Pocket-Probe® Digital Extended Range Pyrometer

User Manual

Electronic Development Labs, Inc.
The Temperature People®
Since 1943

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WARNING
PLEASE READ FIRST

Warning! Do not attempt to measure live circuits. For this application, contact 1.800.342.5335 or email sales@edl-inc.com for information on our recommended line of non-contact infrared pyrometers.

Warning! When measuring high temperatures, standard safety precautions must be followed:

1. Use insulated, fireproof gloves.
2. Wear protective, shatterproof face shields.
3. Wear fireproof protective clothing when working with liquids.

Warning! When measuring operating machinery, never insert your hands or arms. Use correct extension handles at all times.

Warning! These instruments are not for use in hazardous (explosive) areas. For hazardous (explosive) operation, use our line of Pocket-Probe® Analog instruments.

Warning! These instruments are designed and built for temperature measurement. Any other use voids warranty.

Introduction

The Pocket-Probe® Digital Extended Range Pyrometer was engineered to be the most rugged, durable, and precise handheld pyrometer available. With all of the same great features as the standard Pocket-Probe®, but featuring an extended operating range, it is capable of functioning in ambient temperatures of -22 °F up to 160 °F. This unit is ideal for sub-zero environments or any area where extreme conditions exist. Available in all major thermocouple types, this pyrometer is compatible with virtually any mini-plug terminated thermocouple of the same type and is ready to use out of the box.

Temperature measurement accuracy ALWAYS BEGINS WITH THE SENSOR.

The most accurate pyrometer cannot compensate for sensor error. We strongly recommend using EDL assured accuracy sensors; if you are not, please see the end of this manual for more information on the other products and services we provide.

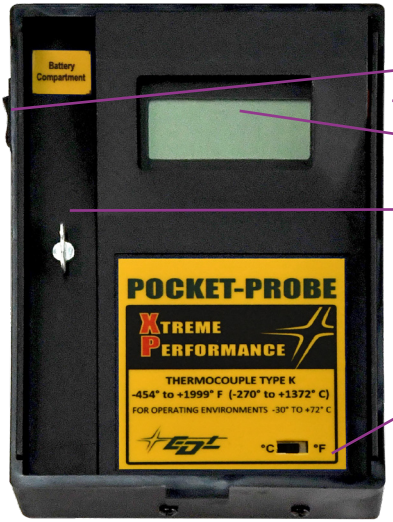
Caution: Never use a sensor for any other purpose than what it was designed for. The sensor may be damaged, or you may find it difficult to obtain the instrument's full accuracy if the wrong sensor or a damaged sensor is used.

Important: The Pocket-Probe® is available in all major thermocouple types. The type your Pocket-Probe® is built with is on its label and can be determined from its jack color. In accordance with industry standards, each thermocouple type is designated by the following colors for both plugs and jacks:

Thermocouple Type	Color
K	Yellow
J	Black
E	Purple
T	Blue

Caution: Never use an instrument and a sensor of different thermocouple types. Make sure that the instruments and the sensors have the same color jack and plug! There are no exceptions to this caution.

Diagram - Features and Options



Rocker Thumb Switch

Thermocouple

Display

Battery Compartment

°F / °C Switch

Peak Hold Reset (Optional)

(Rear of Instrument)

Rocker Thumb Switch

All Pocket-Probe® Digital pyrometers have a **Rocker Thumb Switch** with 3 positions: **Momentary On**, **Off**, and **Continuous On**. The **Rocker Thumb Switch** must be pressed on either **Continuous On** or **Momentary On** to display readings.

The **Momentary On** switch will display readings for as long as the switch is pressed.

Use the **Continuous On** postion when long duration tests are needed. When the **Rocker Thumb Switch** is in the **Continuous On** position, the display reading will remain on until the **Rocker Thumb Switch** is returned to the center **Off** position.

°F / °C Switch

Move the **°F / °C Switch** to the desired position to display readings in either Fahrenheit or Celcius.

Options Package (Peak Hold & Magnetic Backing)

Pocket-Probes® that have been ordered with the options package include the **Peak Hold Switch** and the **Peak Hold Reset Button** as well as a **Magnetic Backing**. The Options Package is denoted by an "O" at the end of the part number.

Peak Hold operates when the **Peak Hold Switch** is in the **P Position** (above 0 °C / 32 °F). The instrument will display the highest temperature it senses and will continue to display this temperature after the sensor is removed from the object under test.

