

Congratulations on your purchase of the MicroTech EGT Module and thank you for making MicroTech your manufacturer of choice. With 20+ years of EFI development and racing experience, MicroTech take great pride in our customers success in various forms of motorsport and look forward to helping each and every one of our customers exceed their performance goals using our products.

Please read these instructions carefully before beginning installation. **DO NOT** attempt installation if you are unsure of anything in this instruction manual. Instead, take your vehicle to a suitably qualified MicroTech technician or contact out tech department at <u>tech@microtechefi.com</u> for technical assistance.



# **Installation and Users Manual**

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### 1. Description

The MicroTech EGT Module is a device which samples and transmits an engine's Exhaust Gas Temperature (EGT) data for viewing or logging purposes.

An engine's EGT's are something that is closely monitored by experienced tuners for several different reasons.

Ignition timing and fuel mixtures both have a significant effect on EGT's. When tuning with an aftermarket ECU or in race applications where an engine is being pushed very close to the edge, EGT information becomes an extremely important tuning tool.

EGT's are also used to check variations between different cylinders so any potential problems can be diagnosed and rectified before they lead to engine damage or failure.

The EGT Module uses K-type Thermocouples to measure an engine's exhaust gas temperatures with an operating range from 0-1200 Degrees Celsius and are available in 3 Channel (EGT-3) or 4 Channel (EGT-4) configurations.

If required the EGT Modules may be used in pairs for fitment on 6cyl and 8cyl engines.

The EGT Module has 2x different outputs which transmit the Exhaust Gas Temperature Data to various devices.

- 1) CAN output: For connection to a MicroTech LTC dash display via the MicroTech CAN hub.
- 2) Serial Port Output: For connection to the MicroTech Handset.

## 2. Included Components

The EGT-3 & EGT-4 kits are shipped with the following components.

- EGT-3 or EGT-4 Thermocouple processor
- CAN connection loom
- MicroTech Sticker

If any of the above components are missing please contact the place of purchase.



## 3. Installation Instructions

#### 3.1 EGT Box Mounting

The EGT box should be mounted inside the cabin of the vehicle (away from excessive heat and moisture) in a position where the handset port is easily accessible and the diagnostic LED's are easily visible.

In race car applications where excessive vibration may be experienced it is recommended the box be mounted using the MicroTech anti vibration mount kit (part # VIBKIT).

#### 3.2 EGT Probe Placement on Engine

EGT probe placement on an engine is critical and should be well thought out **BEFORE** beginning the installation. The position of the probe will depend on the type of engine, what particular data the tuner is looking to monitor and the available room inside the engine bay.

If the probe is mounted closer than 1 ½" to the exhaust port of the engine, probe life will be reduced. If the probe is mounted too far away from the port, EGT's will read substantially lower (giving inaccurate data)

On N/A engines for best results it is recommended to fit 1x probe in each cylinder approx 3"- 4" away from the extractor flange.

On a Turbo car it is not uncommon for tuners to mount 1x probe in each exhaust runner (to measure the temperatures for each individual cylinder coming out of the engine) and another probe on the dump pipe exiting the turbo (to measure an overall average after the turbo)

However, 1 probe mounted in the turbo dump pipe will suffice for many tuners giving them adequate EGT information to make accurate tuning decisions.

In each case, mounting the probes 3"- 4" from the extractor flange or turbo outlet is the most common position.



When mounting the EGT probes in the exhaust manifold it is extremely important to mount each probe the same distance from the port for accurate cylinder measurement.

The MicroTech EGT-3 & EGT-4 can be used with any standard K-Type thermocouple. However for accurate measurement & fast response time we recommend using the MicroTech open tip EGT probes available in various different lengths from <u>www.microtechefi.com</u>



#### 3.3 EGT Probe Connection to the EGT-3 & EGT-4 Module

When connecting the yellow K-type connector to the MicroTech EGT module, the cylinder numbers (as they will be displayed on the LTC dash & Data logs) are wired in order from left to right looking directly into the EGT module connector. These positions are pre set in the MicroTech software & cannot be altered.





## 4. Wiring Information

The MicroTech EGT Module must be used in conjunction with the MicroTech LTC dash and the MicroTech CAN hub

**NOTE:** MicroTech LTC Dash (Part # LTCDASH) and MicroTech CAN Hub (Part # CANHUB) must be purchased separately.

The EGT Module itself has only 1x wiring connector. The wiring loom supplied with the EGT Module is pre wired with a 4 pin connector on either end of the loom. One end plugs into the EGT Module and the other end plugs into any of the 6 available ports on the MicroTech CAN hub.



