “key on” power is active. The circuit to which you will pull power from should be able to support a 2 amp draw. Make sure this connection is protected with a 5A fuse.



Circuits that share power with the vehicle's stereo, ignition system, ECU, lighting, or fuel pump should not be used. When in doubt, create an

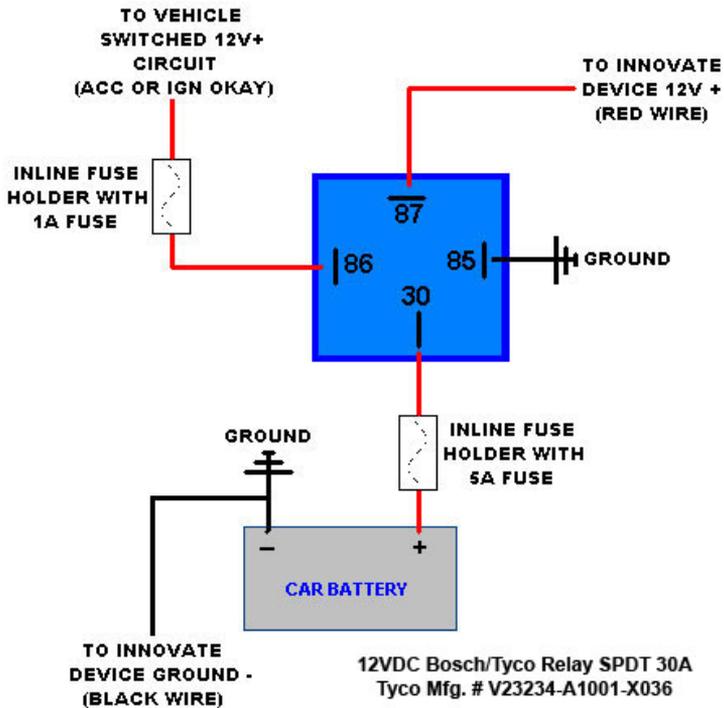
additional circuit using an automotive relay available at any automotive parts supplier. See the next section for a relay installation diagram.

- 2 The **BLACK** wire should be grounded to a solid ground source. The best possible ground source would be the battery ground (-) post.

 If other Innovate Motorsports devices are going to be daisy-chained along with the MTX-A, it is recommended that all devices be connected to a single ground point, ideally the battery ground (-) post.

- 3 Connect the **WHITE** wire to a headlight power wire (a wire that supplies current to the headlights). This enables the display to dim for better nighttime viewing. **DO NOT CONNECT THIS WIRE TO THE HEADLIGHT DIMMING WIRE.** Connection to this rheostat type of switch will cause the gauge to malfunction. If you chose not to utilize the dimming feature, connect the WHITE wire to ground.

### 1.2.1 Single Innovate Device Relay Wiring Instructions



### 1.3 EGT sensor wiring

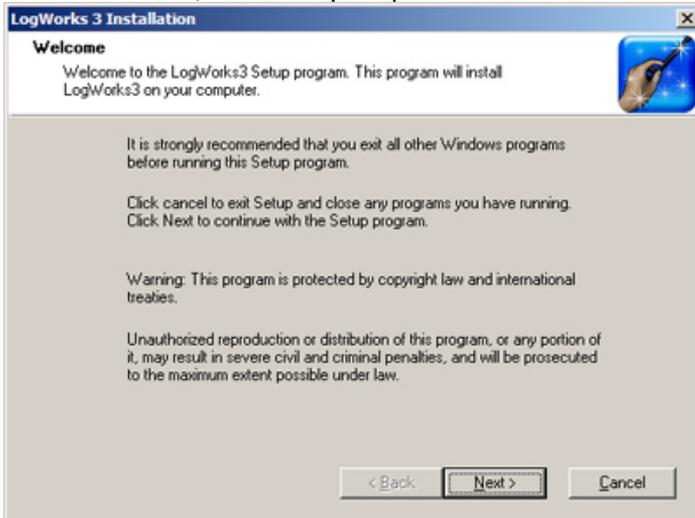
1. Fish the EGT sensor's 2 pin connector through the firewall and to the MTX EGT gauge. **DO NOT HARNESS THE LEAD WIRE TIGHTLY!** Make long sweeping bends and loosely guide the lead-wire to the instrument using the harness ties provided. This will allow the wire to absorb the engine vibration along the wires length. Prevent the wire from touching the exhaust pipe when the hood is in the down position. The warranty does not cover burnt lead wires or wires that are smashed or twisted off.
2. Connect the sensor's female 2 pin connector to the male 2 pin connector on the gauge.

## 2 Download the Logworks 3 software package

1. Open your web browser and go to:  
<http://www.innovatemotorsports.com/support.php>
2. The LogWorks 3 software download will be the very first thing on the page, click the link to download the software.

### 2.1 Installing software

1. Double click on the Logworks 3 installer previously downloaded.
2. The installer will start, follow the prompts to install the software.



3. Once the software has been installed the LogWorks software, LM Programmer and MTX-A manual can then be located by navigating through Start->Programs->LogWorks3.

