



Digital Exhaust Temperature Indicator Technical Information

INTRODUCTION

Measuring exhaust temperature is the most precise way to maintain a proper air/fuel ratio at all times. The DETI has the ability to monitor cylinder to cylinder temperatures, helping you to obtain optimum engine performance. The DETI is also an excellent diagnostic and safety device. By reading exhaust temperature you can determine if a cylinder is too lean, lowering the possibility of damaging your engine. If you are a bracket racer, the DETI will help you become more consistent. For the “heads up” racer the DETI will allow you to obtain the optimum horsepower needed to pull ahead on the big end. Circle track racers can also benefit from the use of the DETI by providing extra insurance for your expensive engine.

“PERCY’S DETI IS INEXPENSIVE INSURANCE FOR ANY FORM OF EXPENSIVE RACE
ENGINE”

SPECIFICATIONS

Rubber molded construction reduces the risk of vibration and shock to internal components.

TEMPERATURE MEASUREMENT RANGE

-58 TO 1999 degrees F.

-50 TO 1300 degrees C.

Reading rate of approx. 4 times per second.

4-digit liquid crystal display (LCD).

POWER SOURCE

Standard 9 volt battery.
200 hours average life.

THERMOCOUPLE

Exposed junction allows instant response.

6' long steel braided lead.

¼" NPT reduces the risk of cross thread or stripped threads.

Stainless steel construction ensures durability in both weld on or clamp-on style probe.

INSTALLATION

Before installation check the following to be sure they are included in the kit.

- 1 – DETI
- 1 – Thermocouple with 6' or 10' steel braided lead
- 1 – Weldable bung (55100 kit)
- 1 – Multipurpose lead
- 1 – Hook and loop strap

Make sure that no element of the DETI is placed near an ignition box or any other high output energy source.

If you are running a MAGNETO a specially insulated probe is required ([part Number 56101,56102,56106,56104,56105,56106](#))

The probe should be installed 2 inches from the head flange, not the collector flange. This position will allow for a very accurate reading and easier, more consistent tuning. You will also want to install the probe in your leanest cylinder. If you are using 2 probes, install them in the leanest and richest cylinders.

After finding your leanest and richest cylinders, remove the header or manifold from the engine.

Prepare the surface of the header pipe/manifold to be welded, sand and clean any painted or dirty surfaces in order not to affect the performance of the weld. (Not necessary for clamp-on probe kits)

Use a moderate size punch to place a small indentation in the primary tube 2 inches from the head flange.

WELD IN PROBE: Use a 3/8" drill bit to create the hole where the bung will be placed.

Be sure to remove all burs from the area of the hole.

CLAMP ON PROBE: Use a 1/4" drill bit and drill through the top surface of the header.

Be sure to remove all burs from the area of the hole.

Open clamp on probe completely, insert probe in to whole and re tighten clamp.

Weld the bung into place being sure to seal up the area between the header/manifold and the bung. (Not necessary for clamp-on probe kits)

After the bung had cooled and you have placed the header/manifold back on the engine, screw the thermocouple into the bung (DO NOT OVER TIGHTEN). Plug the thermocouple into T1 or T2 and select the corresponding terminal button. You are now ready to monitor your exhaust temperature. (Not necessary for clamp-on probe kits)

FUNCTION

TEMPERATURE SCALE:

Readings are displayed in Celsius or Fahrenheit. When the DETI is turned on, it displays the scale that was being used when the power was last turned off. To change the temperature scale, press the F/C button.

RESOLUTION (0.1/1):

High resolution (0.1) or and Low resolution (1.0)

High resolution allow decimals and has a maximum range of 199.9 degrees and should be used only in conjunction with the differential mode.

Low resolution will not allow decimals and has a max temperature of 1999 degrees.

To select and alternate display resolution, press the (0.1/1) key. (If this mode is in use while trying to obtain an exhaust reading, O.L. will appear on the display, simply press the 0.1/1 button again to remove the O.L.).

HOLD MODE:

Press the HOLD button to hold the presently displayed temperature. When the button is pressed a small “D-H” indicator is displayed to indicate the hold function is being used.

