INTRODUCTION

This instrument is a 5 digit, compact-sized portable digital thermometer designed to use external K-type and J-type thermocouples as temperature sensor. Temperature indication follows Reference Temperature/Voltage Tables (N.I.S.T. Monograph 175 Revised to ITS-90) for K-type and J-type thermocouples. Two K-type thermocouple are 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 working voltages at the measurement surface over 24V AC or DC.

WARNING

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

CAUTION

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

FEDERAL COMMUNICATIONS COMMISSION

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Shielded interface cables must be used in order to comply with emission limits. Changes or modifications not expressly approved by the party responsible for compliance could void user’s authority to operate the equipment.

SPECIFICATIONS

ELECTRICAL

Temperature Scale: Celsius or Fahrenheit user-select

Measurement Range: 
- J-TYPE: -200°C to 1370°C, (-328°F to 2498°F)
- K-TYPE: -200°C to 1370°C, (-328°F to 2498°F)

Resolution: 0.1°C or 0.2°F

Accuracy: Accuracy is specified for operating temperatures over the range of 18°C to 28°C (64°F to 82°F), year, not including thermocouple error.

Input Protection:
- Maximum Differential Common Mode Voltage: ±(0.05% rdg + 0.3°C) -50°C to 1370°C
- ±(0.05% rdg + 0.7°C) -50°C to -200°C
- ±(0.05% rdg + 0.6°F) -58°F to 2498°F
- ±(0.05% rdg + 1.4°F) -58°F to -328°F

Frequency Range: 904–927.83MHz

Current Consumption: Low current consumption of less than 5 mA

Ambient Operating Temperature: 0°C to 50°C

Power Supply: 24V dc or 24V ac rms minimum input voltage on combination of input pins.

Maximum Differential Common Mode Voltage: Maximum Voltage between T1 and T2 during measurement: 1Voll.

Reading Rate: 1 time per second.

Wireless Features:
- Frequency range: 904–927.83MHz
- Low current consumption, less than 5mA

ENVIRONMENTAL

Ambient Operating Ranges: 0°C to 50°C

Storage Temperature: -20°C to 60°C

Battery Power: 1.5V x 4 PCS (SIZE AAA) UM-4 R03.

Battery Life: 190 hours typical with carbon zinc battery.

Power off: 30 minutes, press key to resume operation.

Dimensions: 160mm (H) x 83mm (W) x 38mm (D)

Weight: Approx. 265g including batteries.

Supplied Thermocouples (2 per input):
- 1 meter (40") type K insulated beaded wire thermocouple
- Maximum insulation temperature is 482°C (900°F).
- Thermocouple accuracy is ±1.1°C or 0.4% of reading (whichever is greater) from 0°C to 1250°C.

GENERAL

Display: 5 digit liquid crystal display (LCD).

Overload: “---” or “OL” is display.

Battery: 1.5V x 4 PCS (SIZE AAA) UM-4 R03.

Battery Life: 190 hours typical with carbon zinc battery.

Auto power off: 30 minutes, press key to resume operation.

Dimensions: 160mm (H) x 83mm (W) x 38mm (D)

Weight: Approx. 265g including batteries.

Supplied Thermocouples (2 per input):
- 1 meter (40") type K insulated beaded wire thermocouple
- Maximum insulation temperature is 482°C (900°F).
- Thermocouple accuracy is ±1.1°C or 0.4% of reading (whichever is greater) from 0°C to 1250°C.

OPERATING INSTRUCTIONS
1. **“C” Power Switch**  
The “C” key turns the thermometer on or off. In the SET mode the unit cannot be power-off. Exit SET mode to power-off function.

2. **AP0 function mode**  
Press “AP” power key for more than 6 seconds to disable the auto-power function. The display will show “APO OFF”.  

3. **C/F Button (only Main display)**  
Press this key to enter the Data Hold Mode, the “HOLD” annunciator is displayed. When HOLD mode is selected, the thermometer backlight is on. To exit this mode, press the “C/F” key again which will cancel HOLD mode and resume measurement. In the MIN/MAX recording mode, press “Hold” key to stop the recording. Press “Hold” key again to resume recording. (Previously recorded readings are not erased).

4. **T1 T2/T1-T2 Main display Input Selection**  
The input selection indicates which input is selected for main display: T1 thermocouple, T2 thermocouple or the difference between the two thermocouples (T1-T2). When the thermometer is turned on, it is set to T1.  

5. **K/J T1 Input Thermocouple Type Select** (only Main display)  
The K/J key selects the T1 thermocouple type, when the main display is showing T1. When the thermometer is turned on, it is set to the type selected when the thermometer was last turned off.

6. **MIN MAX with Time record mode** (only Main display)  
Press MIN MAX enter key to enter the MIN MAX Recording mode, (displays the Maximum reading with time, Minimum reading with time and Average reading recorded in store record mode). In this mode the automatic power-off feature is disabled and “C/F” key, “C/F” key, REL key, SET key, Hi/Low Limits key and manual record key T1 T2 T1-T2 key, K/J key are disabled. The beeper emits a tone when a new minimum or maximum value is recorded.

