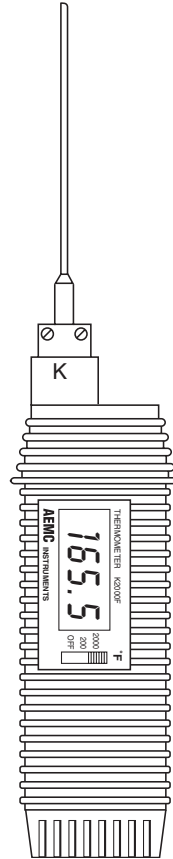
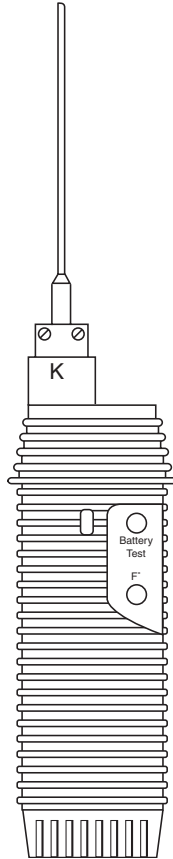


- DIGITAL THERMOMETER
- TEMPERATURE PROBE

K2000F ST2-2000



Limited Warranty

The Thermometer Models K2000F and ST2-2000 are warranted to the owner for a period of 2 years 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 unit has been tampered with, abused or if the defect is related to service not performed by AEMC® Instruments.

What AEMC® Instruments Will Do: If a malfunction occurs within the 2 year period, you may return the instrument for repair or replacement free of charge, provided we have your REGISTRATION CARD on file. AEMC® Instruments will, at its option, repair or replace the faulty material.

Note: If a registration card is not on file, we will require a dated proof of purchase as well as your REGISTRATION CARD accompanied by the defective material.

What You Must Do: First request a return authorization form by phone or by fax from AEMC® Instruments, then return the instrument along with the signed authorization repair form. Return material, postage pre-paid to:

Chauvin Arnoux®, Inc.
d.b.a. AEMC® Instruments
Service Department
15 Faraday Drive
Dover, NH 03820 USA
Tel: (800) 945-2362 (X520)
(603) 749-6434 (X520)
Fax: (603) 742-2346

Caution: To protect against in-transit loss, we recommend you insure your returned material.

For full warranty coverage, please read the Warranty Card which is affixed to the Warranty Registration Card. Please keep the Warranty Card with your records.

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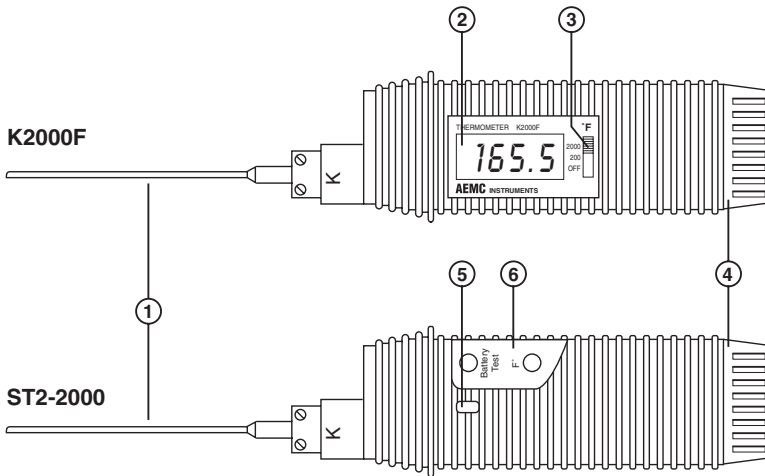
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1. DESCRIPTION

The Digital Thermometer K2000F enables measurement of temperatures from -58°F to $+1999^{\circ}\text{F}$ 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 $+1999^{\circ}\text{F}$ 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).

2. 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

3. 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

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.

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

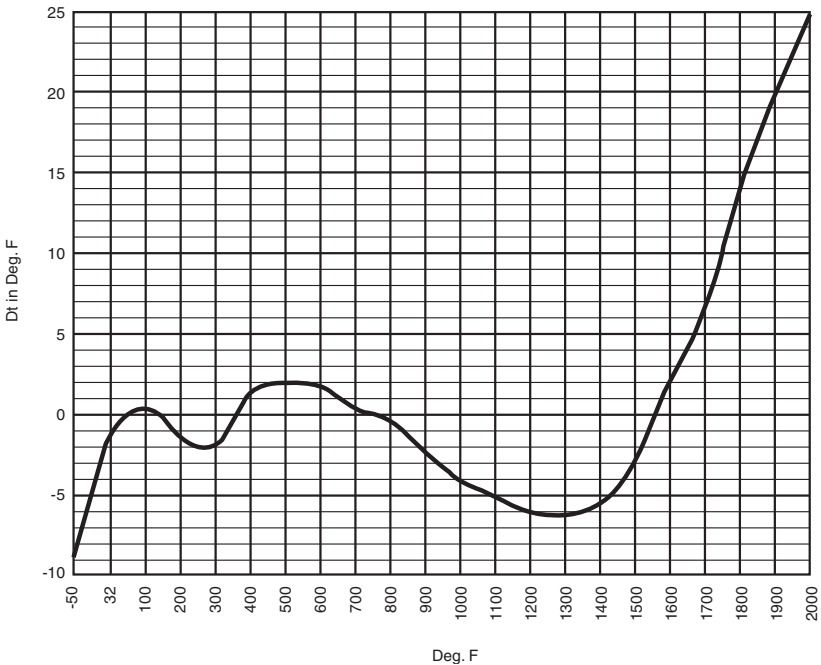
Thermocouple (supplied):

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, in order 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



4. 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.



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

5. 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.



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

6. 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 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.

CLASS I	$\pm 3^{\circ}\text{F}$ (1.5°C)	$\pm 0.4\%$ reading
CLASS II	$\pm 5^{\circ}\text{F}$ (2.5°C)	$\pm 0.75\%$ reading

-40°F 32°F 626°F 707°F 1652°F

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)

Bevelled 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. Though, 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.

Surface Sensor SK5

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 measurement. 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 which 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 $+194^{\circ}\text{F}$ (-25°C to $+90^{\circ}\text{C}$). In other words, the extensions are thermo-compensated.



Never use ordinary cable 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 which 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 provided with a temperature range (type K thermocouples), thus enabling connection of the SK1 to SK7 sensors range.



The black plug corresponds to the thermocoupler “-” 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



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