

Instruction Manual



MODEL TP-30B
MULTIMETER TEMPERATURE ADAPTER

1031 Segovia Circle
Placentia, CA 92870-7137
USA
TEL: 714-237-9220
FAX: 714-237-9214

Limited Three Year Warranty

B+K Precision warrants to the original purchaser that its product and the component parts there of, will be free from defects in workmanship and materials for a period of three years from the date of purchase.

B+K Precision will, without charge, repair or replace, at it's option, defective product or component parts. Returned product must be accompanied by proof of the purchase date in the form a sales receipt.

To obtain warranty coverage in the U.S.A. this product must be registered by completing and mailing the enclosed warranty card to B+K Precision, 1031 Segovia Circle, Placentia, CA 92870 within fifteen (15) days from proof of purchase.

Exclusions : This warranty does not apply in the event of misuse or abuse of the product or as result of unauthorized alternations or repairs. It is void if the serial number is alternated, defaced or removed.

B+K Precision shall not be liable for any consequential damages, including without limitation damages resulting from loss of use.

Some states do not allow limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This warranty gives you specific rights and you may have other rights, which vary from state-to-state.

Date Purchased : _____

INTRODUCTION

1-1 Unpacking and Inspection

Upon removing your new Thermocouple Module from its packing, you should have the following items:

1. Thermocouple Module.
2. K-type Bead Thermocouple.
3. Operator's manual.

1-2 Meter safety

Terms as Marked on Equipment.

ATTENTION Refer to manual.

BATTERY

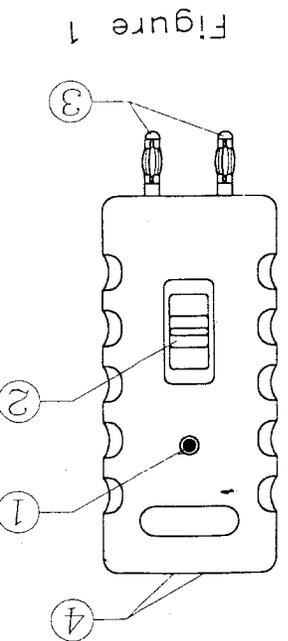
Symbols In This Manual.

This symbol indicates where cautionary or other information is found in the manual.

1-3 Front Panel

Refer to Figure 1 and the following numbered steps to familiarize yourself with the meter's front panel controls and connectors.

1. **LED** : Power on display. (Flashing).
2. **Function Switch** : Slide switch used to select measuring function.
3. **Output Plugs** : Voltage output.
4. **Thermocouple Input Connector** : This is used to connect the thermocouple.



SPECIFICATIONS

2-1 General Specifications

This thermometer conforms to the temperature / voltage tables of the National Bureau of Standards and to the IEC 584 Standards for K-type.

1. **Temperature Scale** : Celsius or Fahrenheit user selectable.

2. **Input** : Single K-type thermocouple.

3. **Output to Meter** : 1mV/dc per °C or °F.

4. **Measurement Range** : -50°C ~ 1000°C, -58°F ~ 1832°F

5. **Low Battery Indication** :

1. Turn to power off.
2. Insert the "output plugs (V and COM)" to the input terminals of multimeter to "DCV" range.
3. Read the display on the multimeter. Replace the battery, if the reading is less than 7.1V.

6. **Temperature Coefficient** : 0.1 X (Spec. Accuracy) / °F, < 64°F or > 82°F, (0.15 X (Spec. Accuracy) / °C, < 18°C or > 28°C)

7. **Power Requirements** : Standard 9V battery, NEDA 1604 JIS 006P or IEC6F22 Size.

8. Battery Life : Alkaline 300 hours.
 9. Dimensions : 122mm(L) x 46mm(W) x 30mm(D)
 10. Weight (including battery) : 114 gms.

11. Accessories : K-type bead thermocouple, battery (installed), operator's manual.

2-2 Environmental Conditions

- Indoor Use.
- Operating Ambient : 0% to 80% R.H. (0 to 35°C), 0% to 70% (35 to 50°C) R.H.
- Storage Temperature : -20°C ~ 60°C 0 to 80% R.H. with battery removed from meter.

2-3 Electrical Specifications

Measurement Range	Accuracy	Input Protection
-50°C ~ -20°C	± (2.0% rdg + 2°C)	60Vdc & 24Vrms
-58°F ~ -4°F	± (2.0% rg + 4°F)	
-19°C ~ 350°C	± (0.5%rdg + 2°C)	
-3°F ~ 662°F	± (0.5%rdg + 4°F)	
351°C ~ 500°C	± (2.0%rdg + 2°C)	
663°F ~ 932°F	± (2.0% rdg + 4°F)	
501°C ~ 1000°C	± (2.9% rdg + 2°C)	
933°F ~ 1832°F	± (2.9% rdg + 4°F)	

Thermocouple Characteristics : K-Type Thermocouple

50BK bead thermocouple

Temperature Range : 40°C to 204°C (-40°F to 399.2°F).

