V-Net Four Channel EGT Module

Part Number 220-VS-JB600

Module Configuration Setup:

Module Type: IO_TEMP600   **Serial Number:**

EGT Cylinder Selection: **Channel Options:**

Cylinders 1 – 2 – 3 - 4   V_Net Update Rate: 25 / second
                                     Logger Sample Rate: 25 / second
                                     Module Record Rate: 10 / second

☐ **Mount Box at the Rear of the Engine**
☐ **Mount Box at the Front of the Engine**

Module Installation:

IMPORTANT!!: Make sure you do not install two 4 channel EGT boxes with the same cylinder numbers (i.e. two boxes engraved for cylinders 1-2-3-4). Doing so will cause all channels on the V_Net bus to quit recording until the conflict is resolved.

The four-channel EGT module is a special purpose V_Net module designed to measure the exhaust gas exit temperature on four individual cylinders. The module can be purchased in four different configurations corresponding to the different cylinder numbering systems utilized by the various manufactures. The configuration of this module is shown in the Module Configuration Setup shown at the top of this page.

The module is designed to utilize type K thermocouples. The thermocouples can be purchased in a variety of different sizes and lengths. In most cases staff at RacePak will have installed the thermocouples in the 4-channel module for you.

If the thermocouple sensors are not connected to the 4-channel EGT module you will need to connect the thermocouples as shown in the diagram to the right. Be sure to tighten the connector securely. The engraved numbers on the front of the module housing correspond to the cylinder temperatures to be measured.

The first step in installing the 4-channel EGT module is to install the thermocouples into your exhaust header system and mount the 4-channel EGT module to your vehicle. Please refer to the last section **Thermocouple Weldment Placement and Installation** for detailed instructions on mounting the thermocouples.

When selecting a mounting location for the main EGT module housing select a location where the temperature of the main module housing will not exceed 185 degrees Fahrenheit.
The main module housing is designed to be mounted using the holes on each side of the box. Secure the box to the firewall or a frame rail so that it will not interfere with the operation of the engine. Also, try to avoid mounting locations that could expose the box to excessive vibration. If possible mount the main module with the thermocouples exiting to the bottom. This will prevent water from collecting in the housing.
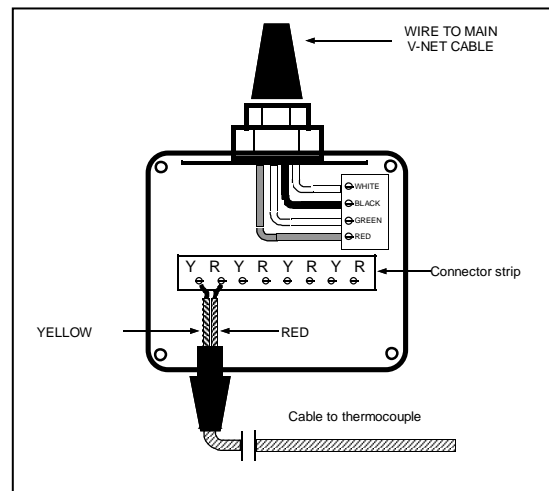
The next step is to insert the V_Net cable tee wired to the module into the V_Net data bus in your vehicle. The V_Net cable tee can be inserted at any location in the V_Net cable in your vehicle. Select a location where the connector module can be mounted safely. Avoid mounting near heat sources and high voltage ignition wires.

Module Setup:

This module has been factory configured as described in the setup box located at the top of this page. If you purchased this module as an upgrade to an existing system, you will need to update your car configuration file before you will be able to access the information from this module. Please refer to the setup instructions below. If this module was purchased as a complete data logger system from Racepak and it is not an upgrade to an existing system, no further setup is required and you do not need to perform the steps below. However, it is highly recommended that you read through the next section to familiarize yourself the software setup procedure.

Software Setup and Module Configuration

Before you can use this module with a V50 Module or with a V300 or V500 Data Logger you will need to update your Car Configuration File in your PC. To perform this step you will need to connect the V50 unit or your data logger to your PC using the units serial interface cable (See your units instruction manual for details). Next start the RacePak DataLink program. If you selected your car configuration file as the default configuration file, the file will be opened and the file tab for the car configuration file will be selected. If it is not, open your car configuration file by selecting the **Open Car Configuration** menu item located in the **Files** main menu selection.

