Unconditional Guarantee

Since 1943 quality and excellence have been a
continual tradition at Electronic Development Labs, Inc.

As part of our service and quality assurance, EDL, Inc. fully stands behind the
Pocket-Probe® Digital Pyrometer
with an unconditional one year guarantee.

Electronic Development Labs, Inc.
244 Oakland Drive
Danville, VA 24540
website: http://www.edl-inc.com - e-mail: sales@edl-inc.com
Toll-Free: 1-800-342-5335 - Fax: 434-799-0847

The Temperature People ®
Since 1943

Pocket-Probe®
Digital Pyrometer
User Manual

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We also manufacture a variety of hand-held portable instruments such as:

Pocket Probe Analog-housed in a rugged steel case, available in four models and various ranges thermocouple type E 5.5” x 3.9” x2.1”, 22 Oz.

DYNA-TEMP Digital available in 5 thermocouple types and 11 temperature ranges 5 3/16”x3” x 1 1/8”, 8.5 Oz.

E-Z PROBE Digital our lowest cost instrument 4.7” x 2.7”, 6.3 Oz.

Index

Warning!

Do not attempt to measure live circuits! For such applications use the Guard-Temp® line of non-contact infrared pyrometers.

Warning!

When measuring high temperatures standard safety precautions must be followed:

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

Warning!

When measuring temperature of operating machinery never insert your hands or arms to acquire reading. 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 for temperature measurement purposes only. Any other use may void warranty.

Introduction
Pocket-Probe® Digital Pyrometers

Pocket-Probe® Digital is a high-performance, high accuracy, handheld portable industrial pyrometer.

Pocket-Probe® Digital features industrial ruggedness, but is equally respected by industry and laboratories for its initial accuracy and the fact that it is made to stay accurate. Pocket-Probe® Digital is guaranteed because it has a performance proven track record since 1976, and because Pocket-Probe® Digital is built with highest quality components, plus our sincere desire to bring you a pyrometer you can always depend upon.

Remember… 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. These sensors are handcrafted. They are made in all styles and are designed and produced to give you accuracy as close as 1°F or 1°C.

Caution...Never use a sensor for any purpose other than the designed purpose if you expect to obtain its full accuracy ability.

Standard EDL Sensors—Leads and Insulation

Since temperature measurement accuracy always begins with the sensor, EDL has made every effort to create a sensor and lead assembly that assures the best possible temperature measurement accuracy.

Warranty

Electronic Development Labs, Inc. warrants to the original purchaser of any product manufactured by us to be free from defects in material and workmanship under normal use and service. Our obligation and responsibility under this warranty is limited to repairing or replacing this product, which may prove defective under normal use and service and which our examination shall disclose to your satisfaction to be defective.

This warranty is expressly in lieu of all other warranties, express or implied, including the warranties of merchantability and fitness for use of all other obligations or liabilities on our part including special indirect or consequential damages and no other person or representative is authorized or permitted to make any warranty or to assume for Electronic Development Labs, Inc. any liability not strictly in accordance with the foregoing. There are no warranties which extend beyond the description on the face hereof except any such warranty as is herein expressly stated.

This warranty will not apply to any product which has been subjected to misuse, negligence, or accident or which has the serial number altered, effaced, or removed, or which has been resold for any reason without our approval in writing.

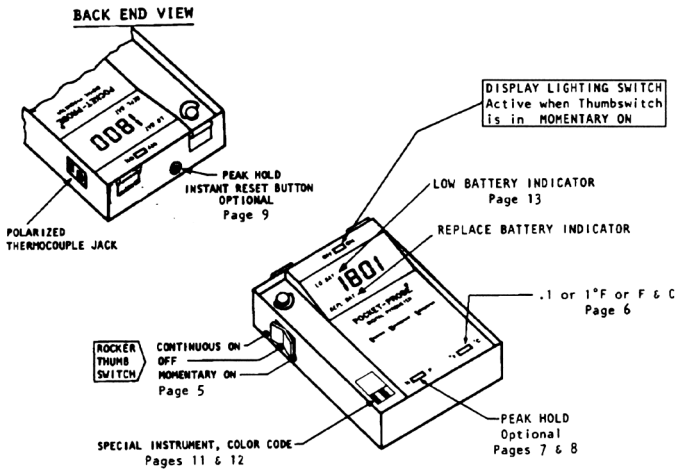
Failure to use the product in the manner set forth in the printed instructions, issued by Electronic Development Labs, Inc. for the use of this product, voids this warranty.

