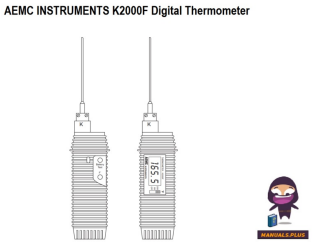

AEMC INSTRUMENTS K2000F Digital Thermometer User Manual

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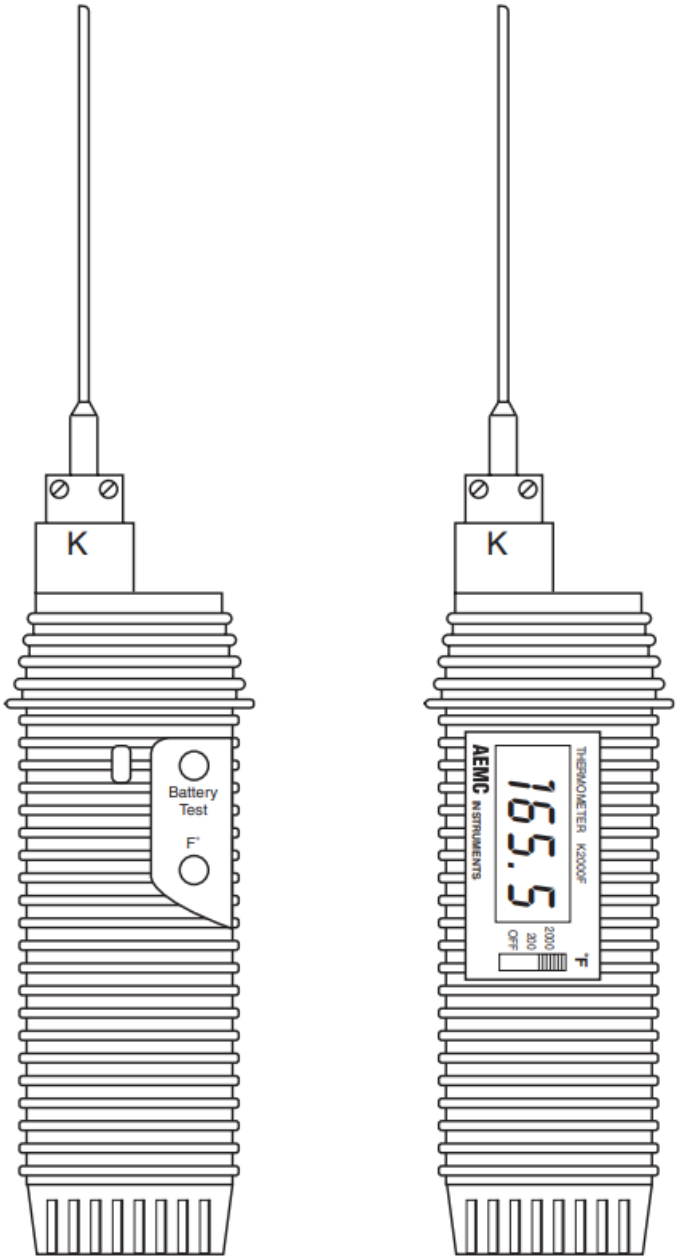
AEMC INSTRUMENTS K2000F Digital Thermometer



