



Introduction

The DT-43KL is Digatron's small, easy to use, digital engine monitoring system. This instrument was designed for the customer who wants to know how their engine is functioning without spending a lot of time and money. This instrument monitors exhaust gas temperature (EGT), with backlight and limit to warn you of possible engine problems.

About Exhaust Gas Temperature

Exhaust gas temperature is used primarily for adjusting the air/fuel ratio. Because of its quick response, the effects of carburetor adjustments are seen immediately. Fuel system and carburetor problems can often be spotted quickly enough to prevent engine damage.

Exhaust gas temperatures typically run between 1100°F and 1350°F. The EGT on a properly tuned engine will increase rapidly as the throttle is opened and as the load on the engine is increased. At full throttle and full load the EGT will stabilize at a temperature dependent on the air/fuel ratio. Both a "too lean" or a "too rich" condition will be indicated by a lower than peak temperature. The "too lean" condition can damage your engine. An increase in coolant temperature or cylinder head temperature is usually an indication of this. The best way to determine what temperature is normal for your motor is to tune for good plug or piston color and then observe the temperature at various throttle settings.

Installing Your EGT Sensor

Our standard EGT sensor is a type K thermocouple temperature sensor. Install the sensor clamp assembly, or weld on, to the exhaust header. Position the clamp so that the sensor will be in the center of the header. Contact your engine builder for the distance from the exhaust flange. Using the fitting on the clamp assembly as a drill bushing, drill a 3/16" hole through the header. Remove the clamp assembly from the header and redrill the hole to 13/64". Reinstall the clamp assembly aligning it with the hole just drilled.

Insert the sensor into the fitting so that the tip of the sensor extends 1/4" past the center of the header. Tighten the compression nut to lock it in place.

The EGT sensor cable should always be routed as far away from the ignition system components as possible (plug wires, spark plugs, ignition coils, distributor or magneto). If the sensor cable is too close to these components it may pick up radiated electrical interference and cause erratic instrument readings and operation. A distance of at least 6" from these components is desirable in all installations.

When routing the sensor cable through any panels, be sure to use a rubber grommet to keep the cable from being cut by a sharp edge. It is also good practice to protect the sensor with a short piece of fuel line at any point that the cable may rub against a hard surface. If your cable is too long to route back to your instrument fully extended, we recommend sending it back to Digatron to be cut to the appropriate length for your needs. If you choose to coil your sensor, keep the coil away from the engine.

Route the sensor cable from the motor to the instrument. Secure the cable with cable ties to prevent excessive movement. Attach the connector to the back of the instrument. *The thermocouple cable is brittle and will break at the flex points if not properly tied down.* It is also good practice to protect the cable with a short piece of fuel line at any point where the sensor may rub against a hard surface.

Electrical Interference

If the instrument encounters excessive electrical interference it will display ERR on the left side of the display. The ERR annunciator can indicate an incorrect instrument or sensor installation. Severe electrical interference can cause the Tach limit and calibration to reprogram themselves. If your instrument is doing strange things, put it in Set Limits mode and check to see that the limits and calibration number are still where you set them.

Electrical interference problems can normally be solved by installing a *resistance plug boot*. We recommend using an NGK boot, # LB05EMH.

To avoid erratic readings:

- Route the lead as far away from the ignition coil as possible.
- Running your lead through a section of fuel line will protect it from cuts and abrasions, but will not shield it from ignition generated interference.
- Be sure that the sensor and the connector fit together snugly.

The Two Modes of the DT-43KL

This instrument has two basic modes of operation, Set Limits and Monitor.

- A. Set Limits mode is necessary before using your unit for the first time and if you use it on different engines. The limit helps you prevent possible engine damage.
- B. Monitor mode is used while operating your kart to watch your engine's exhaust gas temperature for irregular activity.

A. Setting the Function Limit On Your DT-43KL

Before using your DT-43KL, be sure to set the EGT operating limit. The limit allows the instrument to give you a visual warning (the display flashes) if the input exceeds its limit. *The limit should be set at a level that allows you to react to the visual warning before engine damage occurs.*

- Enter Set Limits mode by pressing the **SETL** button. The instrument is now in Set Limits mode, which is indicated by the flashing display.
- To change the number being displayed press the ← or the → button. Hold either of these buttons down and the number will change faster.
- To save the current limit and return to Monitor/Record mode, press the **Exit/Power** button.

Note: Set the limit at a level high enough for normal operation, but not so high that engine damage can occur before you can respond to a problem.

B. Monitor Mode is Used While on the Track

When your instrument is powered on, it is in Monitor mode. This is the mode the unit will be in so you can observe your EGT function. During Monitor mode you can make quick tuning adjustments to your powertrain that allow you to run safe and fast. The instrument will visually warn you, by flashing the display, if your engine exceeds its set limit. This limit allows you to avoid engine damage.

- To view your maximum EGT reading since the engine was turned on, press the ← and the → buttons at the same time.
- The backlight is used to illuminate your display for use at night. Press the **LIGHT** button to toggle the backlight on or off. The backlight can only be turned on or off while in Monitor mode.

The DT-43KL Uses One AAA Batteries (not included)

To replace the one AAA battery, remove the battery holder on the back of the instrument. Observe polarity when replacing the battery. The DT-43KL can run, without a backlight, for 200 hours on one AAA battery. When using the backlight, the battery will power the instrument for 50 hours.

Troubleshooting

The following are explanations to some commonly asked questions.

What are those letters on the side of my display?

There are two annunciators that may be displayed on the left side of your display.

EGT stands for Exhaust Gas Temperature

ERR stands for Error and could mean that your instrument has encountered extreme electrical interference. This can possibly cause the instrument to reprogram its limit and calibration number.

Why is the Display Flashing?

This signifies that you are either in Set Limits mode or that your engine exceeded its limit.

Repairs

If you have any questions about the operation of your instrument, please call. One of our technicians will be happy to help you. Please have your instrument nearby to help while troubleshooting with the technician.

Your instrument is warranted to be free from factory defects and electronic failure for one year from the date of purchase. Physical damage during normal usage is not covered under the warranty. Be sure to fill out and return your warranty card for our records. If we do not have a card on file for your instrument, you will be charged for repairs unless you can provide us with proof of purchase date.

When returning an instrument for repair, please use the repair form found on our website or enclose a note indicating your return address, phone number and a detailed description of the problem. Send your instrument and sensors so that we can check the complete system.

Send repairs to:

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