To operate this instrument with non-peak readings, simply move the **Peak Hold Switch** to the **N Position**. The instrument will then track and display increasing and decreasing temperatures as detected by the sensor.

The **Peak Hold Reset Button** enables you to reset Peak Hold for successive and rapid Peak Hold readings at temperatures above 0 °C (32 °F).

To use Peak Hold reset, place the **Peak Hold Switch** in the **P Position**. The display will show the highest temperature detected by the sensor. This reading will be retained even when the sensor is removed from the object under test. Pressing the **Peak Hold Reset Button** will erase the last reading and resets the instrument for the next Peak Hold reading. Successive Peak Hold readings can be made easily and rapidly. When Peak Hold readings are completed, return the panel **Peak Hold Switch** to the **N Position** to erase the Peak Hold memory. This will also eliminate the possibility of a peak reading being stored and displayed when the instrument is turned **On**. Peak Hold memory is erased by disengaging the Peak Hold circuitry through **Peak Hold Switch**, pressing the **Peak Hold Reset Button**, or by turning the instrument **Off**.

The **Magnetic Backing** allows the instrument to be attached to any iron or steel surface for hands-free use.

Basic Operation

Insert a thermocouple sensor mini-plug into the **Polarized Thermocouple Jack** on the instrument. If the plug does not fit easily, do not use excessive force; check the polarity and try again.

Press the **Rocker Thumb Switch** to **Momentary On** or **Continuous On** operation. The display should indicate the temperature that is being read by the sensor in the **Polarized Thermocouple Jack** (generally this reading is the ambient temperature of the environment the sensor is in, but this depends upon the sensor type and its location). The instrument is now ready for temperature measurement.

Apply the sensor to the object under test and and wait for the readings to stabilize before recording your temperature. This stabilization period ranges in time depending on the sensor. When **Continuous On** readings are made, always turn the instrument **Off** upon completion of readings, especially at the end of the day, to avoid accidental battery depletion during storage.

Open Thermocouple Indication

When a sensor is either open or not plugged into one of the instrument's **Polarized Thermocouple Jacks**, the open thermocouple condition will be displayed as negative one (-1) when the **Rocker Thumb Switch** is in either of the **On** positions.

A simple way to check for an open sensor is to put a paper clip between the inputs of the jack and see if the instrument reads the approximate room temperature. This will verify that the sensor is defective and the instrument is functioning correctly.

Industrial ABS Case and Cover

The Pocket-Probe® Digital Pyrometer is housed in a heavy duty ABS Plastic Case. It is also available in a steel case version.

Tempered Glass Display Window

The standard 3/16" thick tempered glass display window allows for use of this instrument in many environments where the typical plastic window would fail through leakage or diminished visibility. The scratch-proof tempered glass can be cleaned with alcohol or a non-abrasive general purpose cleaner. The standard display is designed to continually withstand harsh and abusive environments. This unit is available with an optional Lexan® shatterproof display window.

High Visibility Display

This instrument's liquid crystal display has excellent visibility in any light ranging from dim interiors to bright sunlight. The brighter the light, the brighter the display. The display is visible in photographic darkroom red light. Often measurements must be made in totally dark locations; the same amount of light which is needed to see where and how to apply the sensor should be sufficient enough light to see the display.

Display Back Lighting Option

Units ordered with the Back Lighting Option are denoted by an "L" at the end of the part number. The lamp can be illuminated only when the **Rocker Thumb Switch** is pressed for momentary display readings.

Batteries and Battery Alerts

Quality instruments require quality batteries. EDL advises using Alkaline batteries in all situations. EDL advises against the use of Carbon-Zinc batteries in our instruments as there are numerous grades of Carbon-Zinc batteries that can vary in life expectancy by as much as 30%; even at peak, a Carbon-Zinc battery generally has less than half the life of an Alkaline battery, which have a single grade that does not vary.

A low battery alert is provided to prevent accidental or unexpected battery depletion. "LO BATT" will appear on the display when there are ~50 hours left of continuous battery life. "REP BATT" will appear on the display when there are ~10 hours left of continuous battery life. Replace the battery at this time, since low battery voltage can cause a properly working instrument to appear defective. **Do not return an instrument for repair until you have installed a new battery to determine which could be at fault.**

Battery Replacement

Any battery in service for 12 months should be replaced regardless of how the battery appears or how little the battery was used. A battery more than 12 months old can develop leakage that can harm the instrument. We recommend creating a dated maintenance schedule to remind and assure correct battery replacement.

