

# OMEGA™



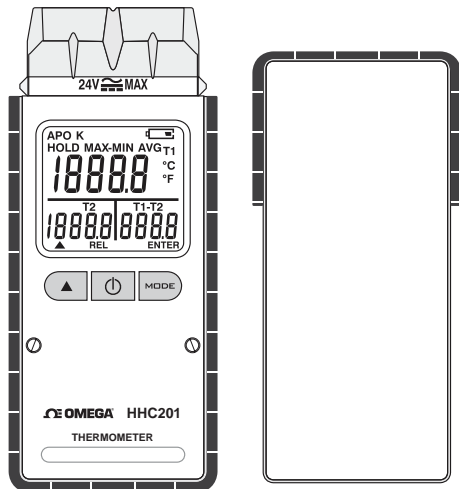
## HHC201

### Thermometer

M5510/0418

INSTRUCTION SHEET

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## 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

### Range:

- K-TYPE(0.1°C) -100°C to 1372°C
- K-TYPE(1°C) -100°C to -200°C
- K-TYPE(0.1°F) -100°F to 2000°F
- K-TYPE(1°F) 2000°F to 2501°F
- K-TYPE(1°F) -100°F to 328°F

**Unit:** Celsius or Fahrenheit

**Resolutions:** 0.1°C/1°C, 0.1°F/1°F

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

### Accuracy:

- $\pm(0.1\%rdg+1^{\circ}C)$  on  $-60^{\circ}C$  to  $1372^{\circ}C$
- $\pm(0.1\%rdg+2^{\circ}C)$  on  $-60^{\circ}C$  to  $-200^{\circ}C$
- $\pm(0.1\%rdg+2^{\circ}F)$  on  $-76^{\circ}F$  to  $2501^{\circ}F$
- $\pm(0.1\%rdg+4^{\circ}F)$  on  $-76^{\circ}F$  to  $-328^{\circ}F$

### According to temperature standard ITS-90.

**Accuracy:** Stated accuracy at  $18^{\circ}C$  to  $28^{\circ}C$  ( $64^{\circ}F$  to  $82^{\circ}F$ ), <75% R.H. not including thermocouple error.

**Temperature Coefficient:** 0.1 times the applicable accuracy specification per  $^{\circ}C$  out of  $18^{\circ}C$  to  $28^{\circ}C$  ( $64^{\circ}F$  to  $82^{\circ}F$ ).

**Operating environment:**  $0^{\circ}C$  to  $50^{\circ}C$  ( $32^{\circ}F$  to  $122^{\circ}F$ ) at <70% R.H.

**Storage temperature:**  $-20^{\circ}C$  to  $60^{\circ}C$  ( $-4^{\circ}F$  to  $140^{\circ}F$ ), 0 to 80% R.H. with battery removed from meter.

**Low battery indication:** The "⎓" is displayed when the battery voltage drops below the operating level.

**Battery:** 1.5Vx2pcs AAA size.

**Battery Life:** 250 hours typical with alkaline battery.

**Dimensions:** 24.7mm(T) x 50.9mm(W) x 132.9mm(H).

**Weight:** Approx. 147.85g including batteries and 2 pieces of thermocouple.

## OPERATIONS

There are 3 operation modes, namely Measurement Mode, Set Mode and Hold Mode.

### 1. Turning on and off meter:

When power is off, make sure the k-type thermocouple was inserted to meter, a short push on "⏻" key turns on the meter and enter Measurement Mode.

When power is on, press and hold "⏻" key for 2 seconds turns the power off.

### 2. Measurement Mode:

If there are thermocouples in the input sockets, measurement starts immediately.

If thermocouple is not in the input socket before turning on, the display of respective channel shows "OL".

Once thermocouple is inserted, measurement starts immediately, but record function did not work immediately till 3 times update of temperature readings.

### Backlight:

In measurement mode, a short push on "⏻" key turns on the backlight for dark environment, it goes off automatically after 15 seconds if without further operation.

### Relative Mode:

In measurement mode, short push on "▲" key to enter relative mode with indicator "REL" shows at bottom of LCD.

After entering this mode, the meter will zero the display and store last measurements as a reference values. Shown on display are the relative values against these reference values.

Change reference value: Short push on "▲" key again, meter will store last measurement as a reference value again.

Exit relative mode: hold "▲" key for 2 seconds to exit relative mode.

### 3. Set Mode:

In set mode, user can turn on/off APO function, measurement unit and set thermocouple offset of T1 and T2. (APO = Auto Power Off, when APO is ON, the meter power off automatically if no operation in 10 minutes)

When power is off, press and hold "⏻" key for 2 seconds to enter Set Mode.

In Set Mode, press "Mode" key each time move settable position/digit in following sequence (indicator of settable position/digit blinks.)

