



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® Sealed Pyrometer with an unconditional 5 year guarantee!

www.edl-inc.com

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Pocket-Probe Sealed®

Environmentally Sealed Pyrometer

User Manual for PSK & PSKX

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WARNING!

DO NOT ATTEMPT TO MEASURE LIVE CIRCUITS!

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.

Page A

Pocket-Probe® Sealed Digital Pyrometer

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

Pocket-Probe® Sealed features industrial ruggedness with complete sealing. It is equally respected by industry and laboratories for its initial accuracy and the fact that it is made to stay accurate. The Pocket-Probe® Sealed is guaranteed for 5 years, because it has a performance proven track record since 1976, and because Pocket-Probe® Sealed is built with the 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 all 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

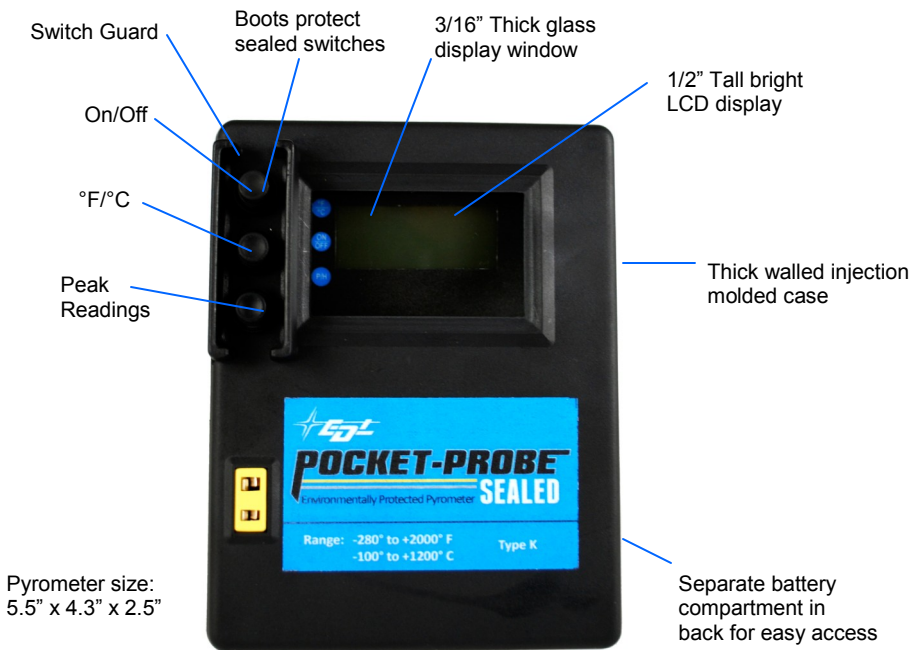
Since temperature measurement accuracy always begins with the sensor, EDL has made every effort to create a sensor and lead assembly that assures the best possible temperature measurement accuracy.

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Pyrometer size:
5.5" x 4.3" x 2.5"

N/P Switch

If your instrument has peak hold it will be indicated on the left side of the display. Each push of the bottom button will toggle the instrument from normal reading to peak reading. When in peak reading, the instrument will effectively sense and display temperatures that are increasing. As peak temperatures are sensed, they are held and the highest temperature will continue to be displayed after the sensor is removed from the object being tested. To reset the peak reading you must press the N/P switch which returns the instrument to normal operation. If you need to take another peak reading, press the N/P switch and the instrument is back in peak reading mode.

NOTE: While the instrument is in peak mode it will only display readings that are HIGHER than the currently displayed reading.

IMPORTANT: If your readings seem high, DO NOT forget to check if the instrument is in peak reading mode.

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.