The battery compartment is located on the left side of the instrument. Twist wing head fastener to the left and lift the battery cover. When the lock disengages, pull the cover upward. The battery cover will then come out easily. Observe the positioning of all components, including wires. Take the battery out and disengage the clips. Put the clips onto the new battery. Put the battery into the compartment in the same manner as removed.

Specifications

Display ..... 1/2" Tall, Bright liquid crystal display
Compensation ..... Automatic cold end
Resolution ..... 0.1°F or 1°F and 0.1°C or 1°C
Repeatability ..... 1/2°F or 1/2°C
Input ..... Polarized miniature thermocouple jack, accepts standard miniature plugs
Separate Battery Compartment ..... Requires NO TOOLS for battery replacement.
Battery ..... Standard 9 Volt Battery
Battery Condition Indicator ..... Displays LO BAT
Open (Sensor) Probe ..... Displays –1
Peak Hold ..... Holds and displays highest temp. sensed
Peak Hold Acquisition Time ..... <300m seconds
Tested Ambient Operating Range ... -22 °F to 160° F (-30° C to 72° C) ± 0.5° C over ambient range.
Temperature Range ..... See chart
Accuracy ..... Accuracy is 1°; See chart
Instrument Types ..... K,J,E,orT
Response Time ..... 3 per second
Linearization ..... Continuous
Weight ..... 27 oz.
Dimensions ..... 5.5" x 3.9" x 2.1"

Accuracy Data

Model	T/C Type	Resolution	Temperature Range	Accuracy ±1 Digit
PDK	K	0.1 °C (0.1 °F)	-270 °C to 1372 °C (-454 °F to 1999 °F)	1 °C (1 °F)
PDJ	J	0.1 °C (0.1 °F)	-210 °C to 1200 °C (-346 °F to 1999 °F)	1 °C (1 °F)
PDE	E	0.1 °C (0.1 °F)	-270 °C to 1000 °C (-454 °F to 1832 °C)	1 °C (1 °F)
PDT	T	0.1 °C (0.1 °F)	-270 °C to 400 °C (-454 °F to 752 °F)	1 °C (1 °F)

Service

It is not recommended to perform in-house repairs on your EDL instruments. If the instrument gets damaged or requires service/re-calibration, it is recommended to be returned to the manufacturer. Visit www.edl-inc.com/repairs for more information and instructions. For help, contact 800.342.5335 or email sales@edl-inc.com.

Note: Tampering with the instrument may cause additional or more severe damage, and will void the warranty if applicable.

If returning for service or calibration, be sure to place instrument in a corrugated container with ample packaging around the instrument to prevent further damage in transit. Be sure to label the outside of the package "Fragile – Handle with Care" and to insure for the full value of the instrument. The manufacturer accepts no responsibility for damages or loss during transit.

Important: Before returning an instrument for repair, be sure to install a new 9-volt Alkaline battery to determine whether this may restore the instrument to its proper working condition.

Important: When sending instruments in for service, include a completed Repair Form with full contact information and specific details as to the nature of the repair service required.
Print a Repair Form online at www.edl-inc.com/repairs.

Send instruments to: Electronic Development Labs, Inc., Attn: Repairs, 244 Oakland Dr., Danville, VA 24540 USA.

Calibration

All of our instruments are constructed of the highest grade of materials available, and are subjected to rigorous testing and calibration procedures before leaving our facility. All EDL instruments are checked at multiple temperature points and come factory calibrated to NIST standards. Under normal operating conditions, yearly re-calibration is recommended. A Certificate of Conformance and Certificate of General Calibration are provided at time of purchase; with NIST traceable calibration at specified temperature points available at an additional cost. For Calibration through the lab, contact the sales team at 800.342.5335 or email sales@edl-inc.com for current pricing and order instructions.

Warranty

Please complete the included Warranty Card and return by USPS, or complete the Warranty Submission online at www.edl-inc.com/warranty.