Next apply power to your onboard system, wait 10 seconds and select the **Read VNET Config** menu item located in the **Edit** main menu selection. The DataLink program will read in the configuration of your system. If everything works properly, four new channel buttons will be added to the configuration file representing the four cylinder temperatures monitored by this module. Each of the four buttons will be captioned **"Cyl #X"** where the X will be replaced by the number of the cylinder being monitored. Save your configuration file. You are ready to begin using your new module.

However, if the new button is captioned as the module serial number (example: SN_12000), you have two modules in your system programmed using the same V_Net ID, for instance "Cyl #1". You must change the V_Net ID on one of the modules to something else like "Cyl #2". If you cannot find an appropriate V_Net ID in the list to match what the module is measuring you can use one of the User Custom ID's found under the V_Net ID list.

**Changing the Module Setup:**
To edit the setup parameters on this sensor module, position the mouse cursor over the channel button and click the right mouse button. The VNET Input Channel Parameters dialog box will be displayed. A Portion of this dialog box is show below.

Locate the **Four Channel Exhaust Gas Temperature Setup Instruction** text box. This text box provides online instructions for modifying the setup of this module. Read the instructions and modify the setup as desired. (Please note the scroll bars located on the left- hand portion of the text box is used to scroll through the instructions).
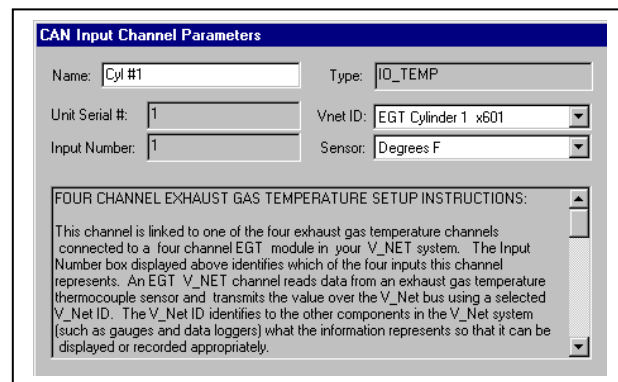

Programming the V_Net ID:
Every sensor device in your data logger system must be assigned a unique V_Net ID. This ID identifies to the system what the sensor is measuring. For instance **Cyl #1**. To set the V_Net ID click on the V_Net ID selection list located above. A list of sensor groups will be displayed as shown. Each group contains an extensive list of parameters associated with that grouping. To open a group click on the plus sign located in front of the group name. The group will be expanded and individual parameters will be listed. Select the parameter that matches you application by clicking on it. The program will load the appropriate default values including the name for the selection. If you wish to modify the name change the name in the name entry box after you have selected the V_Net ID.
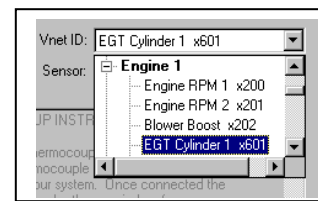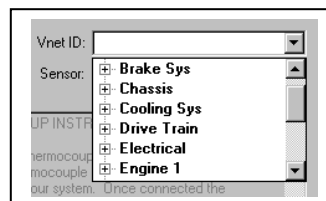
Sending the Configuration to the module:
When you have finished editing the configuration on your PC, you will need to send the information to the sensor module. Be sure the serial interface cable is connected to your V50 unit or data logger and power is applied to the system. To send the information position the mouse cursor over the **Send Configuration** button and click the left mouse button. The progress box as shown to the left will be displayed.
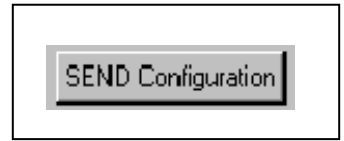
When finished sending the message "**Device Programmed Successfully**" should be displayed at the bottom of the progress box. If you receive an error message, turn power to the system off and then back on and repeat the send configuration process. If problems persist, check the troubleshooting section in your manual and then contact RacePak.

