

# HH803U

## DUAL INPUT K/J DIGITAL THERMOMETER

INSTRUCTION SHEET

M4542/0611

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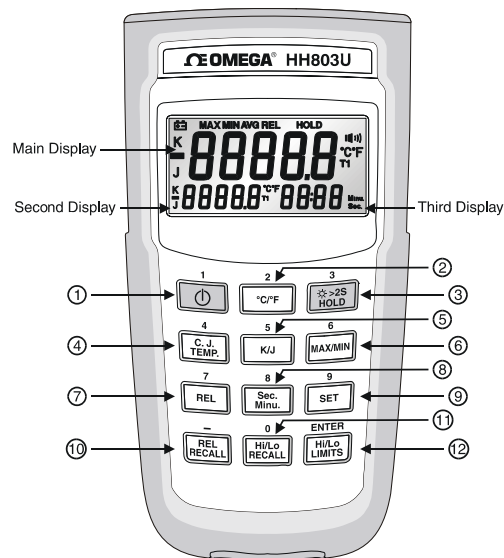
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**WARNING:** These products are not designed for use in, and should not be used for, human applications.

## 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. 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 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.

## 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.

±(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

**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.

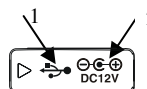
**Maximum Differential Common Mode Voltage (Maximum Voltage between T1 during measurement):**

1volt.

**Reading Rate:** 1 time per second.

### External Connections:

1. USB Port
2. DC power JACK(12V)



## 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.

## 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 power 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. "⏻" Power Switch

The "⏻" key turns the thermometer on or off. In the SET mode cannot be powered off. Exit SET mode to power off.

### APO function mode

Press "⏻" 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. "⏻>2S" 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 "⏻>2S" key again to cancel HOLD mode and resume measurements.

In the MIN/MAX recording mode, press "⏻>2S" key to stop the recording. Press "⏻>2S" key again to resume recording. (Previously recorded readings are not erased).

### Backlight function mode

Press the "⏻>2S" key for more than two seconds to turn on the backlight. Press the key again for more than two seconds to turn off the backlight. The backlight will switch-off automatically after 30 seconds.

### 4. Cold Junction Temperature Display mode (second display)

Press C.J. TEMP key to display the thermocouple input connector cold junction temperature on second display. Press C.J. TEMP key again to exit this mode.

## 5. K/J T1 Input Thermocouple Type Select (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 (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  $\odot$  key, °C/°F key, REL key, SET key, Hi/Lo Limits key, K/J, C.J. TEMP and Recall keys are disabled. The beeper emits a tone when a new minimum or maximum value is recorded. Present temperature reading displayed on second display. Press 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 (Main display)

Press REL key to enter the Relative mode, zero the display, and store the displayed reading as a reference value and annunciator REL is displayed. Present temperature reading displayed on second display. Press REL key again to exit the relative mode. The relative 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, press SET key use set Relative value as a reference value. Press REL key again to exit the relative mode. In the Relative mode, the value (can not  $\geq \pm 3000.0$  counts) shown on the LCD is always the difference between the stored reference and the present reading.

## 8. Sec. Minu. Selecting the 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, Time set and Hi/Lo Limits value set)

**9.1** Press the “SET” key to enter relative values 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.

**9.2** 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.

**9.3** Hi Limit value set mode,  $\text{H}$  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.

**9.4** 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. Relative value Recall display mode.

Press REL RECALL key to display the Relative set value on second display. Press REL RECALL key again to exit this mode.

## 11. Hi/Lo Limits value Recall display mode

Press Hi/Lo RECALL key to display the Hi set Limit value on second display. Press Hi/Lo RECALL key again to display the Lo Limits set value on second display. Press Hi/Lo RECALL key again to exit this mode.

## 12. Hi/Lo Limits mode (Main display)

Press “Hi/Lo Limits” key to enter the Hi/Lo Limits comparative mode,  $\text{H}$  is displayed. When the input temperature value exceeds the Hi or Lo Limits value, the beeper emits a continuous or pulsed tone. Press “Hi/Lo Limits” key again to exit the Hi/Lo Limits mode.

# 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 R03.
2. The  $\text{H}$  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 remove battery.
5. Do not store in locations with high temperatures, or high humidity.

### Cleaning

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

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

### WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. 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; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

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FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

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1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

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