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## OPERATING INSTRUCTIONS MODEL HH801B DUAL INPUT J/K/T/E DIGITAL THERMOMETER



MADE IN TAIWAN

### FEATURES:

Highly accurate thermometer with 0.1% basic accuracy.  
Three displays for easy observations.  
Thermocouple offset adjustment.  
Four thermocouple types K/J/T/E for common use.  
Robust protective holster.  
Auto-Power Off and Backlight functions.  
MIN/MAX/AVG/REL/HOLD/ functions.

### 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.

The  $\triangle$  symbol on the instrument indicates that the operator must refer to an explanation in this manual.

### SPECIFICATIONS

#### ELECTRICAL

Temperature Scale: Celsius or Fahrenheit user-selectable  
Measurement Range:

Thermocouple	Range
K-TYPE(0.1°C)	-200°C to 1372°C, -328°F to 1999°F
J-TYPE(0.1°C)	-210°C to 1200°C, -346°F to 1999°F
T-TYPE(0.1°C)	-200°C to 400°C, -328°F to 752°F
E-TYPE(0.1°C)	-220°C to 1000°C, -364°F to 1832°F

Auto range: 0.1°C/1°C, 0.1°F/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.  
 $\pm(0.1\%rdg+1^\circ C)$  on -60°C to 1372°C  
 $\pm(0.1\%rdg+2^\circ C)$  on -60°C to -220°C  
 $\pm(0.1\%rdg+2^\circ F)$  on -76°F to 1999°F  
 $\pm(0.1\%rdg+4^\circ F)$  on -76°F to -364°F

#### 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:** 3\_ digit liquid crystal display (LCD) with a maximum reading of 1999.

**Polarity:** Automatic, positive implied, negative polarity indication.

**Overrange:** "OL" or "-OL" is displayed.

**Zero:** Automatic.

**Low battery indication:** The  $\triangle$  is displayed when the battery voltage drops below the operating level.

**Measurement rate:** 1 sample/second.

**Accuracy:** Stated accuracy at 23°C $\pm$ 5°C, <75% R.H.

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

**Weight:** approx. 265g including batteries.

### OPERATING INSTRUCTIONS

#### 1. "⏻" Power Button

The  $\text{⏻}$  key turns the thermometer on or off. In the MAX/MIN record mode the meter cannot be powered

off. With the power off, push and hold this key for more than 4 seconds to disable auto power-off and turn the meter on.

#### 2. "HOLD" Button

Press the "HOLD" 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 "HOLD" key again to cancel HOLD mode and allow the thermometer to resume taking measurements. In the MAX/MIN recording mode, press the "HOLD" key to stop the recording. Press "HOLD" key again to resume recording. (Previously recorded readings are not erased.)

#### 3. "☀ °C/°F" Button

Press  $\text{☀}$  button to toggle ON or OFF the backlight. The backlight will switch-off automatically after 30 seconds. 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" button for more than 2 seconds.

#### 4. "REL" Button

Press the "REL" key to enter the Relative mode, zero the display, and store the displayed reading as a reference value. The annunciator REL will appear on the LCD. Press the "REL" key for more than 2 seconds 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 the "SET" key to set Relative value as a reference value. Press "REL" key again to exit the relative mode.

In the Relative mode, the value (can not be greater than  $\pm 2,000$  counts) shown on the LCD is always the difference between the stored reference and the present reading.

#### 5. "Type" Button: K/J/T/E Thermocouple Type

The "TYPE" key selects the thermocouple type to be used as an input. When the thermometer is turned on, it is set to the type that was in use when the thermometer was last turned off.

#### 6. "MAX/MIN" Button: Record mode

Press "MAX/MIN" key to enter the MAX/MIN Recording mode, (displays the Maximum reading, Minimum reading, "MAX-MIN" reading and Average reading stored in record mode). In this mode the automatic power-off feature is disabled and  $\text{⏻}$  key and all function keys are disabled. The beeper emits a tone when a new maximum or minimum value is recorded.

