

## INSTALLATION INSTRUCTIONS

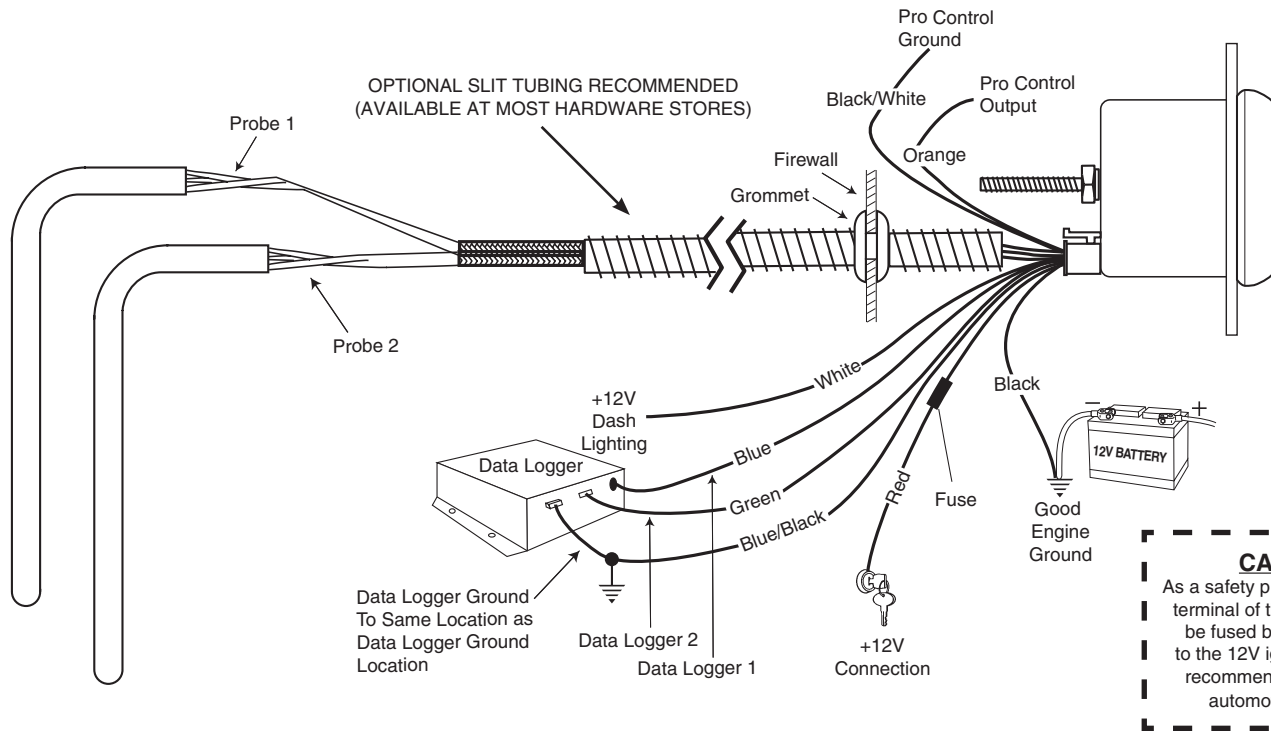
# ELITE DIGITAL DUAL PYROMETER GAUGE

Models 6744-CB, 6744-PH, 6744-SC, 6744-UL



## Important

Pyrometers are sensitive, high accuracy instruments. They must be handled and installed with care to insure proper performance. Carefully read and follow these instructions, and your pyrometer will provide you with a long and accurate life.