Electronic Development Labs, Inc. reserves the right to change or improve its products at any time without incurring any obligation to improve or change products previously sold.

Other Products

EDL manufactures a full line of standard thermocouple sensors for measuring gas temperatures, liquids, smooth flat surfaces, contoured surfaces, rough surfaces, fins, radiators, performs, ovens, steam traps, concrete, asphalt, plastics, rubber, molds, and most other industrial measurement applications. Our engineers welcome the opportunity to quote on your special application.

In addition, we offer temperature controllers, temperature scanners, temperature alarms, panel instrumentation, thermocouple references, calibrators, temperature sensitive labels, inks, crayons and other specialty items.



Specifications

Display: 1/2" Tall, Bright liquid crystal display
Compensation: Automatic cold end and ambient
Resolution: 0.1°F or 1°F and 0.1°C or 1°C
Repeatability: 1/2°F or 1/2°C
Sensor Resistance: 1,000 Ohms Maximum
Circuitry: Ultra stable EDL and state of the art, with CMOS Digital Logic.
Input: Polarized miniature thermocouple jack, accepts standard miniature plugs.
Separate Battery Compartment: Requires NO TOOLS for battery replacement.
Battery: Standard 9 Volt transistor radio battery, supplied with instrument
Battery Life: Up to 1200 hours continuous use time. 1 year actual intermittent use time. Approx. 880,000 five second readings or 220,000 twenty second readings.
Battery Condition Indicator: Displays LO BAT & REP BAT.
Open (Sensor) Probe: Version "A" Displays room temperature Version "B" Displays random negative readings.
Peak Hold With Memory: Holds and displays highest temp. sensed. Memory Function
Peak Hold Droop Rate: 1° maximum change per minute. Typical 1° change per 1.75 minutes after highest temp. is sensed.
Peak Hold Acquisition Time: Approx. 3/4 second 100 millisecond acquisition time available.
Steel Case & Cover: Removable cover with thick glass window.
Tested Ambient Operating Range: +40°F to +120°F (4°C to 50°C) +/- 1° over ambient range.
Useable Ambient Temperature Range: -20°F to +150°F (-30°C to 65°C)
Storage Temperature: -67°F to +194°F (-55°C to +90°C)
Temperature Range: -280°F to +2000°F & Centigrade equivalent for all ranges.
Accuracy: Base Accuracy is 1°, 1/10%, or 0.25% of reading depending on model, see price and accuracy chart on page 17
Instrument Types: K, J, E, T, or N
Response Time: 3 per second
Linearization: continuous
Weight: 27 oz.
Dimensions: 5.5" x 3.9" x 2.1"

Instruments with °F and °C… Move the F-C Switch to the desired position.

Apply the sensor to the object under test and read the temperature. 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.

Resolution

Please refer to the diagram on page 3 for all instruments with 0.1° resolution. The choice of 0.1° or 1° can be made at any time and in any mode of operation. 0.1° resolution operates up to a maximum of 199.9° F / °C.

Open Thermocouple Indication

When a sensor is either open or not plugged into a version B Instrument, an open Thermocouple condition will be displayed as a negative reading -300 or below, such as -402, -1566, etc. Version A instruments indicate an open thermocouple by displaying room temperature.

Parts And Service

Spare or replacement parts are available from local distributors or directly from the manufacturer. Where multi-color coding, resistance value, lead length, or other notations appear on the meter scale under "EXT. RES." be sure to state this information when ordering.

Do not attempt to perform any repairs on the instrument.

