



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® Analog Pyrometers with an unconditional one year.

Electronic Development Labs, Inc.

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



Pocket-Probe® Analog Pyrometers User Manual



Electronic Development Labs, Inc.

244 Oakland Drive Danville, VA 24540
website: www.edl-inc.com • e-mail: sales@edl-inc.com
Toll-Free: 1-800-342-5335 | Fax: 434-799-0847

Notes

Pocket-Probe® Analog Pyrometers deliver temperature measurements within 1/2% of reading when used in conjunction with Assured Accuracy Sensors and in accordance with these instructions.

Pocket-Probe® Analog Pyrometers are made to perform accurately for many years without the need for recalibration. If a situation should arise that requires calibration or onsite repairs, all calibration data is available upon request.

Temperature measurement accuracy always begins with the sensor.

Contents

General Information	2
Plug-in Sensors	3
Attached Sensors	4
Automatic Transit Switch	4
Cleaning Meter Cover	5
Sensor Leads	5
High Temperature Lead Wire	6
Special Calibration / Multi-color Coding	7
Resistor In Plug / Adapter Plug	7
Care For Sensors and Pyrometers	8
Parts, Service, and Warranty	9

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 designed for temperature measurement purposes only. Any other use may void warranty.

General Information

Pocket-Probe® Analog Pyrometers

Thermocouple pyrometers provide a simple means to determine temperatures in any temperature range. Versatile and fast acting types of sensing elements are available for efficient measurement of surfaces, sub-surfaces, fluids, air, semi-solids, etc.

All thermocouple direct reading pyrometers measure temperature by comparing the difference between ambient room temperature and object under test temperature. The pyrometer always indicates the ambient temperature to which it is exposed. To insure accurate measurements the pyrometer features a precise bi-metal temperature compensating device which constantly adjusts the instrument to display the ambient room temperature. The bi-metal automatically tracks itself to ambient temperature changes as they occur to assure correct meter ambient readings at all times.

Automatic compensation for thermocouple cold end and ambient permits accurate readings to be made even if the instrument is subjected to ambient temperatures differing by as much as $\pm 25^{\circ}\text{F}$. When the ambient temperature changes, **Do Not** reset the pointer to the new ambient. Although the instrument may be influenced by a new ambient temperature, the meter will indicate the original ambient temperature and will, with time, reach the new temperature.

As the instrument continues to remain in the new ambient, the meter pointer will gradually begin to move in the direction of the new ambient temperature. The time required for the pointer to indicate the new ambient temperature will be in the order of 20 minutes to 1 hour depending upon the temperature difference between the original ambient and the new ambient.

Notes

Notes

Attached Sensors (IP Model Only)

Model IP instruments always have proper damping for measurement or transit while the sensor is attached. During the periods when the sensor is not attached, place a wire shunt across the terminals for transit or shipping purposes. An access hole is provided in the front of the metal enclosure which provides easy access to the terminals with a screwdriver should sensor replacement be required.

Should it become necessary to disconnect or replace an attached type sensor assembly, be sure to connect the **RED** wire under the corresponding **RED** screw.

Automatic Meter Shorting Transit Switch

A small switch consisting of a red or black button is located above the left hand corner of the meter (except on attached sensor models). The switch is automatically actuated when the instrument cover is closed and places a direct short across the meter terminals. This causes the meter to become highly damped and prevents meter pointer movement when the instrument is in transit. In this highly damped state, the meter effectively resists normal abuses encountered in shipment, working environment, or accidentally jarred. When the instrument cover is opened the switch is released, the shorting action is removed, and the instrument is ready for operation.

Standard Sensor Leads And Insulation

Temperature measurement accuracy always begins with the sensor. Every effort is made to manufacture a sensor and lead assembly that can assure the best possible temperature measurement accuracy. All sensor leads are made from the same high quality thermocouple wire as used in the thermocouple. Extension wire is inferior and therefore is never used. This insures the best possible accuracy even under the most adverse conditions. Thus, in situations where the lead wire is exposed to high temperatures, there is no affect on the accuracy of the readings. This thermocouple wire is used as the lead wire on all sensors supplied from manufacturer. This allows the accuracy of the sensor and the lead wire to be consistent, reliable, and dependable.

Thermocouple lead wire is relatively flexible, but it is not as flexible as the low accuracy lead wires. Consequently, it is recommended that some care be used in handling the lead wire. Do not kink or tangle the wire. Straighten the lead wire as you use it. The stainless steel braid covering protects the wire and insulation from routine abuses. Routine maintenance will provide extended life of the lead wire.

High Temperature Lead Wire

Standard lead wires have a Teflon insulation and stainless steel overbraid. These lead wires can be placed into ovens or other heated areas at temperatures up to 525°F. For temperatures above 525°F, glass or ceramic insulation is available. The sensor section is made to operate at temperatures up to the specifications of the sensor.

