



Electronic Development Labs, Inc.



LT-100®

Thermocouple Reference Meter User Manual

LT-100 μ P Digital Pyrometer

602LT100

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LT-100[®] OPERATIONS MANUAL

Notes:

WARNINGS:

CAUTION: Do not attempt to measure live circuits! For such applications use a non-contact infrared pyrometer.

CAUTION: 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.

CAUTION: When measuring temperature of operating machinery never insert your hands or arms to acquire reading. Use correct extension handles at all times.

CAUTION: These instruments are not for use in hazardous (explosive) areas. For hazardous (explosive) operation, use our line of Pocket-Probe® analog instruments.

CAUTION: These instruments are designed for temperature measurement purposes only. Any other use may void warranty.

Introduction

LT100 Thermocouple Reference Meter

LT-100 is a high-performance, high accuracy, handheld portable industrial pyrometer.

LT-100 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. LT-100 is guaranteed because it

has a performance proven track record since 1976, and because the instrument 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.

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.

Parts and Service

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

Do not attempt to perform any repairs on the instrument.

All repairs should be forwarded to EDL. 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. EDL 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.

Specifications

Display: 8 digit Bright liquid crystal display

Compensation: Automatic cold end and ambient

Resolution: 0.1°, 0.01 or 1°F, C, K, mV

Repeatability: 0.1°F or 0.1°C

Sensor Resistance: 1,000 Ohms Maximum

Circuitry: Ultra stable EDL and state of the art, with embedded microprocessor.

Input: Polarized miniature thermocouple jacks, accepts standard miniature plugs.

Separate Battery Compartment: Located on back

Battery: Standard 9 Volt transistor radio battery, supplied with instrument

Battery Life: Up to 65 hours continuous use time.

Open (Sensor) Probe: Displays 9999.9° F / °C.

Min/Max: Holds and displays highest temp and lowest temp sensed.

Tested Ambient Operating Range: +40°F to +120°F (4°C to 50°C) ±1° over ambient range.

Useable Ambient Temperature Range: 32°F to +120°F (0°C to 50°C)

Storage Temperature: -67°F to +194°F (-40°C to +125°C)

Temperature Range: Min & Max range for each supported Thermocouple Type.

Accuracy: Base Accuracy is 0.5 °F

Instrument Types: K, J, E, T, R, C, S, B, or N

Response Time: 3 samples per second

Weight: 27 oz.

Dimensions: 6.5" x 4.5" x 2.5"

LT-100 Functions

Sensor Up/Dn - Selects between 9 different thermocouple types. K, J, E, T, R, S, C, B, N. A calibrated Cold Junction Compensation (CJC) is established at the uncompensated connector. Selected T/C type is stored when device is turned off and recalled when power is restored.

Min/Max - Records minimum and maximum temperatures until TC type is changed or device is turned off.

Unit Up/Dn - Unit selector – Selects unit of measure. Choices are F – Fahrenheit, C – Celsius, K – Kelvin, mV – millivolts. Selected unit is stored when device is turned off and recalled when power is restored.

Note: The mV setting is limited to ± 160.000 mV and removes cold junction compensation (CJC) while selected.

DP - Selects desired resolution. Zero, one, or two decimal places is supported. Selected decimal place is stored when device is turned off and recalled when power is restored.

X - Removes cold junction compensation from the instrument and allows for use of external ice bath compensation probes.

TX - Transmission of temperature readings is provided with a time stamp and thermocouple type. Time stamp resets to zero on initiation and unit of measure changes to reflect current measurement unit (C, K, F, mV). *During transmission instrument function keys are inoperative.* Connection is made through Microsoft “Hyper Terminal”, or suitable RS232 communication software, and a standard PC serial port. USB/Serial Port adapters are available for PCs without a standard serial port for an additional charge.

Channel - Selects channel 1 or 2. Current selection is identified in the RS232 downloaded data.

Diff - Displays a differential value between Channel 1 and Channel 2. Value shown represents non-selected channel referenced to selected channel.

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 9999.9° F / C / K.

Backlight - When back lighting is required, press the back lighting button and the display will be lit. Pressing the button a second time will turn the backlighting off. 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 reduced 50%. Therefore, we recommend using back lighting only when necessary.

Battery Replacement Procedure... 9 Volt

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.

EDL recommends alkaline batteries due to their very long shelf life and reliability. Alkaline batteries give you the best buy for instrument use. Should the LT100 battery voltage fall below an acceptable level, the T/C symbol will change to an asterisk (*). To replace the battery, turn the meter to expose the back side and remove the cover. Put the battery into the compartment in the same manner as removed observing polarity. If the battery is installed incorrectly the instrument will not be damaged but it will not function.

AC Adapter

An AC adapter is included with the instrument

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 1-434-799-0807.

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.

We also manufacture a variety of handheld portable instruments such as:

Pocket Probe Analog - Housed in a rugged plastic case, available in four models and various ranges for type E thermocouple. 5.5" x 3.9" x 2.1", 22 Oz.

E-Z PROBE Digital - Our lowest cost instrument. 4.7" x 2.7", 6.3 Oz.

Unconditional Guarantee

EDL unconditionally guarantees to repair or replace any components, at no cost, if this LT-100 pyrometer exhibits any malfunctions resulting from any defects in materials or workmanship during the period specified on your guarantee card. Fill out guarantee card and mail promptly to assure receiving full warranty benefits.

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.