Electronic Development Labs, Inc. (EDL) warrants this product to be free from defects in material and workmanship under normal use and service for a period of five years. This warranty extends only to the original purchaser (a purchase from EDL or recognized EDL distributor is an original purchaser). This warranty does not apply to: (1) cosmetic damage, such as scratches, nicks and dents; (2) consumable parts, such as batteries, unless product damage has occurred due to a defect in materials or workmanship; or (3) damage caused by accident, abuse, misuse, water, flood, fire, or other acts of nature or external causes. In addition, EDL reserves the right to refuse warranty claims against products or services that are obtained and/or used in contravention of the laws of any country. Should EDL be unable to repair or replace the product within a reasonable amount of time, the purchaser's exclusive remedy shall be a refund of the purchase price upon return of the product. In the event of failure of a product covered by this warranty, EDL will repair the instrument when it is returned by the purchaser, freight prepaid, to our manufacturing facility within the applicable warranty period. Repairs or replacements will be made without charge and with return freight paid by EDL, unless the failure was caused by misuse, neglect, accident, or abnormal conditions of operation or storage, in which case repairs will be billed at a reasonable cost. In such cases, an estimate will be submitted before work is started, if requested. The foregoing warranty is in lieu of all other warranties, expressed or implied, including but not limited to any implied warranty of merchantability, fitness, adequacy for any particular purpose or use. EDL shall not be liable for any special, incidental, or consequential damages, whether in contract, tort, or otherwise.

For Warranty help and support call: 1.800.342.5335 or e-mail: service@edl-inc.com.

EDL Quality Assured Sensors

We strongly recommend you use EDL sensors with our instruments. We manufacture a full line of standard thermocouple sensors with tips specially designed for measuring gas temperatures, liquids, smooth flat surfaces, contoured surfaces, rough surfaces, fins, radiators, ovens, steam traps, concrete, asphalt, plastics, rubber, molds, and most other industrial measurement applications. If you need it measured, we have a sensor for it!

All EDL sensors are manufactured from the same high quality thermocouple wire used in the sensor tips and guarantees the best possible accuracy, even in the most adverse conditions. Extension wire is inferior and is never used. This means that even if the lead wire is exposed to high temperatures, the accuracy of our sensors is unaffected. Our standard Teflon®-insulated, steel-braided lead is usable in environments up to 287 °C (550 °F), with additional options available for more extreme temperatures.

If you need a customized solution tailored specifically to your needs, our engineering team has the knowledge and experience to create a new solution for you. Contact us at 1.800.DIAL.EDL (1.800.342.5335) and let's get started on something groundbreaking!

Our Most Popular Products

Pocket-Probe® Digital - Our rugged and reliable portable single-sensor pyrometer has been the industry standard for decades.

Pocket-Probe® Steel-Cased Digital Pyrometer - Our Pocket-Probe® is tough, but with a steel case it's even tougher. You won't find a stronger pyrometer anywhere else!

Pocket Probe® Extended Range Digital Pyrometer - Our legendary pyrometer upgraded for use in extreme ambient environments, from -30 °C to 72 °C.

Pocket-Probe® Sealed Digital Pyrometer - This sealed pyrometer is impervious to moisture, contaminants, and dust--plus it floats!

Pocket-Probe® V Digital Pyrometer - With an extended reach integrated into the pyrometer, the Pocket-Probe® V features safe one-handed operation and uses our money saving sensor tips.

Pocket-Probe® Analog Pyrometer - The US Navy's #1 pyrometer! With no electric power source needed, this is the safest pyrometer available for explosive environments.

E-Z Probe® & E-Z Probe® Ultra Pyrometers - Fast and affordable, the E-Z Probe® and the E-Z Probe® Ultra deliver EDL's legendary accuracy that's easy to use (and easy on the wallet!)

Temperature Kits - These all-in-one packages include instruments and sensors tailored to the specific needs of several industries, such as pipeline, plastics, or food & beverage.

Calibrators - Keep your instruments and sensors as accurate as possible with our wide range of metrology devices.

We also offer RTDs, thermistors, temperature controllers, accessories and compression fittings. Visit www.edl-inc.com for product information.

Trust in Electronic Development Laboratories, Inc.

EDL has a long tradition of excellence because being the best isn't nearly enough for us. Every year, every day, we push ourselves to go beyond our best. That's why no matter what it is, every EDL product is the most accurate, most cost-effective, most sturdy, longest lasting in its class.

Our ethic of continual improvement has been the core of our company since day one. We were established in 1943 as a repair house for temperature instruments, and it was not long before we were not just repairing instruments, but producing a better product. Our drive to be the best made our future obvious: we could make superior instruments, so we did.

We're committed to being the best temperature equipment manufacturer in America. Our products don't just make the world go 'round; they make it bigger.

The legacy of EDL is the legacy of innovation and progress of 20th century America. Hand in hand with hundreds of satisfied clients, we're forging ahead in the 21st century, pushing boundaries and preserving the good works that benefit all of us.

If you're a long-time customer, we appreciate the mutual support. If you're new to our business, we can't wait to help you build a legacy as long-lasting as ours.

Notes

Notes

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