The meter movement is a hand crafted design and requires a professional trained in handling these instruments. All repairs should be forwarded to the manufacturer. Be sure to place instrument in a corrugated container with ample packing (3-4 inches per side) to insure that no additional damage is incurred during shipping. Label package "Fragile – Handle With Care" and insure for full value. The manufacturer accepts no responsibility for damages or loss during transit.

Important: Be sure to provide specific details as to the nature of the repair service required.

Important: Sensors are made for operation up to a specific maximum temperature. When ordering spare or replacement sensors, be sure to mention the full scale temperature of the instrument.

Warranty

This instrument is guaranteed for one full year from the date of purchase. Be sure to fill out and mail the Guarantee Card to activate the warranty.

Range Code Model	T/C	Resolution	Temperature Range	Accuracy ± 1 Digit
24 °F only 245 °F & °C	**K**	1°F 1°C	-30° to +1800°F -35°to +985°C	@-30°F = 3°, @35°C = 2°, 0° to +800°F = 1° @1800°F & 985°C = 1% of reading
32 °F only 323°F & °C	**K**	1°F 1°C	-280° to +1500°F -100° to +815°C	-280° to 1500°F = 1°F -100° to +815°C = 1°C
361	**K**	0.1°F 1°	-170.0° to +199.9°F 0° to +2000°F	-170.0° to +199.9°F = ½°F 0° to +2000°F
367	**K**	1°F 1°C	-280° to +2000°F -100° to +1000°C	-280° to +2000°F = 1°F -100° to +1000°C = 1°C
44 °F only 445 °F & °C	**J**	1°F 1°C	-280° to +1100°F -100°+620°C	-280° to +1100°F = 1°F -100° to 620°C = 1°C
441	**J**	0.01°F 1°F	-170.0° to +199.9°F 0° to +1100°F	-170.0° to +199.9°F = ½°F 0° to +1100°F =1°F
50	**T**	1°F	-100° to +750°F	-100° to +750°F = 1°F
60	**E**	1°F	0° to +1500°F	0° to +1500°F = 1°F
80	**N**	1°F	-100° to +2000°F	-100° to +175°F = 1°F, +200° to +950°F=3°F +1000° to +2000°F = ½% of reading

All EDL sensor leads are made from the same high quality thermocouple wire used in the sensor heads. Extension wire is inferior and is never used. The thermocouple wire used for leads always insures the best possible accuracy, even under the most adverse conditions. Our standard Teflon insulation is usable up to 550° F.

The first letter in the model code # A or B indicates whether your instrument is an (A) version or (B) version. The (B) version instrument can be used with any sensor, or any lead length, provided the thermocouple calibration types match. Version (A) instruments require special calibration for longer than standard sensors or leads. Se page 10 for more information relating to version (A) instruments.

Important

Pocket-Probe Digital pyrometers are made in five thermocouple calibrations: Types K, J, E, T and N. In accordance with the pyrometer industry standards, each thermocouple type is desgnated by the following color plugs and jacks.

K = Yellow J = Black E = Purple T = Blue N = Orange

CAUTION:
Never use an instrument and a sensor which have different jack and plug colors.
There are no exceptions to this caution.

For your ordering convenience for technical assistance for any problems encountered in the operation of your instrument or sensors … Please Call on our Toll Free Number … 1-800-DIAL EDL (1-800-342-5335) … or at 1-434-799-0807.

Unconditional Guarantee

EDL unconditionally guarantees to repair or replace any components, at no cost, if this Pocket-Probe® Digital pyrometer exhibits any malfunctions resulting from any defects in materials or workmanship during the period specified on you guarantee card. Fill out guarantee card and mail promptly to assure receiving full warranty benefits.

See page 19 for the full warranty information.

Switching

All Pocket-Probe® Digital pyrometers have a thumb activated switch with 3 positions: Momentary on, off, and continuous on.

Additional switches are provided on instruments which have specific feature options.

1.-**Peak Hold** 4.-**Peak Hold Reset**

2.-**°F and °C** 5.-**Display Lighting**

3.-**0.1° and 1°** 6.-**Self Diagnostic Test**

The Rocker Thumb Switch must be pressed for continuous on or momentary on to display readings.