## Connections

Red	+12V	Orange	Pro Control Out
Black	Good Engine Ground	Black/White	Pro Control Ground
White	Dash Lighting	Blue	Data Logger 1
Yellow, Red	Thermocouple Probe 1	Green	Data Logger 2
Yellow, Red	Thermocouple Probe 2	Blue/Black	Data Logger 1 and 2 Ground

## Installation

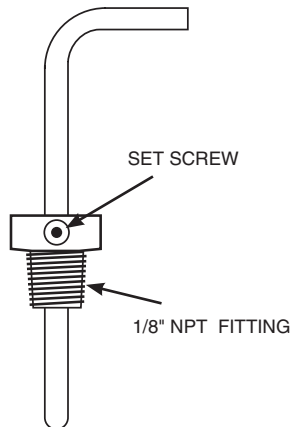
1. Check that you have all parts required for installation, and the engine is cool.
2. Disconnect the negative (-) battery cable.
3. Gauge mounts in a 2-1/16" hole. Use supplied brackets and nuts to secure gauge to dash.
4. Drill 1" diameter hole where wires pass through sheet metal (such as firewall) and install rubber grommet provided. (Grommet will require slit.)
5. Connect the white wire to dash lighting or switchable 12v light source, red wire from harness to +12V terminal on ignition switch or other +12V power source, and black wire to ground.
6. Reconnect negative (-) battery cable.

## Probe Installation

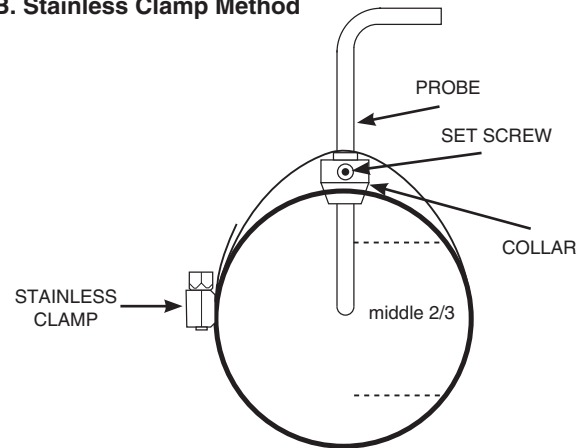
1. Begin by installing the thermocouple in the exhaust, then work back to the gauge. Installing the probe in the proper location will insure optimal temperature readings. For non-turbo engines, install the probe 1-2 inches from the cylinder head. For turbo engines, remove the exhaust manifold and install the probe 1-2 inches from the cylinder head. If the exhaust manifold can not be removed, install the probe 1-2 inches after the turbo exhaust outlet (Exhaust gas temps could drop over 200° when installing after the turbo). CLEAN ALL METAL FILINGS out of the exhaust manifold. Metal filings will damage the turbo impeller if they go through the turbo. The probe can be mounted in two different ways, so please use the method best suited for your needs.
  - A) Pre-existing 1/8" NPT Threaded Hole: Simply screw the threaded fitting into the hole, insert the probe, and tighten the set screw snugly onto the probe. (Caution: do not over tighten set screw or damage to probe may occur.) Make sure the probe is oriented so the wires do not come in contact with, or become too close to the manifold or other hot engine parts. See illustration for details.
  - B) Stainless Clamp Method: This method is for applications that require frequent removal of the manifold or header for service, or just faster and easier installation. Drill a 7/16" diameter hole about 6" down from the junction of the exhaust pipe to manifold junction. Undo the clamp and slide the probe into the hole in the clamp. Slide the set screw collar onto the probe. Before tightening the collar in position make sure that when inserted, the probe will have its tip in the middle two-thirds of the exhaust stream. Tighten screw collar in position. (Caution: do not over tighten set screw or damage to probe may occur). Hold the clamp open when inserting the probe into the 13/32" hole. Re-join the clamp ends and tighten in position. Make sure the probe is oriented so the wires do not come in contact with, or become too close to the manifold or other hot engine parts. See the illustration below for details.

2. With the probe installed, the wire harness can now be routed to the gauge. The wire harness is an integral part of the pyrometer calibration. It may not be shortened or lengthened without affecting the gauge calibration. You will need to determine a suitable location to coil the excess wire, and tie it loosely with a wire tie. (Loosely tying the excess coil prevents embrittlement caused by vibration.) Pass the harness through the fire wall using an existing hole, or drill a 1" diameter hole and use the rubber grommet provided to protect the wire from damage.