Specifications

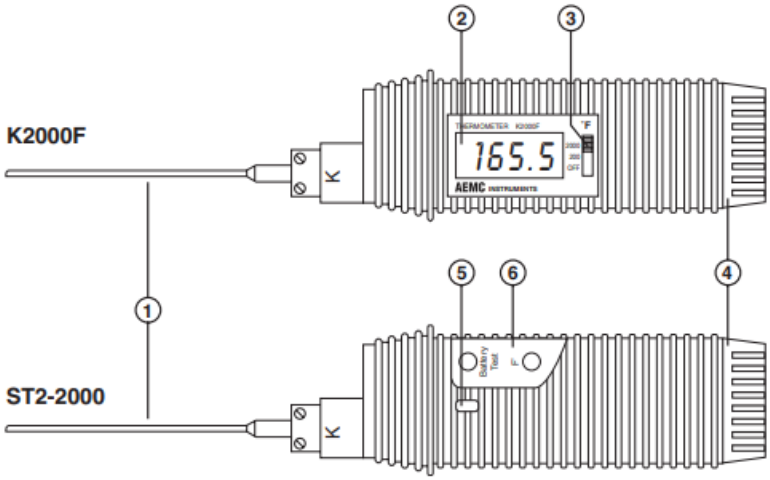
- **Digital Thermometer Model K2000F**
  - **Common Mode Rejection Rate**: Up to 380V (50/60Hz) at thermocouple. No effect on the measurement.
  - **Dielectric Strength:** 4000VAC applied between the thermocouple connector and the case.
  - **Display:** 3 1/2 digit LCD; 0.5″ (13mm)
  - **Input:** Standard type K (subminiature SMP connector)
  - **Power Supply:** 9V battery
  - **Battery Life**: 600 hours typical; low battery display on LCD
  - **Dimensions:** 6.1″ x 2.09″ x 1.18″ (150mm x 53mm x 30mm)
  - **Weight:** 6.4oz. (180g)
- **Temperature Probe Model ST2-2000**
  - **Common Mode Rejection Rate**: Up to 380V (50/60Hz) at thermocouple. No effect on the measurement.
  - **Dielectric Strength:** 4000VAC applied between the thermocouple connector and the case.
  - **Input:** Standard type K (subminiature SMP connector)
  - **Power Supply:** 9V battery

- **Battery Life**: 15,000-10s measurements; red LED for low battery
- **Dimensions:** 6.1″ x 2.09″ x 1.18″ (150mm x 53mm x 30mm)
- **Weight:** 7oz. (200g)
- **Lead:** 5ft. (1.5m) lead with shielded 4mm banana plugs

DESCRIPTION

- The Digital Thermometer K2000F enables measurement of temperatures from -58°F to +1999°F using type K (Nickel-Chrome/Nickel-Aluminum) thermocouples.
- The Temperature Probe Model ST2-2000 enables the user to measure temperatures with any multimeter with mV DC input.
- Temperature range from -58°F to +1999°F using type K (Nickel-Chrome/Nickel-Aluminum) thermocouples.

1.



Needle Sensor

2. 3 1/2 digit (2000 cts) LCD (13mm)
3. Range Switch: 2000, 200, OFF
4. Housing – Index Protection IP50
5. LED Battery Test
6. ON/OFF Push Button

A range of 6 specialized sensors and interchangeable probe extensions are available to enable you to adapt the K2000F and ST2-2000 to suit your own requirements (see Section 6).

ORDERING INFORMATION

- **K2000F Digital Thermometer** ..... Cat. #6521.01 (2000 count, -58°F to 1800°F)
- **ST2-2000 Temperature Probe** ..... Cat. #6526.01 (1mV/°F, -58°F to 1800°F)

ACCESSORIES

- **SK1 Needle Temperature Probe**..... Cat. #6529.01 (-58°F to 1472°F – Length =

5.9”)

- **SK2 Flexible Temperature Probe** …….. Cat. #6529.02 (-58°F to 1832°F – Length = 39”)
- **SK3 Semi-rigid Temperature Probe** ……. Cat. #6529.03 (-58°F to 1832°F – Length = 19.6”)
- **SK4 Surface Temperature Probe** …….. Cat. #6529.04 (-32°F to 482°F – Length = 5.9”)
- **SK5 Surface Temperature Probe** …….. Cat. #6529.05 (-58°F to 932°F – Length = 5.9”)
- **SK6 Supple Temperature Probe** …… Cat. #6529.06 (-58°F to 545°F – Length = 39”)
- **SK7 Air Temperature Probe**……. Cat. #6529.07 (-58°F to 482°F – Length = 5.9”)
- **CK1 1M Extension Temperature Probe** ……. Cat. #6529.09
- **CK2 2M Extension Temperature Probe** ……. Cat. #6529.10
- **CK4 4mm Extension Temperature Probe** ……. Cat. #6529.14