Use the continuous on position only where long duration tests are needed. When the thumb switch is in the continuous on position, the display reading will remain on until the rocker thumb switch is turned to the center off posion.

To Operate Pocket-Probe® Digital … Version B

Insert the polarized sensor plug into the matching color polarixed instrument jack. Press the thumb switch to momentary on or continuous on operation. The display will indicate approximate room temperature (exact room ambient readings depend upon sensor type and location). The instrument is ready for temperature measurement.

High Visibility Display

The Pocket-Probe® Digital liquid crystal display has excellent visibility in any light which ranges from dim interiors to bright sunlight. The brighter the light, the brighter the display.

The display is quite visible in photographic dark room red light. When 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, is ample light to see the display.

Where a lighted display is needed, Pocket-Probe® Digital instruments are available with display back lighting.

In addition to its high visibility, the display is capable of operating over a very wide range of ambient temperatures… -20°F to +195°F.

Display Back Lighting

The panel switch located above the display activates the back lighting circuitry when in the on position. The lamp can be illuminated only when the rocker thumb switch is pressed for momentary display readings.

To obtain maximum battery life, apply the sensor to the object under test and allow ample time for the sensor to reach the temperature of the test object, then depress the momentary on switch to obtain the temperature reading. This method of temperature measurement limits the time required for the display and light to be on for only 5 to 10 seconds per temperature reading.

The display back lighting system is by an electro-luminescent panel. This panel operates off the 9 volt battery powering the instrument.

When back lighting is required, move the back lighting switch to the on position and the display will be lighted. The display is not brightly illuminated to avoid heavy current drain on the battery. If back lighting is used continuously, the battery life will be approximately 30 to 40 hours. Therefore, we recommend using back lighting only when necessary.

Version (A) Pyrometers … Color Coding

Version (A) instruments employ precalibrated matched sensors which provide the ultimate in total temperature measurement accuracy, for instrument plus sensors. Accuracy as close as 1° is achievable with almost any sensor style

Where special sensors of any nature are supplied, such sensors bear a color code on the plug. These special sensors must be used only with the specially calibrated instrument that also bears the identical color code which appears in a window in the battery compartment cover.

Use a Good Battery

High Performance - instruments deserve good batteries. The life for Carbon—Zinc batteries is generally less than 1/2 of alkaline batteries. EDL advises against the use of Carbon—Zinc batteries for instrument use, because there are numerous grades which vary in life expectancy by as much as 30%. Only one standardized grade of alkaline battery is made, regardless of the manufacturer. Carbon - Zinc Batteries are more subject to leakage and have a poor shelf life compared to alkaline batteries which have a very long shelf life. Alkaline batteries give you the best buy for instrument use.

Note… Batteries should be replaced every 12 months regardless of their condition. Failure to follow this schedule can result in leakage that could damage the instrument.

Battery Replacement Procedure… 9 Volt

The battery compartment is located at the left side of the instrument panel. Lift the locking ring and turn counter-clockwise 1/4 turn while lifting. 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. Be sure to engage the slip-fit end of the cover into the U which is opposite the 1/4 turn lock. Press the locking ring down and rotate clockwise 1/4 turn to the locking point.

Rugged, Protective… Industrial Steel Case and Cover

Pocket-Probe® can be used with the cover open or closed. The external rocker switch allows you to turn the instrument ON or OFF, using the continuous or momentary mode.

The 3/16” thick glass window, which is chemical resistant and virtually break-proof, offers excellent display visibility and gives you effective protection against all types of common abuses and hazards.

The industrial steel case provides a general barrier against magnetic and electrostatic conditions, plus real physical protection against all realistic industrial abuses and brutalities. This steel case permits you to use Pocket-Probe® Digital where there is the possibility of dropped tools and objects, solder splashing, liquid spills, etc.

Instruments With Peak Hold… Option

Peak hold operates when the N–P Switch is in the P position. The instrument will effectively sense and display a temperature and will continue to be display temperature after the sensor is removed from the temperature under test.

Instruments containing a color code in the battery compartment cover window must be used only with sensors which bear the identical color code.