1. APO ON/OFF: short push on "▲" key switches between ON and OFF. Push "MODE" key to save APO setting and enter to setting measurement unit.
2. Measurement unit: short push on "▲" key switches between  $^{\circ}C$  and  $^{\circ}F$ . Push "MODE" key to save unit setting and enter to setting to the right of decimal point T1 offset.
- 3.1 Digit to the right of decimal point of T1 offset blinks, short push on "▲" key increases this digit from 0 to 9 and then to 0. Push "MODE" key to save the setting and enter setting digit to the left of decimal point.
- 3.2 Digit to the left of decimal point of T1 offset blinks, short push on "▲" key increases this digit from 0 to 9 and then to 0. Push "MODE" key to save the setting and enter setting +/- sign of T1 offset.
- 3.3 Under line of +/- sign of T1 offset blinks, short push on "▲" key switches between "no sign (+)" and "-". Push "MODE" key to save the setting and enter setting digit to the right of decimal point of T2 offset.
- 3.4 Digit to the right of decimal point of T2 offset blinks, short push on "▲" key increases this digit from 0 to 9 and then to 0. Push "MODE" key to save the setting and enter setting digit to the left of decimal point.
- 3.5 Digit to the left of decimal point of T2 offset blinks, short push on "▲" key increases this digit from 0 to 9 and then to 0. Push "MODE" key to save the setting and enter setting +/- sign of T2 offset.
- 3.6 Under line of +/- sign of T2 offset blinks, short push on "▲" key switches between "no sign (+)" and "-". Push "MODE" key to save the setting, exit setting mode and enter Measuring mode after checking procedure.  
(Please refer to the section of Measurement Mode.)

※Note: To turn off power in Set Mode abandon the current setting and previous settings remain unchanged. If "⎓" indicator appeared, the setting value can works till power off but did not save to meter.

### 4. Hold Mode:

In Measurement Mode, short push "Mode" key to enter Hold Mode with indicator "HOLD" shows at upper left corner of LCD.  
Right after entering this mode, shown in the LCD is the last measurement and the reading will not be updated with new measurement.

Push "Mode" key each time the display changes in following sequence:

- 4.1 Last Measurement: with indicator "HOLD".
- 4.2 Maximum value recorded: with indicator "HOLD" + "MAX".
- 4.3 Minimum value recorded: with indicator "HOLD" + "MIN".
- 4.4 Maximum-Minimum value recorded: with indicator "HOLD" + "MAX-MIN".
- 4.5 Average of values recorded: with indicator "HOLD" + "AVG".
- 4.6 Exit the Hold Mode and return to Measurement Mode.

### To clear the recorded values:

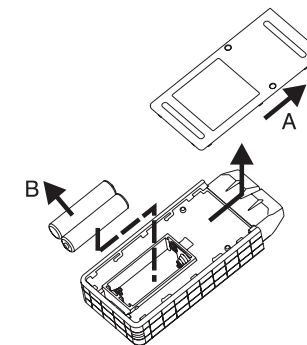
In Hold Mode and during viewing MAX, MIN, MAX-MIN or AVG, press and hold "Mode" key for 2 seconds, to clear the recorded data and return to measurement mode.

## MAINTENANCE

### WARNING

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

### Installing and Replacing Battery



- A. Battery Cover
- B. Battery

1. Power is supplied by 2pcs 1.5V (AAA SIZE).
2. The "⎓" appears in the display when battery replacement is needed.
3. Push the Battery Cover and lift it in the direction as shown in the figure.
4. Remove the batteries from battery compartment.
5. Replace with 2 new AAA batteries with polarity as indicated on the bottom of Battery Compartment.
6. Replace the Battery Cover.

### Cleaning

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

## 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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## RETURN REQUESTS/INQUIRIES

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked 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 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:

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.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

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- Calibrators & Ice Point References
- Recorders, Controllers & Process Monitors
- Infrared Pyrometers

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- Load Cells & Pressure Gages
- Displacement Transducers
- Instrumentation & Accessories

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- Air Velocity Indicators
- Turbine/Paddlewheel Systems
- Totalizers & Batch Controllers

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- Benchtop/Laboratory Meters
- Controllers, Calibrators, Simulators & Pumps
- Industrial pH & Conductivity Equipment

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- Data Logging Systems
- Wireless Sensors, Transmitters, & Receivers
- Signal Conditioners
- Data Acquisition Software

### HEATERS

- Heating Cable
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- Flexible Heaters
- Laboratory Heaters

### ENVIRONMENTAL MONITORING AND CONTROL

- Metering & Control Instrumentation
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- Air, Soil & Water Monitors
- Industrial Water & Wastewater Treatment
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