The EGT module transmits the EGT data to the MicroTech CAN hub, the data is then transmitted from the CAN hub to the LTC dash via the MicroTech Controller Area Network (CAN) protocol at 1Mbps.

The EGT module receives its power supply from the MicroTech CAN hub.



## 5. 6cyl Applications

For 6cyl applications 2x EGT-3 Modules must be used as a pair.

The installation procedure for 2x modules is identical to the procedure listed above for 1x individual module.

When using EGT Modules in pairs the modules must be configured as "Box #1" and "Box #2 for the EGT data to be displayed and transmitted correctly on the MicroTech CAN system.

The set up is done via the MicroTech Handset as follows:

#### 6 Cylinder Set Up Using 2x EGT-3 Modules:

- Determine which EGT Module will be used for Cylinders # 1,2,3 and which Module will be used for Cylinders 4,5,6.
- Connect the EGT probes to the Modules in order from left to right as pictured.
- Connect the MicroTech Handset to the second box (the box connected to cylinders 4,5,6).
- Using the blue buttons on the handset, navigate up 1x click to the "set up" screen.
- Press the red "MODE" button (PG will appear in the centre of the screen).
- Using the blue buttons again, arrow up 1 click to select "Box #2".
- Press the red "MODE" button to exit programming mode.
- Disconnect the handset from the EGT Module

The EGT Modules are now set up as a pair to read cylinders 1,2,3,4,5,6.







### **8cyl Applications**

For 8cyl applications 2x EGT-4 Modules must be used as a pair.

The installation procedure for 2x modules is identical to the procedure listed above for 1x individual module.

When using EGT Modules in pairs the modules must be configured as "Box #1" and "Box #2 for the EGT data to be displayed and transmitted correctly on the MicroTech CAN system.

The set up is done via the MicroTech Handset as follows:

#### 8 Cylinder Set Up Using 2x EGT-4 Modules:

- Determine which EGT Module will be used for Cylinders # 1,2,3,4 and which Module will be used for Cylinders 5,6,7,8.
- Connect the EGT probes to the Modules in order from left to right as pictured.
- Connect the MicroTech Handset to the second box (the box connected to cylinders 5,6,7,8).
- Using the blue buttons on the handset, navigate up 1x click to the "set up" screen.
- Press the red "MODE" button (PG will appear in the centre of the screen).
- Using the blue buttons again, arrow up 1 click to select "Box #2".
- Press the red "MODE" button to exit programming mode.
- Disconnect the handset from the EGT Module

The EGT Modules are now set up as a pair to read cylinders 1,2,3,4,5,6,7,8.







## 6. LTC Dash Set Up

The MicroTech LTC Dash has a dedicated screen (screen #4) for displaying up to 8x EGT's on the screen at the same time.

To activate this function from the LTC Dash Data display screen:

### Step 1.

• Select Handset mode (touch top left corner of the screen)





### Step 2.

• Arrow down 2 clicks (using the blue arrows) to set up screen #2

## Step 3.

 Arrow across to the right 4 clicks (using the blue arrows) to "Data 4\_1"





### Step 4.

• Press the red "Mode" button to enter program mode (screen will turn red when program mode is activated)





## Step 5.

• Arrow up/down (using blue arrows) to function #39 which will be labelled "E.G.T -8"

### Step 6.

• Press the red "mode" button again to exit program mode (screen will return to blue when exiting program mode)





## Step 7.

• Touch the "Hand" icon in the top left screen (or press the external button) to return to display mode



Screen #4 will now be set up as an 8 channel EGT display screen.

Individual cylinder EGT's (for engines up to 6 cylinders) can also be displayed independently on any of the 4x data screens on the LTC Dash. Maximum EGT warnings and alarms can be programmed to alert the driver immediately if any cylinder runs hotter than the maximum allowed temperature.



For further information on programming EGT warnings and limits on the LTC Dash refer to the LTC Dash manual.



### 7. MicroTech Handset Connection

The MicroTech Handset is primarily used with the EGT Modules for configuring dual EGT boxes and for diagnostic purposes.

EGT's can be viewed in real time on the Handset by connecting the handset cable directly to the 9 pin serial port on the side of the EGT Module.



### 8. Fault finding and Diagnostics

The EGT-3 and EGT-4 Modules have 2x diagnostic LED's located on the end of the units next to the handset port for diagnostic purposes.

**RED LED:** +12v Power on to the EGT Module.

**GREEN LED:** Currently used for factory testing and diagnostic purposes.