Press MIN MAX enter key to select a different type of thermocouple use the K/J button.

7. **REL Relative mode** (only Main display)  
Press the REL key to enter the Relative mode, the zero display, and store the displayed Reading as a reference value. REL is shown on the display. Press REL key again to exit the relative mode. The relative reference value can also be entered by the user. (See “SET mode” later in this manual.) When the desired Relative value has been entered, press REL key to enter the Relative mode and then press the REL key again to use the relative value as a reference value. Press REL key again to exit the relative mode. In the Relative mode, the value (can not >3000.0 counts) shown on the LCD is always the difference between the stored reference value and the current reading.

8. **Sec. Min. Selecting the Time scale**  
Press this key to display the elapsed time on the third display in either hours and minutes or seconds. When the thermometer is turned on, it is set to seconds. To change the time display, press “Sec. Min.” key. Maximum elapsed time reading is 100 hours. If 100 hours is exceeded, the elapsed time resets to zero.

9. **SET mode (Relative value set, Set time and Hi/Lo Limits value set)**  
9.1 **Press the SET key to enter Relative value SET mode (Press ENTER key to skip setting relative value).**  
9.2 **Elapsed Time set mode.**  
9.3 **Hi Limit value set mode.**  
9.4 **Lo Limit value set mode.**

10. **T1 T2/T1-T2 second display input Output Selection**  
The input selection indicates which input is selected for second display; T1 thermocouple, T2 thermocouple or the difference between the two thermocouples (T1-T2). When the thermometer is turned on, it is set to T1.

11. **K/J T2 Input thermocouple type select** (second display)  
The K/J button for T2 input selects K-type or J-type thermocouple as an internal channel, when “Hi/Lo Limits” mode T2 shown. When the thermometer is turned on, it is set to the type selected when the thermometer was last turned off.

12. **Hi/Lo Limits mode (only Main display)**  
Press Hi/Limit key to enter the Hi/Limit Limits comparative mode. “Hi” is displayed. When the input temperature value exceeds the Hi Limit value, the beeper emits a continuous or pulsed tone. Press Hi/Limit key again to exit the Hi/Limits mode.

13. **WIRELESS MODE:**  
Press the “W” button for more than two seconds to start wireless function. Press the “W” button again for another two seconds to stop the wireless function. When the wireless function is off, it will shut down if there is no wireless signal for two minutes.

To SET CH/ID to 00.00, press the Hi/Limit buttons and “W” button for more than 6 seconds with the meter powered down. The meter will set channel and ID to 00,00 status. The second display will show 00, which means that the channel and ID has been set to 00.

**WARRANTY / DISCLAIMER:**

OEM ENGINEERING warrants this unit to be free of defects in materials and workmanship for a period of 13 months from date of purchase. OEM ENGINEERING reserves the right to amend this warranty or to add an additional warranty period (e.g. a 24 month warranty) at its discretion. This warranty is void if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration damage; contact damage, physical abuse, or misuse; or other operating conditions. The limitations of liability as set forth in the specification and free of defects. OEM ENGINEERING MAKES NO OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND, WHETHER EXPRESS OR IMPLIED, BY STATUTE OR OTHERWISE, ORAL OR WRITTEN, OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF NON-INFRINGEMENT ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedy of purchaser set forth herein are exclusive, and the total liability of OEM ENGINEERING with respect to the product, whether based on contract, tort, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OEM ENGINEERING be liable for any incidental, consequential or special damages.

CONDITIONS: This warranty is not intended to be used, nor shall be used: (1) as a “Basic Component” under 10 CFR 20 (NRC), in use with any nuclear installation, or in operation in those specific medical applications or uses on humans. Should any Products/ be used in or with any nuclear installations, will need to be used, or in application, or in medical applications or uses on humans. Should Any Product(s): be used in or with any nuclear installations, or in operation in those specific medical applications or uses on humans. Should any Products/ be used in or with any nuclear installations, (2) in a manner which creates liability.

**RETURN REQUESTS / INQUIRIES**

Direct all warranty and repair requests/inquiries to the OEM ENGINEERING. Please contact your OEM ENGINEERING representative for more details on repair of your product. The PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM THE CUSTOMER SERVICE DEPARTMENT IN ORDER TO AVOID PROCESSING DELAYS. The assigned AR number should then be noted on the outside of the return package and on any correspondence. The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage during transit.

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**OPERATOR MAINTENANCE**

**WARNING:**

To avoid possible electrical shock, disconnect the thermocouple connectors from the thermometer before removing the cover.

**Battery Replacement**

1. Power is supplied by 4pcs 1.5V (AAA SIZE) UM-4 batteries.

2. The “C” key appears on the LCD display when replacement is needed. To replace battery remove screw back and replace the batteries.

3. Remove the battery from battery contacts and replace.

4. When not in use for long periods remove battery.

5. Do not store in locations with high temperatures, high humidity.

**Cleaning**

Periodically wipe the case with a damp cloth and gent, do not use abrasives or solvents.

**Software Operation manual is on the Software disk.**