#### A. Pre-existing 1/8" NPT Threaded Hole



#### B. Stainless Clamp Method



## Menu Options

There are many features provided by your AutoMeter Elite Digital Dual Pyrometer gauge. Use the left (-) button to navigate through the following options in order:

- Peak Recall – Digit display will show "P"
- Differential Mode – Digit display will show "diF"
- Pro Control 1 Set – Digit display will show "PC1"
- Pro Control 2 Set – Digit display will show "PC2"
- Temperature Channel 1 Display Assignment – Digit display will show "CH1"
- Temperature Channel 2 Display Assignment – Digit display will show "CH2"
- Channel 1 Alarm Set – Digit display will show "A1"
- Channel 2 Alarm Set – Digit display will show "A2"
- Select English or Metric Units for the Digit Display – Digit display will show "uni"
- Gauge Firmware Revision – Digit display will show the firmware revision number.

## Power-Up

When power is applied to the gauge, the digit display will light with "8.8.8." and the entire bar graph display will light for one second. Then the gauge will begin normal operation and display real time sender readings.

## Channel Assignment

The Elite Digital Dual Pyrometer Gauge has two displays, one shows digits, the other is a radial bar graph consisting of 30 green LED's. If one of the channels is assigned to the bar graph display, all 30 LED's will be lit if the gauge reads 2000°F. Only the 15 left side LED's will be lit if the gauge reads 1000°F. No LED's will be lit if the gauge reads 0°F. On the digit display, values above 999 are shown with a decimal. For example, 1600°F would be shown as "1.60" on the display. To assign Channel 1 to one or both displays, press the left button repeatedly until the digit display shows "CH1". Then press the right button. The digit display will show "dig", "bAr", "bth", or "---". To assign Channel 1 to the digit display, press the left button until the digit display shows "dig". Wait for the display to flash this text rapidly, then "S c". It will continue to do this until the left button is pressed to save the setting, or the right button is pressed to cancel the setting. Saving the setting when the digit display shows "bAr" assigns Channel 1 to the bar graph display. Saving the setting when the digit display shows "bth" assigns Channel 1 to the digit display and the bar graph display. Saving the setting when the digit display shows "---" assigns Channel 1 to neither display.

To assign Channel 2 to a display, press the left button repeatedly until the digit display shows "CH1". Then press the right button. Assign Channel 2 in the same manner as Channel 1.