There are no exceptions; any attempt to use a standard sensor with a specially calibrated instrument will result in erroneous readings.

Diagnostic Accuracy Self Test Option

Before you activate the self test circuit, make sure that the peak hold switch is in the (N) position. Disregard comments relating to peak hold for instruments which do not have the peak hold feature. Push the membrane switch "push for Z test" located at the top of the instrument. This circuit will only affect the instrument while the button is held down, When the self test circuit is activated on instruments that have a full scale range below 1800°, the instrument will read 1000°F of 537°C +/-1° on the display. On instruments that have full scale ranges above 1800°, the readings will be 1900°F or 1037°C+/-1°. Thermocouple calibration does not affect the diagnostic circuit reading. If an instrument fails this test, the discrepancy in the reading is the error of the instrument.

Should your instrument fail the diagnostic Accuracy test at any time, first replace the battery. If battery replacement does not correct the condition, then the instrument requires recalibration. Return the instrument directly to our service department for recalibration.

If you have the needed equipment to perform calibration, EDL will be pleased to supply calibration data upon request.

Peak Hold Reset Button

Instruments containing this exclusive Pocket-Probe® Digital feature enables you to reset peak hold for successive and rapid peak hold readings while the instrument cover is closed or open.

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 though the sensor is removed from the test temperature. Pressing the 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, either press the reset button or return the panel peak hold switch to the (N) normal 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 switching, and not by turning the instrument off.

Tempered Glass Display Window

This tempered glass window allows you to use Pocket-Probe Digital in many environments where the usual plastic display windows would become scratched or hazed and would have diminished visibility. Tempered glass is able to withstand chemicals, splashed solder, and dusty or gritty environments. This tough glass display window does not get hazy... it is scratch proof… and it is easily cleaned to assure perfect visibility.

To operate Pocket-Probe® Digital for non-peak readings, simply move the N-P switch to the normal (N) position. The instrument will then track and display increasing and decreasing temperatures as detected by the sensor.

Peak Hold Memory

The unique memory feature holds peak readings values after the instrument is turned off. When you desire to use the peak hold memory, simply turn the instrument off, but leave the peak hold in the (P) position.

Peak hold memory also eliminates the possibility of losing a peak value if the instrument is accidentally turned off. In order to recall a peak value, merely turn the instrument on. The memory can only be erased by moving the peak hold switch to the (N) position which turns the peak hold circuit off.

Pocket-Probe® Digital peak hold depreciation or droop rate is about 1° per 1.75 minutes (1° per 105 seconds) as opposed to competitive instruments which depreciate 1° per 10 to 45 seconds. It is recommended that the depreciation rate be checked for your particular Pocket-Probe® Digital instrument. In many instances the depreciation time could be 1.75 minutes for the first 1° and as much as 5 to 20 minutes for each successive degree.

Time required for a peak hold reading to be held is 3/4 of a second (750 milliseconds). This is the peak hold acquisition time. A very fast acquisition time 100 milliseconds can be supplied on instruments when they are ordered.

Low Battery Alert

A low battery alert is provided to prevent accidental or unexpected battery depletion. When the "Lo Bat" symbol appears on the display, it indicates that there is approximately 50 hours of continuous battery life remaining. When "Rep Bat" appears on the display, there is approximately 10 hours of battery life left. We recommend changing the battery at this time, since low battery voltage can cause a properly working instrument to appear as though it were defective.

Therefore, do not return an instrument for repair, unless you have installed a new battery. This will determine whether the battery or the instrument is at fault.

Sensor Versatility … Version (B) Instruments

Because Pocket-Probe® Digital is an exceptionally stable and versatile high reliability pyrometer, you can use any style sensor, any sensor length, any lead length. Any diameter, all variations, and all combinations in lead or sensor lengths up to 1000 feet.

Suggested One Year Battery Replacement Schedule

Any battery which is 1 year old should be replaced regardless of how good the battery appears, or how little the battery was used. A battery which is more than 1 year old may appear to be good, but it could develop leakage that can easily harm instrument components. Create a dating and maintenance schedule which automatically assures battery replacement at 1 year intervals.