MODEL TP-30B
MULTIMETER TEMPERATURE ADAPTER

**B&K PRECISION** ®  C€

## 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 data 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 vold 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 : _____

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## 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**

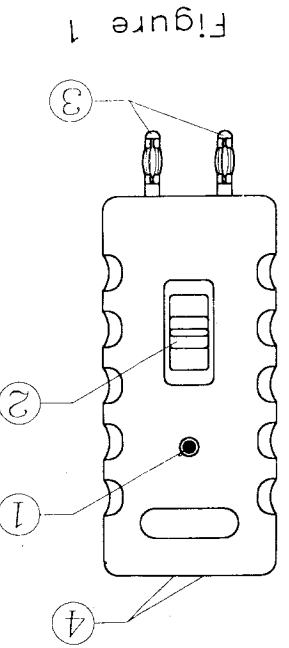**Symbols In This Manual.**

⚠     **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.

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Figure 1

(3)
(2)
(1)
(4)

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## 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 ℃ or ℉.
4. **Measurement Range :** -50℃ ~ 1000℃ , -58℉ ~ 1832℉
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) / ℉ , < 64℉ or >82℉ .(0.15 x (spec.Accuracy) / ℃ , <18℃ or > 28℃)
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

1. Indoor Use.

2. **Operating Ambient :** 0% to 80% R.H. (0 to 35℃) ; 0% to 70%
   (35 to 50℃) R.H.

3. **Storage Temperature :** -20℃ ~ 60℃ 0 to 80% R.H. with battery
   removed from meter.

## 2-3 Electrical Specifications

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

**Thermocouple Characteristics :** K-Type Thermocouple

**50BK bead thermocouple**

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

**Tolerances :** ± (2.2℃ or 0.75% ) from 0℃ to 204℃ , ± (4.0°F or 0.75%)
   from 32°F to 399.2°F.
   ± (2.2℃ or 2.0%) from -40℃ to 0℃ , ± (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 Thermo-
couple supplied with the thermometer.

⚠ **WARNING :** TO AVOID ELECTRICAL SHOCK , DO NOT
USE THIS INSTRUMENT WHEN VOLTAGES AT THE MEASURE-
MENT SURFACE EXCEED 24V r.m.s. AC OR 60V DC. TO AVOID
DAMAGE OR BURNS . DO NOT MAKE TEMPERATURE MEASURE-
MENTS IN MICROWAVE OVENS.

## 3-1 Preparation and Caution before Measurement

1. Before measurement , warm up for at least 30 seconds , after connecting
   the thermocouple to the connector of thermometer.

2. If the instrument is used near noise generating equipment , be aware that
   the voltage output may become unstable or indicate large errors.

## 3-2 Temperature Measurements

1. Connect the plug of the thermocouple to the connector of the
   thermometer.

2. Select the "℃ / °F" function desired.

3. 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.

4. Set the Multimeter to "DC mV or V" range.

5. Use the sensing point of thermocouple to measure the surface to be
   measured.

6. Read the stable reading.

7. "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 THERMO-
COUPLE BEFORE OPENING THE COVER.

### 4-1 General Maintenance

1. To keep the instrument clean , wipe the case with a dry cloth and
   detergent , do not use abrasives or solvents.

2. 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 itemes.
   — 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.

1. Disconnect the output plugs and turn the meter off . Remove the con-
   nector of the thermocouple from connector of the meter.

2. Position the meter face down . Remove the screw from the bottom
   case.

3. Remove the bottom case.

4. Carefully disconnect the battery from bottom case.

5. Replace with a new 9V battery and reinstall the bottom case and screw.
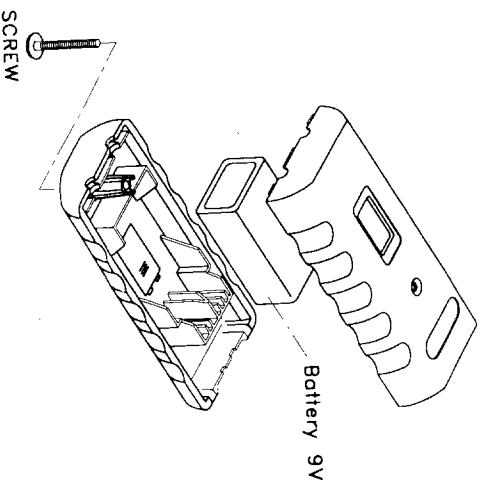
SCREW

Battery 9V

Figure 2

## 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 descrip-
tion of problem.