SPECIFICATIONS

Digital Thermometer Model K2000F

- **Range: –**58° to 199.9°F (0.1° resolution) 200° to 1999°F (1° resolution)
- **Accuracy:** -58°F to +14°F: 5°F max plus linearity
  - **+14°F to 60°F:** 3°F
  - **60°F to 110°F:** 2°F
  - **110°F to 1850°F**: 1% R ± 2°F plus linearity
    - **1850°F to 1999°F:** 2% R plus linearity
- **Operating Temperature:** 32°F to 122°F (0°C to +50°C)
- **Influence of Temperature:**
  - ± 1°C/10°C in reference range 68°F to 122°F (20°C to 50°C)
  - (± 0.3% reading in other ranges)
- **Common Mode Rejection Rate**:
  - Up to 380V (50/60Hz) at thermocouple. No effect on the measurement.
- **Dielectric Strength:**
  - 4000V AC applied between thermocouple connector and the case.
- **Display:** 3 1/2 digit LCD; 0.5” (13mm)
- **Input:** Standard type K (subminiature SMP connector)
- **Power Supply:** 9V battery
- **Battery Life:** 600 hour typical; low battery display on LCD
- **Dimensions:** 6.1 x 2.09 x 1.18” (150 x 53 x 30mm)
- **Weight:** (6.4 oz.) 180 g.
- **Thermocouple (supplied):**
  Stainless steel needle probe K-type Model SK1 (-60°F to 1850°F)

Temperature Probe Model ST2-2000

- **Range:** -60° to 1999°F
- **Accuracy:** -58°F to +14°F: 5°F max plus linearity
  - **+14°F to 60°F**: 3°F
  - **60°F to 110°F**: 2°F
  - **110°F to 1850°F**: 1% R ± 2°F plus linearity
  - **1850°F to 1999°F**: 2% R plus linearity
- **Common Mode Rejection Rate:** Up to 380V (50/60Hz) at thermocouple. No effect on the measurement.

  Dielectric Strength: 4000V AC applied between the thermocouple connector and the case. Output: 1mV DC/°F

  Input: Standard type K (subminiature SMP connector)

  Power Supply: 9V battery

  Battery Life: 15,000 – 10s measurements; red LED for low battery Dimensions: 6.1 x 2.09 x 1.18” (150 x 53 x 30mm)

  Weight: (7 oz.) 200 g.

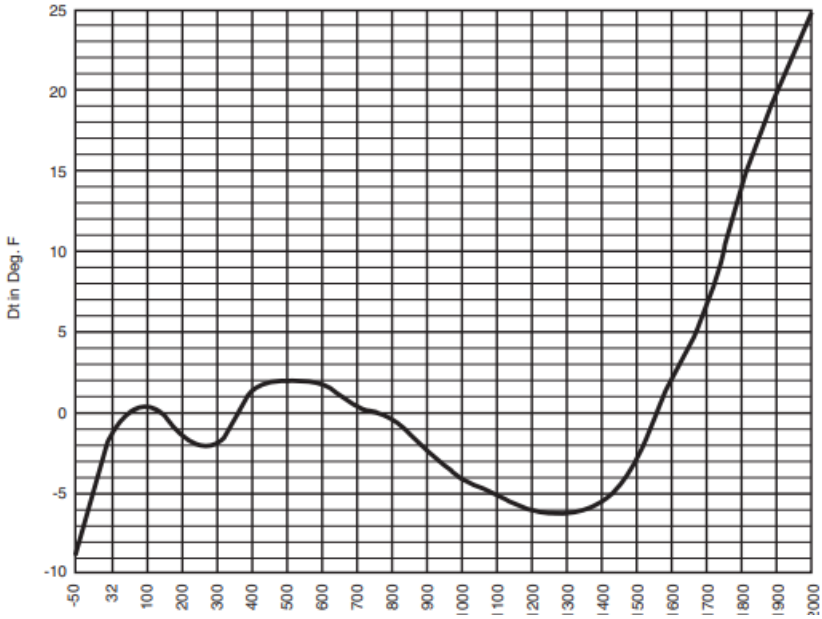
  Lead 5 ft. (1.5m) lead with shielded 4mm banana plugs Thermocouple (supplied):

  Stainless steel needle probe K-type Model SK1 (-60°F to 1850°F)

Linearity Correction Curve

This curve gives the value that is necessary to add to the reading, to take variations due to non-linearity into account.

- **Example: Reading**: +1100°F Linearity Correction: -5°F
- **Corrected Reading:** 1100°F ± 1% ± 2°F = ± 13°F 1100°F – 5°F = 1095 ± 13°F



OPERATION

- **Select the range required:** up to +200°F or +2000°F for Model K2000F or select mV input for Model ST2-

2000.

- Make sure that the sensor connected is suitable for the measurement about to be taken.
- Position the sensor at the point of measurement.
- Wait a few seconds for the sensor to stabilize (refer to sensor response time in Section 6).
- Check the reading when the indication settles.