Save the configuration file to disk and update the Module Configuration Setup Box on the front of this worksheet with the new setup configuration.
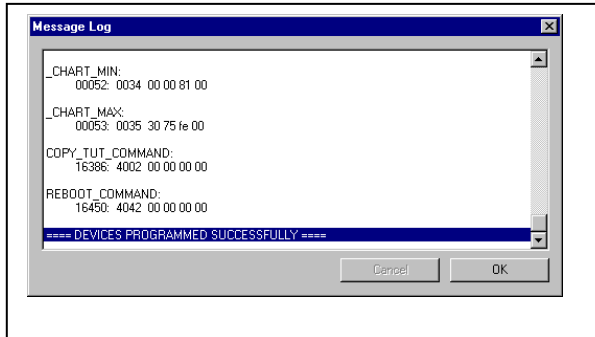

IMPORTANT:
Save this Installation Worksheet in your System Manual in Appendix V. This worksheet is part of your system documentation. You may need this worksheet when modifying or trouble shooting your system.

# THERMOCOUPLE WELDMENT PLACEMENT AND INSTALLATION

Header weldments are available to fit thermocouples of either .187" diameter or .250" diameter. The .250" thermocouples are generally used for automotive applications. The .250" weldment are, by design, ready to be welded to the exhaust header. The .187" weldments must first be cut as shown below.

CUT

REMOVE
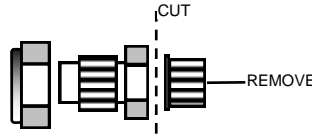
In order to get accurate temperature readings the placement of the weldment should be as close to the header flange as practical. Up to 4" from the flange is acceptable, however this is not always possible as accessibility for valve adjustment and blower restraints need to be considered prior to welding the weldments onto the headers. It is important that the weldment be located at a position consistent on all pipes. It is very important that they are all equidistant from the flanges. After the weldments have been welded to the header tubes drill the access hole by following whichever instruction below relates to your application.

3/16" Thermocouples: Run a .187" diameter ('F') drill through the weldment enlarging them to the proper size to accept the thermocouple, and at the same time drilling the access hole through the header tube.

WELD

1/4" Thermocouples: Run a .257" diameter drill through the weldment enlarging them to the proper size to accept the thermocouple, and at the same time drilling an access hole through the header tube.
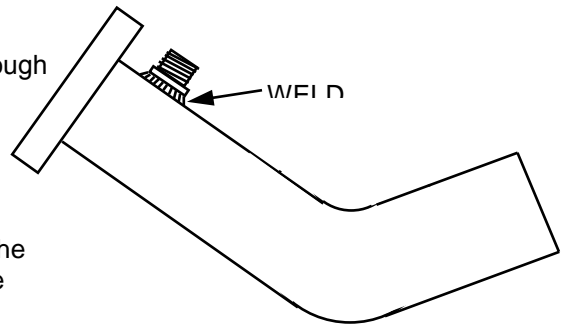
INSTALLATION OF THERMOCOUPLE PROBES

It is important in the installation of the thermocouples to insure that all thermocouple probes are inserted the same distance into the header pipe. The ideal depth for all installations, other than any turbocharged or any supercharged nitromethane applications, is to have the tip of the probe located in the center of the pipe. Having probes at different depths, or unequal distances from the exhaust port, can lead to a variance in the exhaust gas temperatures recorded.

Thermocouple Probe

Header Pipe

Center the tip in the header pipe on all applications except:
1. Supercharged Nitromethane
2. Any Turbocharged

Nut

2 Piece Ferrule

Weldment

Length of thermocouple

Turbo charged or Supercharged Nitromethane fueled engines should have the thermocouple tip no more than 1/4" into the pipe.

Thermocouple are normally supplied in one of four standard lengths, unless ordered in a custom length. Please give the total length of the thermocouple when ordering replacements.

**Standard Thermocouple Lengths:
9", 13 3/4", 18 1/2", 23 1/4"**