Specifications

Display	1/2" Tall, bright LCD	Operating Adjustments	None
Compensation	Automatic cold end & ambient	Instrument Type	K
Resolution	1 °F & 1 °C	Response Time (Update)	3 per second
Repeatability	1 °F & 1 °C or better	Linearization	Continuous
Sensor Resistance	1,000 Ohms maximum	Accuracy	1°
Dependability Burn-In .....	.....		168 hours minimum
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			
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		
	.....Approximately 880,000 five second readings or 220,000 twenty second readings		
Battery Condition Indicator.....	.....Displays LO BAT & REP BAT		
Open (sensor) Probe.....	.....Displays random negative readings		
Peak Hold with Memory.....	.....Holds and displays highest temperature sensed		
	.....Memory function retains highest reading		
Peak Hold Droop Rate.....	.....1° Maximum change per minute		
	.....Typical 1° change per 1.75 minutes after highest temperature is sensed		
Peak Hold Acquisition Time.....	.....Approx. 3/4 second, 100 Millisecond acquisition time available		
Sealed Case.....	.....High impact reinforced injection molded plastic		
Tested Ambient Operating Range.....	.....+40 °F to +120 °F (4 °C to 50 °C) ± 1°. Over this ambient range		
Usable Ambient Temperature Range.....	.....-20 °F to +150 °F (-30 °C / 65 °C)		
Storage Temperature.....	.....-67 °F to +194 °F (-55 °C to +90 °C)		
Temperature Ranges.....	.....-280 °F to +2000 °F & centigrade equivalent for all ranges		

NOTES:

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.

We also manufacture:

Pocket-Probe Analog — 5.5"x3.9"x2.1", 22 oz. Thermocouple Type E, and 8 temperature ranges.

Dyna-Temp Digital — 5.2"x3"x1.1", 8.6oz. Is available in 2 thermocouple types and 2 temperature ranges.

E-Z Probe Digital — 4.7"x2.7"x1", 6.3 oz. Our lowest cost instrument. Available in type K only, with 2 temperature ranges, and is housed in a reinforced plastic case that is impact, chemical, and temperature resistance.

EDL also provides quality products and service - the most reliable precision temperature measuring sensors, equipment, accessories, and calibrators; customized to customer specifications as needed. EDL offers an extensive line of calibrators, thermocouples, RTDs, thermistors, wire, high temperature bore thru compression fittings, bimetals, lab thermometers, recorders, infrared, high temperature insulations, over 10,000 sensors, and a full range of precision handheld pyrometers. EDL also offers a complete calibration service for sensors, instruments and thermometers.

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. Therefore, in situations where the lead wire is exposed to high temperatures, there is no effect upon the accuracy of readings. Our standard Teflon insulation is usable up to 550° F. The Pocket-Probe Sealed can be used with any sensor and any lead length provided the thermocouple calibration types match. Go to www.edl-inc.com to see all available sensors or call our sales team—1.800.342.5335.

Important

Pocket-Probe Sealed pyrometers are made in **Type K** thermocouple calibration. In accordance with the pyrometer industry standards, each thermocouple type is designated 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.

Switching

All Pocket-Probe® Sealed pyrometers have sealed booted switches for maximum protection. Boots are replaceable in the event one becomes worn or torn. The switch guard will help protect them from accidental abuse. Additional switches allow options such as noted on adjacent photo. Room temperature (exact room ambient readings depend upon sensor type and location). The instrument is ready for temperature measurement.

To Operate the Pocket-Probe Sealed

Insert the polarized sensor plug into the matching color polarized instrument jack. Press the ON/OFF switch (top switch) to the ON position. The display will indicate the temperature of the sensor. The instrument is now in reading mode and ready for temperature measurement. If the instrument is turned ON and **NO sensor** is plugged in or the sensor is open, the instrument will show a random negative reading. This reading may oscillate or be stable on a specific number, it does not affect the instrument accuracy.

°F / °C Switch

If your instrument is equipped with a °F/°C switch it will be indicated on the left side of the display. This switch can be pushed at anytime and will alternately change the display.

Battery Compartment

The battery compartment is totally isolated from the sealed instrument itself. This compartment is not sealed to the outside environment because some batteries require venting. Do NOT try to seal off this compartment. Doing so may directly affect the instruments circuitry and the battery life itself. Liquids that enter the compartment will drain out. Occasionally a fluid may be conductive enough to short the battery. If this should happen simply replace the battery.

Battery Life

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 ON switch to obtain the temperature reading. This method of temperature measurement limits the time required for the display to be ON for only 5 to 10 seconds per temperature reading.

These instruments are designed with CMOS circuitry to greatly enhance their battery life. Under almost all applications, these instruments should give you a battery life of 1 year.

NOTE:

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. Also, be sure to state the temperature value printed or stamped on any sensor.

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 ... 1.800.342.5335 ... or at 1.434.799.0807.

Unconditional Guarantee

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

See page 17 for the full **Warranty** information.

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.