WARNING: The body of the thermometer must be kept within the temperature range 32°F to 122°F (0°C to +50°C).

BATTERY REPLACEMENT

- The 9V battery is accessible through the back of the instrument.
- Unscrew and remove the rear half of the case.
- Replace the battery and put the case back together.

WARNING: Always disconnect the sensor from the thermometer before opening the case.

SENSORS AND PROBE EXTENSIONS

General Notes

ISOLATION

The thermocouple is incorporated into the extreme tip of each of the sensors described in this booklet. The thermocouple is solid with the body of the sensor.

SENSOR RESPONSE TIME

The response time of a thermocouple is the time taken for it to settle to a new value after the introduction of a temperature step. For a thermocouple plugged into a medium having a high calorific value, good thermal conductivity, and good thermal contact, the response time should be extremely short (intrinsic response time). If the thermal medium is unfavorable (e.g. calm air) the actual response time could attain 100 times or more of the thermocouple itself. Values for the K2000F and ST2-2000 sensors have been established under the following conditions:

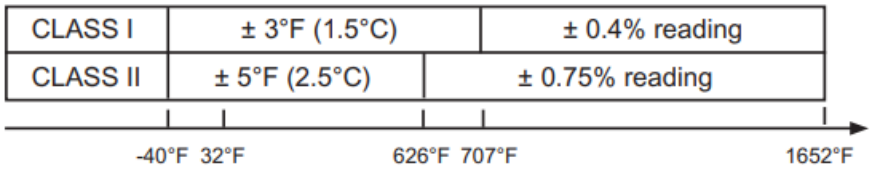
- For supple and auto-grip surface sensors in contact with a polished stainless steel plate coated with silicon grease.
- For the air sensor, in agitated air (1 m/s).
- For the other sensors, by immersion in agitated water at 194°F (90°C)(agitation speed: 0.3 to 0.5 m/s).

TEMPERATURE RANGE

The temperature range for each sensor is given for use in chemically neutral environments. The introduction of a sensor into a corrosive medium could shorten its life or limit the recommended working range.

SENSOR CLASSIFICATIONS

K-type thermocouple sensors are either Class I or II (according to standard NF C 43-322). Class I is denominated reduced tolerance and Class II standard tolerance.



Sensors

Needle Sensor SK1

- **Working Range:** -58°F to 1472°F (-50°C to 800°C)
- **Time Constant:** 1 second
- **Length:** 5.9”
- **Class:** II (NF C 42-322 standard)

Beveled tip needle sensor for insertion into pastes, fats, liquids etc. The tip of the sensor must be inserted at least .79” (20mm).
Formable Sensor SK2

- **Working Range:** -58°F to 1832°F (-50°C to 1000°C)
- **Time Constant:** 2 seconds
- **Length:** 39”
- **Class:** II (NF C 42-322 standard)

This sensor can be formed to suit most needs. Curvature must never be less than twice the diameter of the sensor shank. This sensor comprises a stainless steel sheathed thermocouple, it can resist corrosion in a great number of hot liquids and gases.

Semi-Rigid Sensor SK3

- **Working Range:** -58°F to 1832°F (-50°C to 1000°C)
- **Time Constant:** 6 seconds
- **Length:** 19.6”
- **Class:** II (NF C 42-322 standard)

  This sensor comprises a sheathed thermocouple (same as SK2), but it does not bend as easily. However, it does allow enough flexibility to reach some of the more awkwardly placed measuring points.

Surface Sensor SK4

- **Working Range:** -32°F to 482°F (-0°C to 250°C)
- **Time Constant:** 1 second
- **Length:** 5.9”
- **Class:** II (NF C 42-322 standard)

The tip is particularly well adapted to point measurement on small surfaces: electronic components, radiators, solar panels, heat exchangers, etc. Hold the probe perpendicular to the surface to ensure good contact. The surface should be flat. Change the position of the probe slightly if necessary to obtain the highest reading. The use

of silicon grease can improve the contact quality.

Working Range: -58°F to 932°F (-50°C to 500°C)
Time Constant: 1 second
Length: 5.9”
Class: II (NF C 42-322 standard)

This sensor, for flat surfaces, is fitted with a spring-loaded tip which permits good contact, even if the sensor is not exactly perpendicular to the surface. The use of silicon grease improves the quality of contact.