Push "MAX/MIN" key to cycle through the MAX, MIN, MAX-MIN and AVG readings. If overload is recorded, the averaging function is stopped and average value displays "-OL". In this mode, press the "HOLD" key to stop the recording of readings, all values are held, press again to resume recording. To prevent accidental loss of MAX, MIN, "MAX-MIN" and AVG data, this mode can only be cancelled by pressing and holding the MAX/MIN key for 2 seconds to exit and erase recorded readings.

#### 7. "Hi/Lo" Button: LIMITS mode

Press the "Hi/Lo" key to enter the Hi/Lo LIMITS comparative mode, "LIMIT" is displayed. When the input temperature value is above the Hi value, the beeper emits a continuous tone and "Hi" is displayed. When input temperature value is below the Lo value, the beeper emits a pulsed tone and "Lo" is displayed. Press the "Hi/Lo" LIMIT key again to exit the Hi/Lo LIMIT

mode.

#### 8. "▲" Button

The  $\text{▲}$  key increases the value of the selected digit.(See "SET mode" later in this manual.)

#### 9. "TC OFFSET" Button

This button allows the user to adjust the Cold Junction Compensation offset up to  $\pm 5.0$  counts. This value is used to compensate for thermocouple sensor error. When a value is entered, the readings displayed on the LCD will be automatically adjusted to include this offset. (See "SET mode" later in this manual.)

#### 10. "◀" Button

The  $\text{◀}$  key moves to the next digit on the display (See "SET mode" later in this manual.)

#### 11. "▼" Button

The  $\text{▼}$  key decreases the value of the selected digit (See "SET mode" later in this manual.)

#### 12. "SET" Button

Allows user to set the Relative value, Hi/Lo Limits value and Cold Junction Compensation value. Press "SET" key to enter SET mode. The LCD displays "SET" and set annunciator is show in the upper right.

##### Set Relative value:

Press "SET" key to enter SET mode, then Press "REL" button to set relative value. SET", "REL" and "T1" annunciators are displayed.

Press  $\text{▲}$  or  $\text{▼}$  to increase or decrease the value of the flashing digit, press  $\text{◀}$  to advance to the next digit Use  $\text{▲}$  or  $\text{▼}$  to set positive or negative for this relative value. Then press the "ENTER" key to set the relative value for T1. Follow the same procedure for T2. In this Relative SET mode, the value can not be greater than  $\pm 1999.9$  counts. If this value more than  $\pm 1999.9$  counts, "Err" displayed and a valid offset must be entered.

##### Set Hi/Lo Limit value:

Press "SET" key to enter SET mode, then Press Hi/Lo button to set Hi/Lo Limit value. "SET", "LIMIT", "Hi" and "T1" annunciator are displayed.

Press  $\text{▲}$  or  $\text{▼}$  to increase or decrease the value of the flashing digit, press  $\text{◀}$  to advance to the next digit Use  $\text{▲}$  or  $\text{▼}$  to set positive or negative for this Hi/Lo Limit value. Then press the "ENTER" key to store the Hi limit value for T1. Follow the same procedure for T2 In this Hi/Lo Limit SET mode, the value can not be greater than  $\pm 1999.9$  counts. If this value more than  $\pm 1999.9$  counts, "Err" displayed and a valid limit must be entered.

##### Set Cold Junction Compensation (TC OFFSET):

Press SET key to enter SET mode, then Press TC OFFSET button to set TC OFFSET value. First, "CJC" is displayed on LCD. The meter will then enter SET TC OFFSET mode. "SET" and "T1" annunciator are displayed.

Press  $\text{▲}$  or  $\text{▼}$  to increase or decrease the value of the flashing digit, press  $\text{◀}$  to advance to the next digit Press  $\text{▲}$  or  $\text{▼}$  to set positive or negative for this TC OFFSET value. Then press the "ENTER" key to store the TC OFFSET value for T1, next enter the TC OFFSET value for T2. In this TC OFFSET SET mode, the value can not be greater than  $\pm 5.0$  counts. If this value more than  $\pm 5.0$  counts, "Err" displayed and a valid offset must be entered.

## 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 "⚡" appears on the LCD display when replacement is needed. To replace battery remove screws 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 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.



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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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The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

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.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:

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3. Repair instructions and/or specific problems relative to the product.

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