Battery Replacement

Use only a good grade 9 volt Alkaline battery. The battery compartment is located on the underside of the instrument, totally isolated from the sealed instrument itself. Simply remove the 2 screws to gain access to the battery. When replacing screws do not over tighten them.

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 the instrument components. Create a dating and maintenance schedule which automatically assures battery replacement at 1 year intervals.

Peak Hold Memory

The Unique Memory feature holds peak reading values after the instrument is turned OFF. When you desire to use the Peak Hold Memory, simply turn the instrument OFF, but leave the N/P switch in the peak 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 pressing the N/P switch.

Pocket-Probe Sealed 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 Sealed 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.

The 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 of 100 milliseconds can be supplied on instruments when they are ordered.

Open Thermocouple Indication

When a sensor is either open or not plugged into a Pocket-Probe Sealed instrument, an open thermocouple condition will be displayed as a random negative reading... -300 or below, such as -402, -1566, etc. If you have a sensor plugged in and it appears to be open, either short the thermocouple input or try a sensor that you know is good.

Use a Good Grade 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 on standardized grades of Alkaline battery is made, regardless of a manufacturer. Carbon-Zinc batteries are more subject to leakage and have a poor shelf life compared to Alkaline batteries that give you the best buy for instrument use.

NOTE: Batteries should be replaced every 12 months regard less of their condition. Failure to follow this schedule can result in leakage that could damage the instrument.

High Visibility Display

The Pocket-Probe Sealed 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 that has a 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.

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.

Troubleshooting

If your instrument reads room temperature with the sensor plugged in and at an elevated or low temperature, check the sensor to see if it is shorted. If the sensor is good check to be sure the instrument is not in peak reading mode. If the problem still exists shut the instrument OFF and then turn it ON, if this does not clear up the problem please contact our Service Department, 1.800.342.5335.

If you are using a sensor and find the readings substantially different from what you feel they should be, check the thermocouple type and the resistance of your thermocouple. Incorrect thermocouple types can not be detected by the instrument and can cause major errors. High resistance in the thermocouple circuit can also cause major errors.

If you experience fluctuating numbers on the display and you know the sensor is good, verify if there is any high frequency or RF equipment operating in the area. If there is, and the display fluctuates only when the sensor is in contact with the object being measured, try insulating the contact point between the sensor and the object.

If the display fluctuates at all times, and you know that the sensor is good, either there is an extremely high level of RF noise or electrostatic dissipation. Please contact our engineers for additional help with this problem.

Engineered for Rugged Use

Pocket-Probe Sealed pyrometers have been designed and molded for strength and ruggedness. Using an engineering grade glass reinforced plastic, an extremely thick walled chemical resistant case protects this pyrometer from industrial abuse ... Accidentally dropping tools, hot splashes up to 300 °F or even standing on the instrument will not affect its accuracy or inherent sealed characteristics. The 3/16" thick glass window is also totally chemical resistant and virtually break-proof.

Sensor Versatility

Because Pocket-Probe Sealed 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 combinations in lead or sensor lengths up to 1000 feet causes no errors.

Tempered Glass Display Window

This tempered glass window allows you to use the Pocket-Probe Sealed in ALL environments where the plastic display window would become scratched or crazed 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 is really easily cleaned to assure perfect visibility.

Parts and Service

Order spare or replacement sensors from local distributors or directly from our Laboratories. Also specify lead length if it is special, or any other notations or color code.

DO NOT ATTEMPT TO PERFORM ANY REPAIRS ON THE INSTRUMENT. Our knowledge of the entire instrument prepares us for fast, simple and low cost repairs. Tampering with the instrument could cause additional problems.

Sending in for Repairs: Be sure to place the instrument in a corrugated container, with ample packing to prevent further damage in shipment. Label the package FRAGILE, HANDLE WITH CARE, and insure for FULL PURCHASE PRICE VALUE. We will not accept any responsibility for damages or loss in transit. IMPORTANT.... Give specific details as to the nature of the problem and service required. In many instances, this information is very helpful in restoring the instrument to perfect operating condition, rapidly and at the lowest cost.

IMPORTANT ... DO NOT RETURN AN INSTRUMENT FOR REPAIR, UNLESS YOU HAVE INSTALLED A NEW BATTERY TO DETERMINE WHETHER THE NEW BATTERY RETORES THE INSTRUMENT TO ITS PROPER WORKING CONDITION.