Supple Sensor SK6

- **Working Range:** -58°F to 545°F (-50°C to 285°C)
- **Time Constant:** 1 second for contact measurement 3 seconds for ambient air measurement
- **Length:** 39”
- **Class:** I (NF C 42-322 standard)

This supple sensor is both thin and long. It is recommended for measurement areas that are difficult to reach. It must not be used with liquids because the tip is not water-resistant. It has a Kapton sheath (derived from Teflon).
Air Sensor SK7

- **Working Range:** -58°F to 482°F (-50°C to 250°C)
- **Time Constant:** 5 seconds
- **Length:** 5.9”
- **Class:** I (NF C 42-322 standard) Suitable for all ambient air measurements. The extremely small sensitive element is protected by a metallic shroud. During measurement in still air conditions, it is recommended that the probe should be waved from side to side, or up and down if you prefer.

Extension Leads

Probe Extension CK1

- **Resistance:** 4Ω / meter
- **Dielectric Strength:** 1000V AC

A probe extension that conforms to NF C 42-324 standard. The thermo-sensitive material of the extensions differs from the K-type thermocouples of the sensors. It does, however, possess the same electrical characteristics within the working range: -13°F to +194°F (-25°C to +90°C). In other words, the extensions are thermo-compensated.

WARNING: Never use ordinary cables to connect a sensor to the probe.

Probe Extension CK2
Identical characteristics to CK1, except this extension, has bared wires at one extremity, permitting it to be connected to the screw terminals of sensors already in position For example, it could be employed with sensors that are installed in an oven.

Probe Extension CK4
Specifications are the same as the CK1. This extension lead is equipped with 2 insulated banana plugs (4mm) for connection to multimeters pro-vided with a temperature range (type K thermocouples), thus enabling connection

of the SK1 to SK7 sensors range.

WARNING: The black plug corresponds to the thermocouple “–” and the red to “+”.

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 instrument repair and calibration:
Call (800) 945-2362

- (603) 749-6434
- **Fax:** (603) 742-2346

Chauvin Arnoux®, Inc.
d.b.a. AEMC® Instruments 15 Faraday Drive
Dover, NH 03820 USA

(Or contact your authorized distributor.) Estimates for repairs, normal recalibration, and calibration traceable to N.I.S.T. are available.
Note: All customers must call for an authorization number before returning any instrument.

Technical and Sales Assistance
If you are experiencing any technical problems, or require any assistance with the proper use or application of this instrument, please call our technical hotline:

Chauvin Arnoux®, Inc.

- d.b.a. AEMC® Instruments
- **Phone**: (800) 343-1391 (508) 698-2115
- **Fax:** (508) 698-2118
- **www.aemc.com**

Chauvin Arnoux®, Inc. d.b.a. AEMC® Instruments
15 Faraday Drive • Dover, NH 03820 USA

- **Phone**: (603) 749-6434
- **Fax:** (603) 742-2346 **www.aemc.com**

Digital Thermometer Model K2000F and Temperature Probe Model ST2-2000

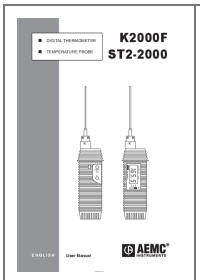
FAQ

- **Q: How do I register my product for warranty?**
  - A: To register your product for warranty coverage, please fill out the registration card and provide a dated proof of purchase along with the defective material.
- **Q: How can I contact the service department?**
  - A: You can contact the service department at the following address and phone numbers: N15 Faraday Drive, Dover, NH 03820, USA

- **Tel:** (800) 945-2362 (X520), (603) 749-6434 (X520)
- **Fax:** (603) 742-2346

- **Q: How should I handle the return of my product?**
  - A: To protect against in-transit loss, it is recommended to insure your returned material.
- **Q: What should I do to ensure full warranty coverage?**
  - A: Please read the Warranty Card which is affixed to the Warranty Registration Card for full warranty coverage. Keep the Warranty Card with your records.
- **Q: Where can I find the user manual?**
  - A: The user manual can be found at https://manual-hub.com/

Documents / Resources

	AEMC INSTRUMENTS K2000F Digital Thermometer [pdf] User Manual K2000F Digital Thermometer, K2000F, Digital Thermometer, Thermometer

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