The adapter plug enables any pyrometer calibrated for use with a special high-resistance lead or high-resistance sensor to function with standard sensors. Sensors for standard model pyrometers are a specific standard resistance, which is lower than that used for special, long sensors or where special, long leads are involved.

Each specially calibrated pyrometer requires a separate adapter plug having a resistance value to match your standard sensor to your special instrument.

The adapter plug is to be employed only when using a special model pyrometer with standard sensors. **Do not use the adapter plug when using the special sensor.**

Care

Although these pyrometers are relatively rugged instruments and contain shock absorbing jewels, they should not be subjected to extreme abuses. They should be treated with the same care as any other high accuracy instrument. Avoid shocks or blows to insure constant accuracy and maintain reliability. If properly maintained, this instrument should provide many years of accurate performance. This instrument is made with the finest materials and craftsmanship to insure long-term accuracy and dependability.

Thermocouple Sensor Cleaning

Clean sensors are imperative to obtain 1/2% accuracy that is built into this instrument. Accumulations on the sensors will impair sensor efficiency and may result in loss of accuracy.

Temperature Measurement Accuracy Begins With The Sensor!

The most accurate pyrometer cannot compensate for sensor error.

It is strongly recommended using assured accuracy sensors
produced to give accuracy as close as 1°F.

*Do not ever use any sensor for any purpose
other than the designed intention.*

Parts And Service

Spare or replacement parts are available from local distributors or directly from 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.

Specially Calibrated Instruments / Multi-Color Coding

Multi-color coding is simple and foolproof. A large variety of specially calibrated instruments can be employed with special sensors or special long lead sensors. The multi-color coding system eliminates the possibility of using the wrong combination of sensors and instruments. When using a multi-color coded instrument, sensors which bear the matching color coding must be plugged directly into the instrument without the use of an adapter plug. If the instrument is furnished with a multi-color coded adapter plug, any standard sensor may be used with this instrument in conjunction with the adapter plug if colors on both are consistent.

Resistor Plug / Adapter Plug

If you have a multi-color coded instrument and sensor, additional sensors may be ordered for your unit having a different resistance by using the special X-series. The X-series designates standard sensors which have a resistor in them to increase the resistance to match our special multi-color coded instrument. An adapter plug is not required when using the X-series. This avoids confusion in situations where many standard and specially calibrated instruments are in use. An adapter plug cannot be used with the wrong sensor or visa-versa. Any X-series sensor which is ordered for a special instrument is identified by the matching multi-color code. When desired the adapter plug mentioned below may be used.

The adapter plug enables any pyrometer calibrated for use with a special high-resistance lead or a high-resistance sensor to function with standard sensors. Sensors for standard model pyrometers are a specific standard resistance, which is lower than that used in special long sensors or where special long leads are involved.

During this period, the automatic compensation system for ambient and cold end is continually functioning and enabling accurate reading to be made at any time. To achieve maximum accuracy available it is recommended to keep the sensor and the instrument at the same temperature. Should the need arise to make a general accuracy check or to determine whether the pointer ambient reading is correct, remove the sensor and place the instrument and an accurate mercury thermometer at any stable temperature between 70°F and 90°F for 1 hour to ascertain whether any ambient deviation exists. If the meter ambient reading needs adjustment, the screw at the bottom of the meter is used to adjust the pointer. Make ambient adjustments only when it is definitely needed and do so with the thermocouple sensor removed from the instrument. To adjust the ambient on attached sensor models, unscrew one or both of the sensor wire terminals.

Plug In Sensors (All Models)

The pyrometer is equipped with a jack/receptacle that accommodates a large variety of interchangeable N (NP) sensors. The spring-loaded plug and jack/receptacle form a tight fit in order to make good contact. The plug will fit relatively easily into the jack/receptacle. However, the plug will not come out easily. **Be sure when removing the plug to pull straight out, avoid twisting, and not to bend from side-to-side.**

All standard sensors are matched, pre-calibrated, and directly interchangeable. This allows for replacement orders or different styles of sensors without the need for re-calibrating the instrument.

When the sensor plug is inserted into the jack/receptacle the sensor also functions as a damping device across the meter and provides the proper damping essential for operation and handling.

Cleaning Maintenance (Meter Cover)

Do not, for any reason, apply or allow any type chemical to come into contact with the plastic meter cover.

Any grit or dust that should accumulate on the cover should be blown away and any remnants should be wiped away with soft facial tissue as follows:

1. Unfold tissue and refold into a rectangular pad approximately 2" x 2" x 1/2".
2. Wet tissue and press out excess water leaving tissue damp.
3. Wipe away excess grit or dust and wipe dry with new tissue.
4. Follow anti-static procedure.

Use a solution of 50% water and 50% non-abrasive soft soap liquid to remove fingerprints, oils, and to restore anti-static qualities. Apply mixture with a soft facial tissue pad. Use sparingly and allow to dry to a thin film. Using new tissue pads, gently polish until the meter cover is clear.

Do not use pressure to polish and use only non-abrasive cleaning material in this process.