User Manual

⟨D̂⟩ DIGI-SENSE.

Single-Input Thermometers
with NIST-Traceable Calibration

Thermocouple Meter, Type J/K/T Input
Model 20250-91

Thermistor Meter
Model 20250-93

RTD Meter
Model 20250-95

CE   THE STANDARD IN PRECISION MEASUREMENT

Introduction

The Digi-Sense Professional Single-Input Thermometers (20250-91, -93, -95) offer fast response and laboratory accuracy. Features include automatic backlight, Max/Min readings, and automatic power-off. The instrument is fully tested and calibrated to NIST-traceable standards. Careful use of this meter will provide years of reliable service.

Unpacking

Carefully unpack the instrument and accessories from shipping package. Check individual parts against the list of items below. If anything is missing or damaged, please contact your instrument supplier immediately.
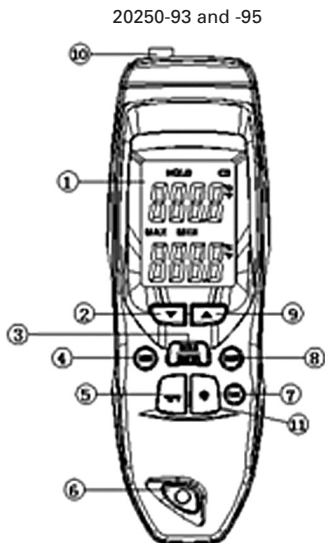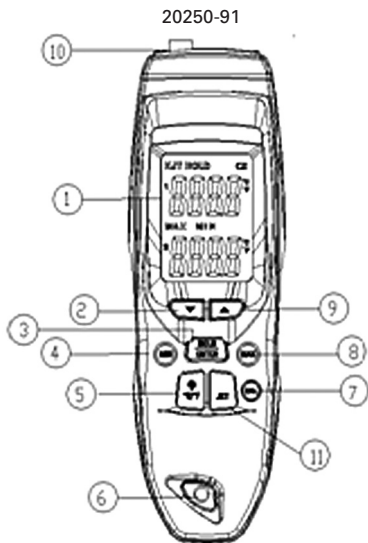
1. Meter

2. Soft carrying case

3. Lanyard

4. One 9 volt battery

5. User manual

6. NIST-traceable calibration report with data

Key Features

• Large backlit display

• Max and Min readings

• Data Hold

• Electronic Offset function allows compensation of errors to maximize overall accuracy

• User-selectable readout in °C or °F

• Automatic power-off (sleep) mode to conserve battery life
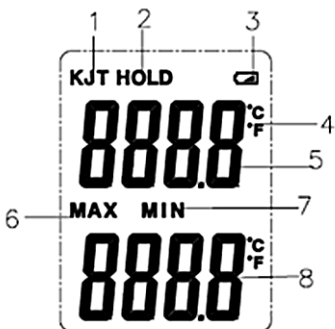
• Accept a wide range of probes

Meter Description

1. LCD
2. Down (▼) button
3. Data HOLD button
4. MIN button
5. User-selectable temperature units (all models); backlight button (20250-91 only)
6. Power on/off button
7. CAL (offset/calibration) button
8. MAX button
9. Up (▲) button
10. Temperature sensor input
11. Type JKT button (20250-91 only); backlight button (20250-93 and -95 only)

20250-91

20250-93 and -95

Display Layout

1. Thermocouple type JKT icon (20250-91 only)

2. HOLD icon

3. Low-battery indicator

4. User-selectable temperature units (°C or °F)

5. Primary display (current or Hold readings)

6. MAX icon

7. MIN icon

8. Secondary display (Max or Min readings)

Setup and Operation

Measuring Temperatures

1. Plug the probe into the T1 input connector. Make sure that the polarity is correct.

2. Press **power on/off** button to turn on the thermometer. After one second the thermometer displays the first reading. The screen will display the current measured value and the maximum temperature.

3. If no probe is plugged into the selected input or the probe is not connected properly, the display shows "- - - -". If the temperature being measured is outside the meter's valid range, the display shows "OL" (overload).

