

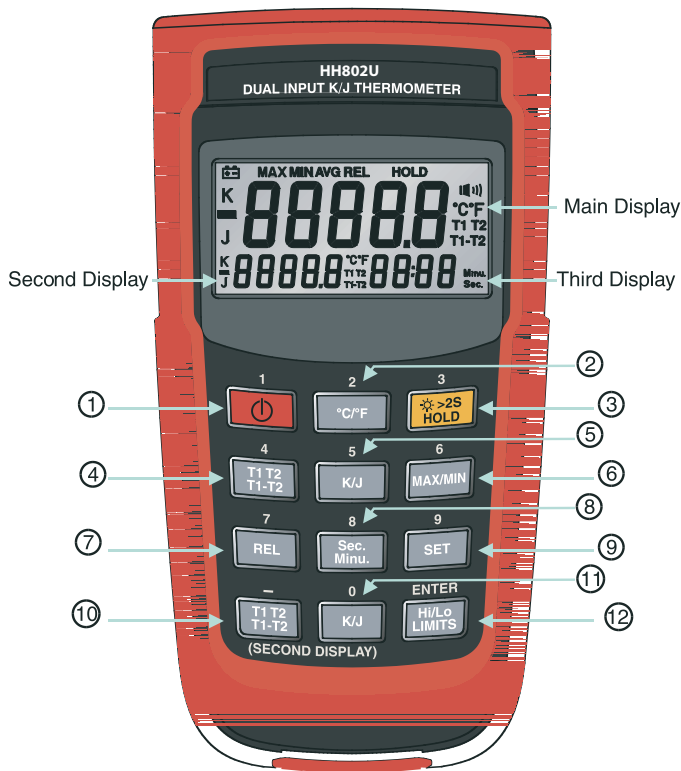


OPERATING INSTRUCTIONS

MODEL HH802U

DUAL INPUT K/J

DIGITAL THERMOMETER



MADE IN TAIWAN

INTRODUCTION

This instrument is a 5 digit, compact-sized portable digital thermometer designed to use external K type and J type thermocouple 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.

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) <70% R.H.

Storage Temperature:

-20°C to 60°C (-4°F to 140°F) <80% R.H.

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: 200 hours typical with carbon zinc battery.

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

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

Weight: Approx. 265g including batteries.

Supplied Thermocouples (1 per input):

1 meter (40") type K insulated beaded wire thermocouple. Maximum insulation temperature is 482°C (900°F). Thermocouple accuracy is $\pm 1.1^{\circ}\text{C}$ or 0.4% of reading (whichever is greater) from 0°C to 1250°C.

SPECIFICATIONS

ELECTRICAL

Temperature Scale: Celsius or Fahrenheit user selectable.

Measurement Range:

J-TYPE -200°C to 1050°C, (-328°F to 1922°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), for 1 year, not including thermocouple error.

$\pm(0.05\% \text{ rdg} + 0.3^{\circ}\text{C})$ -50°C to 1370°C

$\pm(0.05\% \text{ rdg} + 0.7^{\circ}\text{C})$ -50°C to -200°C

$\pm(0.05\% \text{ rdg} + 0.6^{\circ}\text{F})$ -58°F to 2498°F

$\pm(0.05\% \text{ rdg} + 1.4^{\circ}\text{F})$ -58°F to -328°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 dc or 24V ac rms maximum input voltage on any combination of input pins.

Maximum Differential Common Mode Voltage (Maximum Voltage between T1 and T2 during measurement): 1volt.

Reading Rate: 1 sample/second.

OPERATING INSTRUCTIONS

1. Power Switch

The $\text{\textcircled{P}}$ key turns the thermometer on or off. In the SET mode the unit cannot be powered off. Exit SET mode to power off.

APO function mode

Press $\text{\textcircled{P}}$ power key for more than 6 seconds to disable the auto-power function. The display will show "APO OFF".

2. °C/°F 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.

