K-THERMOMETER (K-type thermocouple)
MODEL CA861

USER MANUAL

The AEMC® Model CA861 is a portable, easy-to-use, compact-sized digital thermometer designed for simple one-hand operation. It uses an external K-type thermocouple with standard miniature connector as sensor. The thermometer is supplied with a protective rubber holster and one K-type thermocouple. The Model CA861 also features a back-light LCD display, a data HOLD function, and a MAX recording function.

⚠ WARNING ⚠

- Thermometers are not designed to work on live electrical samples.
- Do not use this instrument when voltages at the sample point exceed 24VDC or 24Vrms.
- Do not make temperature measurement in microwave ovens. Leaking microwaves may result in burns and serious injuries.
- Repeated sharp flexing can cause the thermocouple leads to break. To prolong sensor life, avoid sharp bends in the thermocouple, especially near the connector.

⚠ This symbol signifies CAUTION! and requests that the user refer to the user manual before using the instrument.

PUSH BUTTONS

Center (Yellow) Function Switch: Slide the center button to turn ON the Thermometer and select the 0.1° or 1° setting. Slide the button to OFF after use.

Back-Light ☀ and °C/°F Button:

- Press the ☀ button to turn the Back-Light ON.
- Press the ☀ button again to turn the Back-Light OFF.
- Press the ☀ button for 2 seconds to change the temperature scale to °C or °F. The temperature scale °C or °F is displayed in the lower right side corner of the display.

MAX Button:

- Press the MAX button to enter the MAX mode. The "MAX" annunciator appears in the upper right hand corner of the display.
- The thermometer then displays and updates the maximum absolute temperature values.
- Press the MAX button again to exit the MAX-display mode (“MAX” goes out).
- The HOLD button (see below) may be used in the MAX mode to “Freeze” (no longer updates) the MAX measurement on the display.
- Press HOLD again to resume the MAX mode recording.

HOLD Button: The Hold button “freezes” the reading on the display. Press the “HOLD” button to toggle (activate/release) HOLD. In the HOLD mode, the "HOLD" annunciator is displayed in the upper part of the LCD display and the last reading is displayed until released.

OPERATING INSTRUCTIONS

OPERATION

1. Connect the K thermocouple to the instrument input.
2. Put the thermocouple near or on the sample tested.
3. Slide the function switch to the appropriate range or, if in doubt, select the highest setting (1°). If the measured temperature is below 200°, the higher resolution range 0.1° can be selected, if needed.
4. The Model CA861 may be in degrees Celsius (°C) at power-up. Press the back-light button ☀ for more than 2 seconds to toggle over into degrees Fahrenheit (°F), if desired. The selected setting will remain for the next use.
5. Thermocouples need a certain time to respond. Take the reading when the measurement has stabilized.
6. The HOLD button will freeze the measurement in the display, and will not update until released.
7. When finished, remove the thermocouple from the sample, unplug the thermocouple from the meter and slide the switch to OFF.

SPECIFICATIONS

ELECTRICAL

Temperature Scale:
Celsius (°C) or Fahrenheit (°F) user-selectable

Measurement Range:
-40°F to 1999°F, -40°C to 1350°C

Resolution:
0.1°F/°C or 1°F/°C

Accuracy (meter):
-40°F to 1999°F: ±(0.1% rdg ± 2°F)
-40°C to 1350°C: ±(0.1% rdg ± 1°C)
(Accuracy is specified for operating temperatures over the range of 18°C to 28°C, for 1 year, excluding the sensor)

Temperature Coefficient:
0.1 times the applicable accuracy specification
per °C from 0°C to 18°C and 28°C to 50°C.

Input Protection:
24VDC or 24Vrms maximum input voltage on any combination of inputs.

Input Connector:
Accepts standard miniature K thermocouple connectors.

Temperature Response:
Temperature indication follows Reference Temperature/Voltage Tables N.I.S.T. Monograph 175 Revised to ITS-90 for K-type thermocouples.

GENERAL

Display:
3½ digit liquid crystal display (LCD) with maximum reading of 1999

Over-Range: “OL” is displayed

Low Battery Indication:
The [- +] is displayed when the battery voltage drops below the required level

Sample Rate: 2.5 times per second, nominal

Operating Temperature:
32° to 122°F (0°C to 50°C) at < 80%RH

Storage Temperature:
-4°F to 140°F (-20°C to 60°C), 0 to 80%RH with battery removed

Altitude: 2000m max

Battery:
Standard 9V battery (NEDA 1604, IEC 6F22 006P, or equivalent)

Battery Life:
200 hours typical with carbon zinc battery

Dimensions:
6.81"(H) x 2.38"(W) x 1.5"(D) (173 x 60.5 x 38mm)

Weight:
Approx. 6.5oz (185g) including battery

Probe: The Thermometer CA861 is supplied with a 4 foot "K" type thermocouple bead probe (Teflon sheath). Maximum sheath temperature 260°C (500°F). Probe accuracy ±2.2°C (4°F) or ±0.75% of reading (whichever is greater) from 0°C to 800°C.

Contact AEMC® for other thermocouples available.

SAFETY

CE

EN61010-1 (1995-A2), Protection Class III

Overvoltage Category (CAT III, 24V), Pollution Degree 2

Indoor Use

⚠ OPERATOR MAINTENANCE

⚠ **WARNING:**
To avoid possible electrical shock, disconnect the thermocouple connectors from the thermometer before opening the back cover.

Use only factory specified spare parts for maintenance. The manufacturer will not be held responsible for any accident, incident, or malfunction following a repair done other than by its Service Center or by an approved repair center.

⚠ **Battery Replacement:**
A standard 9-volt battery supplies power. (NEDA 1604, IEC 6F22).
The [− +] appears on the LCD display when replacement is needed.

To replace the battery:

- Turn the Thermometer OFF
- Remove the rubber holster.
- Remove the screw from the back of the meter and lift off the battery cover.
- Replace the battery, rear cover and holster.

⚠ **Cleaning:**

- Periodically wipe the case with a damp cloth and very mild soap, if needed.
- Do not use any abrasives or solvents.
- Do not let any liquid enter the case or sensor area.

⚠ REPAIR AND CALIBRATION

To guarantee that your instrument complies with the factory specifications, we recommend that the unit be submitted to our factory service center at one-year intervals for recalibration, or as required by other standards. For repair and/or calibration:

Chauvin Arnoux®, Inc. d.b.a. AEMC® Instruments
15 Faraday Dr. • Dover, NH 03820, USA
(800) 945-2362 • (603) 749-6434 • Fax: (603) 742-2346
www.aemc.com

(Or contact your authorized distributor.) Costs for repair, standard calibration, and calibration traceable to N.I.S.T. are available.
All customers must call for a return authorization number before returning any instrument.

TECHNICAL AND SALES ASSISTANCE

If you are experiencing any technical problems, or require any assistance, contact us at:
(800) 343-1391 • (508) 698-2115 • Fax: (508) 698-2118
www.aemc.com

WARRANTY INFORMATION

The Digital Thermometer Model CA861 is warranted to the owner for a period of 1 year from the date of original purchase against defects in manufacture. This limited warranty is given by AEMC® Instruments, not by the distributor from whom it was purchased. This warranty is void if the instrument has been tampered with, abused or if the defect is related to service not performed by AEMC® Instruments.

For full warranty coverage detail and registration, go to www.aemc.com.

To return the product for warranty repair or replacement free of charge, contact customer service at (800) 945-2362 or (603) 749-6434 to obtain a return authorization number.