## 2.2 Connecting to LM Programmer

LM Programmer is used to update firmware, change fuel types, and program the two analog outputs.

1. Connect the OUT port of the MTX-A to the provided serial programming cable. Connect the other end of the serial programming cable to your computer. If your computer does not have a serial port, you can purchase a USB to Serial adapter from Innovate Motorsports (P/N 3733) or use any USB to serial adaptor that includes drivers. Make sure that nothing is connected to the IN port of the MTX-A
2. Power up the MTX-A.
3. Launch LM Programmer. The LM Programmer application can be launched from *Start->Programs->LogWorks3->LM Programmer* from the Windows task bar.

## 2.3 Temperature Alarm

The temperature alarm setting can be configured in the Temp tab in LM Programmer. When the EGT threshold has been exceeded the entire gauge's backlight will flash. To enable this feature, the "Enabled" option must be checked.

Whenever a change is made to the programming of the gauge click the **Program** button for the change to take effect. Once the gauge has been programmed the **Program** button will grey out.

To set the gauge back to the factory settings click the **Set to Defaults** button and then click the **Program** button

### 2.3.1 Updating the Firmware



**Do not update the firmware if the versions are the same. A firmware update should only be necessary if there has been a new release that specifically fixes a problem that you are experiencing with the controller.**

1. Connect the MTX-A to the computer and launch LM Programmer.
2. Once connected, LM Programmer will display the current version of the firmware that is installed in the MTX-A. **Do not update the firmware if the versions are the same. A firmware update should only be necessary if there has been a new release.**
3. On the very first tab of LM Programmer you will see a button labeled "Update Firmware," click this button.

4. Select the firmware file with the dld extension. If there have been revisions to the firmware, you will find them available for download from the Support section of the Innovate Motorsports web site.
5. The software will now prompt you to confirm that you wish to overwrite the firmware currently on your MTX-A.
6. Click OK, DO NOT power off or disconnect the MTX-A from the computer until the firmware progress screen completely disappears. Once finished, you may disconnect the unit from the computer and exit out of the software.

## 2.4 Logging data from your MTX-A with LogWorks

1. Connect the OUT port of the MTX-A to the provided serial programming cable. Connect the other end of the serial programming cable to your computer. If your computer does not have a serial port, you can purchase a USB to Serial adapter from Innovate Motorsports (P/N 3733) or use any USB to serial adaptor that includes drivers. Make sure that nothing is connected to the IN port of the MTX-A. Power up the MTX-A
2. Launch LogWorks. The LogWorks application can be launched from *Start->Programs->LogWorks3->Logworks3* from the Windows task bar.
3. Once LogWorks launches go to *File->Connect*. You will be prompted to connect to the serial COM port. Select the comport the device is connected to and then click Connect.
4. To start recording go to *File->New Realtime Log* or, in the Toolbar, click on the  Tool.

### 2.4.1 Adding and Logging MTS channels

The Innovate Motorsports' MTS (Modular Tuning System) allows you to daisy chain multiple devices together via the serial IN and OUT connectors to form one single synchronous log. MTS log chains can consist of a single unit connected directly to a laptop (connect your *MTX-A* directly to a computer,) two units, or multiple devices connected together, up to 32 channels

Innovate Motorsports' MTS devices have two types of serial interface connectors, the legacy 2.5mm stereo and the 4 pin Molex. The following patch cables are available to interface your devices together:

4 Pin Molex to 4 Pin Molex - 4ft	p/n 3846
2.5mm to 2.5mm Stereo - 4ft	p/n 3760
2.5mm to 2.5mm Stereo - 6in	p/n 3789
4 Pin Molex to 2.5mm Stereo - 4ft	p/n 3812

## Appendix A: Limited Warranty

### LIMITED WARRANTY

Innovate stands behind the quality of its products. Innovate makes the following warranty to purchasers of its products: All new Innovate products carry a one year warranty from the date of purchase. If proof of purchase cannot be provided, warranty will be determined by date of manufacture.

### When Warranty Void

This warranty shall terminate and Innovate shall have no obligation pursuant to it if (i) your Innovate product has been modified or repaired in a manner not previously authorized by Innovate in writing, (ii) the identification markings on your Innovate product have been removed, defaced, or altered; (iii) your Innovate product was subjected to accident, abuse, shipping damage, or improper use; (iv) your Innovate product was not used or configured as specified in the product manual; or (v) your Innovate product was subjected to operating conditions more severe than those specified in the product manual.

### Exclusions From This Warranty

**Oxygen Sensors are excluded from this warranty.**

### Repairs Under This Warranty

In the unlikely event that your Innovate hardware product should prove defective during the warranty period, contact Innovate Customer Support at [www.innovatemotorsports.com](http://www.innovatemotorsports.com) for a return material authorization (RMA). Products returned for service must be securely packed to prevent damage and shipped charges pre paid, along with proof of purchase and the return material authorization number, to the Innovate repair location as instructed by Customer Service. Innovate within a reasonable amount of time from its receipt of your product so shipped, will ship to you, at its option, the repaired product or a new or reconditioned product of comparable or greater specified functionality. All repaired or replacement products shall be warranted for the remainder of the original product warranty.

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