OPERATING INSTRUCTIONS
MODEL TC10
DIGITAL THERMOMETER

THERMOCOUPLE RANGE
K-TYPE
(Chromel-Alumel) -50°C to 1300°C
-58°F to 2000°F

According to temperature standard ITS-90
Accuracy: (18°C to 28°C ambient)
±(0.3% + 1°C) -50°C to 1000°C
±(0.5% + 1°C) 1000°C to 1300°C
±(0.3% + 2°F) -58°F to 2000°F

The accuracy specification does not include type K thermocouple probe accuracy.
INTRODUCTION
This instrument is a portable 3½ digit, compact-sized digital thermometer designed to use external K-type thermocouples as temperature sensors. Temperature indication follows Reference Temperature/Voltage Tables (N.I.S.T. Monograph 175 Revised to ITS-90) for K-type thermocouples. One K-type thermocouple is supplied with the thermometer.

SAFETY INFORMATION
It is recommended that you read the safety and operation instructions before using the thermometer.

WARNING
To avoid electrical shock, do not use this instrument when voltages at the measurement surface exceed 24V AC or DC.

WARNING
To avoid damage or burns, do not make temperature measurement in microwave oven.

CAUTION
Repeated sharp flexing can break the thermocouple leads. To prolong lead life, avoid sharp bends in the leads, especially near the connector.

The \( \Delta \) symbol on the instrument indicates that the operator must refer to an explanation in this manual.

GENERAL
Display:
3½ digit liquid crystal display (LCD) with maximum reading of 1999
Battery:
Standard 9V battery (NEDA 1604, IEC 6F22 006P)
Battery Life:
200 hours typical with carbon zinc battery
Dimensions:
192mm(H) x 91mm(W) x 52.5mm(D)
Weight: 365g
Supplied Probe:
4-foot type K thermocouple bead probe (telfon tape insulated), Maximum insulation temperature 260°C (500°F)
Probe accuracy ±2.2°C or ±0.75% of reading (whichever is greater) from 0°C to 800°C

OPERATING INSTRUCTIONS
Selecting the Temperature Scale
Readings are displayed in either degrees Celsius (°C) or degrees Fahrenheit (°F). When the thermometer is turned on, it is set to the temperature scale that was in use when the thermometer was last turned off. To change the temperature scale, press the “°C/°F” key.

Selecting the Display Resolution
The thermometer allows two choices of resolution:
High resolution: 0.1°C or 0.1°F
Low resolution: 1.0°C or 1.0°F
To select the alternate display resolution, press the corresponding “0.1” “1” key.

SPECIFICATIONS
ELECTRICAL
Temperature Scale: Celsius or Fahrenheit user-selectable
Measurement Range: -50°C to 1300°C, (-58°F to 2370°F)
Resolution: 1°C or 1°F, 0.1°C or 0.1°F
Accuracy:
Accuracy is specified for operating temperatures over the range of 18°C to 28°C (64°F to 82°F), for 1 year, not including thermocouple error:
±(0.3% rdg + 1°C) 50°C to 1000°C
±(0.5% rdg + 1°C) 1000°C to 1300°C
±(0.3% rdg + 2°F) 2000°F
Temperature Coefficient:
0.1% times the applicable accuracy specification per °C from 0°C to 18°C and 28°C to 50°C (32°F to 64°F and 82°F to 122°F)
Input Protection:
24V ac or 24V dc rms maximum input voltage on any combination of input pins.
Reading Rate: 2.5 times per second.
Input Connector:
Accepts standard miniature thermocouple connectors (flat blades spaced 7.9mm, center to center).
ENVIRONMENTAL
Ambient Operating Ranges:
0°C to 50°C (32°F to 122°F) < 80% R.H.
Storage Temperature:
-20°C to 60°C (4°F to 140°F) < 70% R.H.

Display Back-Light
Pressing the “SR” key to toggle turn on or turn off the Back-Light

HOLD Mode
Pressing the HOLD key to enter the Data Hold mode, the “H” annunciator is displayed. When HOLD mode is selected, the thermometer holds the present readings and stops all further measurements. Pressing the HOLD key again cancels HOLD mode, causing thermometer to resume taking measurements.

MAX Mode
Pressing the Max key to enter the MAX mode. The thermometer then records and updates the maximum absolute values and the MAX annunciator appears on the display. Pressing the MAX key again to exit the MAX recording mode.

In the MAX mode, press HOLD key to stop the recording, press HOLD again to resume recording.

OPERATOR MAINTENANCE
Battery Replacement
Power is supplied by a 9 volt transistor battery (NEDA 1604, IEC 6F22). The “SR” appears on the LCD display when replacement is needed. To replace the battery, remove the two screws from the back of the meter and lift off the battery cover. Remove the battery from battery contacts.