Tolerances : ± (2.2% or 0.75%) from 0°C to 204°C, ± (4.0°F or 0.75%) from 32°F to 399.2°F.

± (2.2% or 2.0%) from -40°C to 0°C, ± (4.0°F or 0.75%) from -40°F to 32°F.

Wire Length : 1m, with miniature plug. Teflon tape insulated.

OPERATION

This instrument is designed to use external K-type thermocouple as temperature sensor. Temperature indication follows National Bureau of Standards and IEC 584 temperature / Voltage tables for K-type Thermocouple supplied with the thermometer.

⚠ WARNING : TO AVOID ELECTRICAL SHOCK, DO NOT

USE THIS INSTRUMENT WHEN VOLTAGES AT THE MEASUREMENT SURFACE EXCEED 24V r.m.s. AC OR 60V DC. TO AVOID DAMAGE OR BURNS. DO NOT MAKE TEMPERATURE MEASUREMENTS IN MICROWAVE OVENS.

3-1 Preparation and Caution before Measurement

- Before measurement, warm up for at least 30 seconds, after connecting the thermocouple to the connector of the thermometer.
- If the instrument is used near noise generating equipment, be aware that the voltage output may become unstable or indicate large errors.

Service Information

Warranty Service : Please return the product in the original packaging with proof of purchase to the below address. Clearly state in writing the performance problem and return any leads, connectors and accessories that you are using with the device.

Non-Warranty Service : Please return the product in the original packaging to the below address. Clearly state in writing the performance problem and return any leads, connectors and accessories that you are using with the device. Customers not on open account must include payment in the form of a money order or credit card. For the most current repair charges contact the factory before shipping the product. Return all merchandise to B+K Precision with pre-paid shipping. The flat-rate repair charge includes return shipping to locations in North America. For overnight shipments and non-North America shipping fees contact B+K Precision.

B+K Precision
 1031 Segovia Circle
 Placentia, CA 92870
 Phone : 714-237-9220
 Facsimile : 714-237-9214

Include with the instrument your complete return shipping address, contact name, phone number and description of problem.

3-2 Temperature Measurements

- Connect the plug of the thermocouple to the connector of the thermometer.
- Select the °C / °F function desired.
- Insert the "Output Plugs (V and COM)" to the input terminals (V and COM) of Multimeter. Observe the proper polarity of reading will be inaccurate.
- Set the Multimeter to "DC mV or V" range.
- Use the sensing point of thermocouple to measure the surface to be measured.
- Read the stable reading.
- "Warning" : Do not measure the surface that the potential exceeds 60V d.c. or 24V r.m.s.

MAINTENANCE

⚠ TO AVOID ELECTRICAL SHOCK REMOVE TEST THERMOCOUPLE BEFORE OPENING THE COVER.

4-1 General Maintenance

- To keep the instrument clean, wipe the case with a dry cloth and detergent, do not use abrasives or solvents.
- Any adjustment maintenance and repair shall be by a skilled person about temperature technology. To maintain a thermocouple in good condition, shall observe the following items.
 - Avoid excess bending.
 - Don't overheat the thermocouple.
 - Avoid chemical reactions that can damage the thermocouple.

4-2 Battery Replacement

The meter is powered by a alkaline 9V battery, Refer to Figure 2 and use the following procedure to replace the battery.

- Disconnect the output plugs and turn the meter off. Remove the connector of the thermocouple from connector of the meter.
- Position the meter face down. Remove the screw from the bottom case.
- Remove the bottom case
- Carefully disconnect the battery from bottom case.
- Replace with a new 9V battery and reinstall the bottom case and screw.

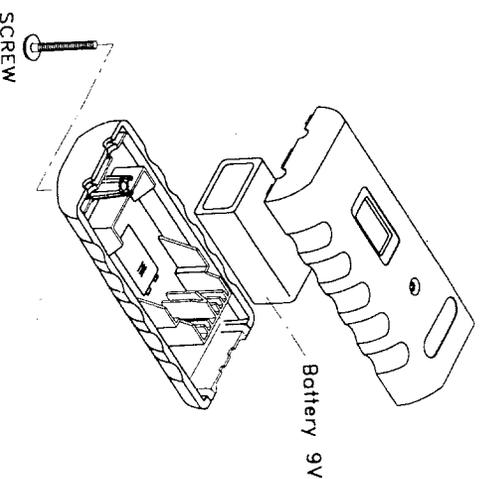


Figure 2