Thermocouple Input Function (20250-91 only)

1. Press **JKT** button to set the correct thermocouple type as J, K, or T.

Backlight Function

1. Press **Backlight/°C/°F** button for 2 seconds to turn on or off the backlight (20250-91 only).

2. Press **Backlight** button to turn on or off the backlight (20250-93 and -95).

Temperature Units Function

1. Press **°C/°F** button to toggle between temperature scales.

<u>Setup and Operation</u> (continued)

Hold Function

1. Press the **HOLD** button to freeze the readings on the display. The display shows the HOLD icon.

2. Press the **HOLD** button again to turn off the Hold function.

3. The Hold function does not freeze the Max or Min function or stop the meter from updating.

Max/Min Function

1. Press **MAX** or **MIN** button to display the maximum (Max) or minimum (Min) readings on the secondary display.

2. The display shows the related MAX or MIN icon.

3. Simultaneously press the **Up** (▲) and **Down** (▼) buttons to recalculate the stored maximum and minimum values in the meter.

Auto Power-Off (APO) Mode

1. The meter's default mode is to automatically shut off after 15 minutes of non-use.

Offset/Calibration Function

Using the Offset to Adjust for Probe Errors

Use the offset/calibration function to adjust the meter's readings to compensate for the errors of a specific sensor. The allowable adjustment range is ±9.0°F or ±5.0°C.

1. Plug the probe into the meter's input connector.

2. Place the probe in a known, stable temperature environment (such as an ice bath).

3. Allow the readings to stabilize.

4. Adjust the offset until the primary reading matches the calibration temperature.

Adjusting the Offset

The primary display shows the temperature plus the offset and the secondary display shows the offset.

1. Press the **CAL** button for 3 seconds to enter user calibration mode.

2. Press the **Up (▲)** or **Down (▼)** buttons to adjust the offset by 0.1°. The max offset value is 5°.

3. Press the **CAL** button to save the setting and return to normal measurement mode.

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Specifications

Range	Resolution	Accuracy
Thermocouple meter 20250-91		
Type J: −328 to 1832°F (−200 to 1000°C)	0.1°F (0.1°C) from −148 to 1832°F (−99.9 to 999.9°C); 1°F (1°C) outside range	±1 of reading + 1.8°F (1°C) below −148°F (−99.9°C); ±1 of reading + 0.9°F (0.5°C) above −148°F (−99.9°C)
Type K: −418 to 2501°F (−250 to 1372°C)		
Type T: −418 to 752°F (−250 to 400°C)		
Thermistor meter 20250-93		
−40 to 257°F (−40 to 125°C)	0.1°F (0.1°C)	±0.9°F (±0.5°C) from 32 to 158°F (0 to 70°C); ±2°F (1°C) outside range
RTD meter 20250-95		
−320 to 1562°F (−200 to 850°C)	0.1°F (0.1°C) from −148 to 1562°F (−99.9 to 850°C); 1°F (1°C) outside range	±1.5°F (0.8°C) from −148 to 392°F (−99.9 to 199.9°C); ±2°F (1°C) + 0.5% of reading outside range

Sampling rate:	Three times every two seconds
Auto power-off:	Unit shuts off automatically after 15 minutes to preserve battery life
Operating temperature:	32 to 122°F (0 to 50°C)
Storage temperature:	14 to 122°F (−10 to 50°C)
Weight:	6.2 oz (177 g)
Dimensions:	7" x 2¼" x 1" (17.8 x 5.7 x 2.6 cm)
Power:	One 9 volt battery

Maintenance, Recalibration, and Repair

Cleaning and Storage

• The meter should be cleaned with a damp cloth and mild detergent when necessary. Do not use solvents or abrasives.

• Store the meter in an area with moderate temperature and humidity (refer to the operating and storage ranges in the specifications chart earlier in this manual).

Battery Replacement

When the battery power falls low, the **low-battery** icon will appear on the screen. Replace the one 9 volt battery by removing the screw holding the rear battery compartment cover to access the battery compartment. Ensure that the compartment cover is securely fastened when finished. **Note:** If you do not intend to use thermometer for a long time, remove the batteries.

It is recommended that Digi-Sense products are calibrated annually to ensure proper function and accurate measurements; however, your quality system or regulatory body may require more frequent calibrations. To schedule your recalibration, please contact InnoCal, an ISO 17025 calibration laboratory accredited by A2LA.

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