3. $\text{\textcircled{H}}$ 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 holds the present readings and stops all further measurements. Press the $\text{\textcircled{H}}$ key again to cancel HOLD mode and resume measurement. In the MIN/MAX recording mode, press $\text{\textcircled{H}}$ key to stop the recording. Press $\text{\textcircled{H}}$ key again to resume recording. (Previously recorded readings are not erased).

Backlight function mode

Press the $\text{\textcircled{H}}$ button for more than two seconds to turn on the backlight. Press the button again for more than two seconds to turn off the backlight. The backlight will switch-off automatically after 30 seconds.

4. T1 T2/T1-T2 Main Display Input Selection

The input selection determines which input is selected for the 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 Type Selection (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 Elapsed Time Mode (only Main display)

Press MIN MAX key to enter the MIN MAX Recording mode, (displays the Maximum reading with time, Minimum reading with time and Average reading stored in record mode). In the this mode the automatic power-off feature is disabled and $\text{\textcircled{P}}$ key, °C/°F key, REL key, SET key, Hi/Lo Limits key and main display T1 T2 T1-T2 key, K/J key are disabled. The beeper emits a tone when a new minimum or maximum value is recorded.

Push MIN MAX key to cycle through the MAX, MIN and AVG readings. If an overload is recorded, the averaging function is stopped. In this mode, press the HOLD key to stop the recording of readings, all values are held, press again to restart recording.
To prevent accidental loss of MIN, MAX and AVG data, this mode can only be cancelled by pressing and holding the MIN MAX key for 2 seconds. All recorded readings are erased.

7. REL Relative mode (only Main display)

Press the REL key to enter the Relative mode, zero the 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 SET key use the entered 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 and the present reading.

8. Sec. Minu. Selecting the Elapsed Time scale

Press this key to display the elapsed time on the third display in either hours and minutes or minutes and seconds. When the thermometer is turned on, it is set to seconds. To change the time scale, press sec. Minus. 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, Elapsed Time set and Hi/Lo Limits value set)

- Press the SET key to enter Relative value SET mode (Press ENTER key to skip setting relative value). = = = = is displayed on the main display. The Relative value is entered via overlay numbers, press overlay ENTER key to store the relative value, and advance to elapsed time set mode.
- Elapsed Time set mode, (Press ENTER key to skip Elapsed Time set mode) = . = . = : = = is displayed in second and third display. Time (hours, minutes, seconds) value is entered via overlay numbers, press overlay ENTER key to store Time value. Elapsed Time starts from set time value.
- Hi Limit value set mode, (H) is displayed (Press ENTER key to skip Hi Limit value set mode), = = = = is displayed in main display, Hi Limit value is entered via overlay numbers, then press ENTER key to store the Hi Limit value. = = = = is displayed in main display, Lo Limit value is entered via overlay numbers, then press overlay ENTER key to store the Lo Limit value and exit SET mode.
- When the thermometer is turned on it uses the Relative value and Hi/Lo Limits values that were entered when thermometer was last in use.

10. T1/T2 T1-T2 second display Input 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 T2 input. To select a different type of thermocouple use the K/J button.

11. K/J T2 Thermocouple type select (second display)

The K/J button for T2 input selects K-type or J-type thermocouple as input, when the second display has 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/Lo Limits key to enter the Hi/Lo Limits comparative mode. (H/L) is displayed. When the input temperature value exceeds the Hi or Lo Limit value, the beeper emits a continuous or pulse tone. Press Hi/Lo Limits key again to exit the Hi/Lo Limits mode.

It is the policy of OMEGA Engineering, Inc. to comply with all worldwide safety and EMC/EMI regulations that apply. OMEGA is constantly pursuing certification of its products to the European New Approach Directives. OMEGA will add the CE mark to every appropriate device upon certification.

The information contained in this document is believed to be correct, but OMEGA accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

WARNING: These products are not designed for use in, and should not be used for, human applications.

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 (SIZE AAA) R03P.
2. The "BATT" appears on the LCD display when replacement is needed. To replace battery remove screw from back of meter and lift off the battery cover.
3. Remove the battery from battery contacts and replace.
4. When not in use for long periods the batteries should be removed.
5. Do not ations with high temperatures, or high humidity.

Cleaning

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



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