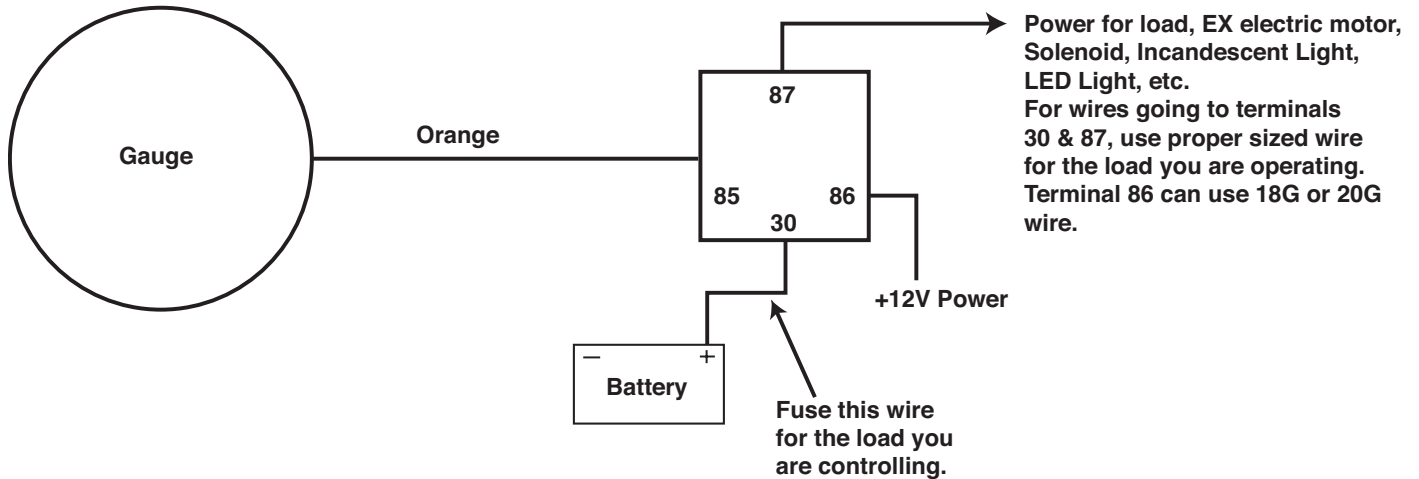
## Peak Recall

To view Temperature peaks, press the left button. The digit display will show "P". Press the right button. The digit display and bar graph display will show the highest temperature values measured by the gauge. After 3 seconds the gauge will return to normal operation. Pressing the right button while the peaks are still being shown will clear the peaks. The display will show "---", then the gauge will return to normal operation.

## Pro Control On Set

The Pro Control Output wire supplies ground when activated. It is recommended to use a relay switch such as the Dedenbear HPR or equivalent. To set the temperature level that will activate the Pro Control Output, press the left button until the digit display shows "PC1" or "PC2", depending on the temperature channel it's being set for. Press the right button. The digit display will show "on". Press the right button again. Use the right (+) and left (-) buttons until the number shown on the display is the desired value of temperature. Values above 999 are shown with a decimal. For example,

1600°F would be shown as "1.60" on the display. When the desired number is shown, wait for the display to flash this number rapidly, then "S c". It will continue to do this until the left button is pressed to save the setting, or the right button is pressed to cancel the setting. It is possible to set Pro Control values for both channels. If either channel exceeds it's Pro Control set point, the Pro Control Output will activate. Both channels must be below their Pro Control set point to deactivate the output.



## Pro Control Off Set

If it is desired to have the Pro Control Output deactivate at a lower temperature than it activates, press the left button until the digit display shows "PC1" or "PC2", depending on the temperature channel it's being set for. Press the right button. The digit display will show "on". Press the left button. The digit display will show "OFF". Press the right button again. Use the right (+) and left (-) buttons until the number shown on the display is the desired value of temperature. When the desired number is shown, wait for the display to flash this number rapidly, then "S c". It will continue to do this until the left button is pressed to save the setting, or the right button is pressed to cancel the setting.

## Alarm Set

This Alarm feature will cause the digit display or the bar graph display to flash rapidly if the temperature channel shown on that display exceeds a user set value. To set the temperature level that will activate the Alarm, press the left button until the digit display shows "A1" or "A2", depending on the temperature channel it's being set for. Press the right button. Use the right (+) and left (-) buttons until the number shown on the display is the desired value of temperature. When the desired number is shown, wait for the display to flash this number rapidly, then "S c". It will continue to do this until the left button is pressed to save the setting, or the right button is pressed to cancel the setting.

## Differential Mode

This will allow the user to view the difference in temperature of the two channels on the digital display. The bar graph display will continue to show whichever channel was assigned to it.

## English or Metric Units

This will allow the user to view the temperature value shown on the digit display in degrees C instead of degrees F. To change this, press the left button until the digit display shows "uni", then press the right button. The digit display will show "F". Press the left button. The digit display will show "C". Press the right button. Temperature will now be displayed in degrees C. The bar graph display is not affected by this.

## Data Logger Output

The AutoMeter Elite Digital Dual Pyrometer gauge has a signal output for each channel for supplying information to a Data Logger or engine management system. The signal provided is a linear 0-5v output. It will output 5.0 volts at 2000 degrees F (full scale temperature). It will output 2.5 volts at 1000 degrees. It will output 0.0 at 0 degrees.

To calculate the measured temperature from the voltage output:

$$T = 2000 \text{ F} * (\text{Voltage Out}/5.00)$$