

# Operator's Manual

## 1. FEATURE

- Can match any standard type K(NiCr-NiAl) sensor.
- Fitted with standard K probe socket.
- LCD display provides low power consumption.
- LSI-circuit use provides high reliability and durability.
- High accuracy and wide measurement range.
- Compact, light-weight, and excellent operation.
- Circuit used high quality multi turns VR for keeping high accuracy and reliability.

## 2. SPECIFICATIONS

### 2-1 Technical Specification

Sensor Type: Thermocouple K(NiCr-NiAl)

Resolution: 1°C or 1°F

Accuracy (23±5°C)

#### (a) °C Model

- 50°C to -40°C : typically -4°C
- 39°C to -20°C : typically ±3°C
- 19°C to 0°C : typically ±2°C
- 1°C to 500°C : ±(0.75%+1°C)
- 501°C to 750°C : ±(1%+1°C)
- 751°C to 1000°C : typically ±(2%+1°C)
- 1001°C to 1200°C: typically ±(4%+3°C)

#### (b) °F Model(only TM902CF)

- 40°F to -4°F : typically ±6°F
- 3°F to 32°F : typically ±4°F
- 33°F to 932°F : ±(0.75%+2°F)
- 933°F to 1832°F : ±(1%+2°F)
- 1833°F to 2000°F : typically ±(4%+4°F)

Typically: means almost units within such accuracy.

Environmental Operating Temperature:

0°C to 50°C(32°F to 122°F), ≤80%RH

TEMPERATURE:

-30°C to 60°C (-30°F to 140°F), ≤80%RH

### 2-2 General Specification

Display: LCD, 0.5" 3 1/2 digits.

Open-circuit Sensor: "1" shows in display when sensor is open circuit.

Power Supply: DC 9V battery.

Battery Life: Consumption 14mW, 150-200Hours in continuous use.

Low Battery indicator: "⚡" shows in display when typically 25 hours of battery life remain.

Dimension: 20×70×105mm(0.8×2.8×4.2inch)

Weight: 150g(5oz)/including battery.

Impedance: 10MΩ

TP-01 Thermocouple Max. Operating temperature of Probe: 250°C/482°F(300°C/572°F short-term). The sensor supplied with the instrument is an ultra fast response naked bead thermocouple suitable for many general purpose application.

Standard Accessories:

- TP-01 Thermocouple Probe with plug.....1set
- Instruction Manual .....1pc
- Carrying case .....1pc

## 3. MEASURING PROCEDURE

### 3-1 Temperature measurement

Insert the sensor plug into the socket at lower edge of the instrument taking care to observe the correct polarity. The sensor supplied with the instrument is an ultra-fast response naked-bead thermocouple TP-01 suitable for many applications but with a maximum operating temperature of 250°C/482°F (300°C/572°F short-term). For measurement of high temperatures, surfaces, semi-solids, liquids etc., a range of hand-held probes is available (such as TP-02A...) or, if required, any suitable probe of the K type (NiCr-NiAl) can be used.

### 3-2 Consideration

When the sensor is first plugged into the thermometer, or if the sensor is changed, the plug must be allowed to stabilize at the temperature of the socket, which is in thermal contact with the cold junction compensation device, for greatest accuracy is to be achieved. This will only take a couple of minutes and only applies if the sensor plug has previously been exposed to an ambient temperature different to that of the thermometer.

Note that in common with other thermocouple thermometers the accuracy specification applies only to the instrument itself and allowance must be made for limits of error permitted in thermocouple. The relevant specifications and respective limits for K type thermocouples are:

DIN 43710:

Measurement Temp	Allowable error
0°C to 400°C	±3%
401°C to 1100°C	±0.75%

### JIS C1602-1981

Measurement Temp	Class	Allowable error
-200°C ~0°C	-	±2.5°C
1°C~1000°C	0.4	±1.5°C
1001°C~1200°C	0.75	±2.5°C

## 4. BATTERY REPLACEMENT

- (1) When it is necessary to replace the battery, "⚡" will appear in the left upper corner of the display.
- (2) Slide the battery cover, away from the instrument and remove the battery.
- (3) Replace with 9V battery and reinstall the cover.

## 5. OPTIONAL PROBE (TYPE K)

TP-02A (optional)	Measure Range: -50°C to 900°C (-58°F to 1650°F) Dimension: 10cm tube: 3.2mm dia
TP-03 (optional)	Measure Range: -50°C to 1200°C (-58°F to 2000°F) Dimension: 10cm tube: 8mm dia