To turn the hold mode off, press the HOLD button a second time and resume monitoring.

MAX MODE:

To display the maximum temperature during a race or tuning session, press the MAX button and the unit will display temperatures only as the temperatures rise. It will display the maximum temperature reached until the "MAX" button is pressed again to reset the unit.

When the MAX button is selected, a “MAX” indicator appears in the upper left corner of the display.

While in the MAX mode you may select the HOLD key to stop the recording, press HOLD again to continue recording.

T1 – T2 MODE:

Select the T1 – T2 button to obtain a differential reading.

This displays a difference in temperature between two cylinders.

You may use the MAX and HOLD modes along with the High resolution here also.

MAINTENANCE

The DETI is a very precise measuring device so proper care and maintenance is important.

IF YOU EXPERIENCE ANY PROBLEMS WITH THE DETI DO NOT CALL THE PLACE OF PURCHASE! CONTACT PERCY'S DIRECTLY TOLL FREE AT 888-737-2970

Avoid sharp bending and flexing of the thermocouple leads, especially near the thermocouple. Do not allow the leads to rest on headers or exhaust manifolds, this may cause an inaccurate reading and may damage the leads. Surfaces of the DETI may be cleaned with a slightly damp cloth, avoid use of solvents. DO NOT expose to direct sunlight or extreme heat for long periods this WILL damage the LCD and other internal components. It is also important that magneto users run Percy's special magneto Probes (Weld-on Part# 55107, Clamp-On part #55109) to avoid erroneous readings. Avoid removing the probe from the header or from the DETI as much as possible, this will cause advanced wear on the probe thus voiding your warranty!

When the battery is low, a battery symbol will appear on the display. To replace the battery, remove the outer rubber covering. Use a Phillips screwdriver to remove three screws from the back of the DETI itself and lift off the front case.

OPERATION

TEMPERATURE RANGE:

All engines are unique even if they contain the same components, so there is not a specific temperature for all engines. Your optimum temperature must be determined through tuning at the track or dyno time. However, temperatures will range from 1200 – 1450 degrees in a naturally aspirated gasoline engine. Alcohol temperatures may be 100 – 300 degrees cooler. Forced induction or nitrous engines have been known to reach temperatures as high as 1500 – 1600 degrees. Higher temperatures meaning you are to lean, lower temperatures meaning you are to rich, however in extreme cases when you are overly rich the temperature may begin to

climb again because of the presence of raw fuel and flame in the exhaust. Always check your spark plugs to help you find the right temperature range to avoid engine damage!!

TUNING WITH THE DETI:

If you have had the luxury of some dyno time, refer to the exhaust temperatures on your data sheet, bring the engine to full advance and set the temperature where the engine produced its peak power, then continually run that same temperature for maximum output and/or consistency. For Drag Racers if you have not had your engine dyno'ed, first obtain a baseline reading or run without making any adjustments to your engine. You will want to record a "PIT" measurement and a "TRACK" measurement; record the maximum temperature reached using the max mode. Compare and record the measurements with your E.T.'s until you find where your engine is running its best. NOTE: The "PIT" measurement must be at the same RPM every time, (i.e. 3000rpm or Full advance) Your shift point must be as close as possible every run to receive accurate and consistent "TRACK" measurements. The "PIT" and "TRACK" measurement procedure is only effective if you keep an accurate log of each run. Further, the "PIT" measurement will not reflect the "TRACK" measurement; IT IS FOR REFERENCE ONLY. Circle Track racers may also use this tuning method, however, this may not be as accurate as with Drag Racers, if your engine has been dyno'ed refer to the exhaust temps. on the data sheets and set the exhaust temperature where it produced the highest power output. Have an experienced engine tuner check your plugs to make sure your running properly, then monitor your DETI to make sure you stay in the proper range.

WARRANTY

In returned with a sales receipt within 90 days of purchase, any product packaged in this container found by Percy's High Performance, Inc. to be defective in materials or workmanship, will be repaired and or replaced and returned at our expense.

In no instance will this warranty cover any type of damage to engine, or other vehicle parts, labor, or any personal injury. This warranty is in no relation to any other implied warranty, by any other organization.