BT-64
MULTIFUNCTION IR THERMOMETER

OPERATION MANUAL

1. SAFETY RULES

- To ensure the device is used safely, follow the operation manual's safety and operating instructions. If the device is not used as described in this operation manual, the safety features of this device might be impaired.
- Do not look directly into the laser beam when the device is in use–permanent eye damage may result.
- Use extreme caution when operating the laser.
- Never point the device towards anyone's eyes.
- Keep out of reach of children.

2. INTERNATIONAL SYMBOLS

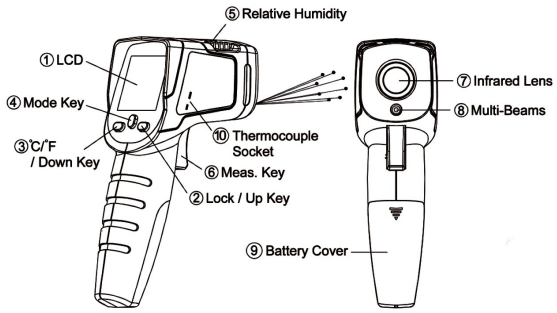
Important information see manual

Laser device. Avoid towards anyone's eyes

3. SPECIFICATIONS

Item	Non-contact Infrared Scan Function	Thermocouple Probe Scan function (K type; probe not included.)
Measurement Range	-60 to +1000°C (-76 to +1832°F)	-64 to +1400°C (-83.2 to +2552°F)
Operating Range	0 to +50°C (32 to 122°F)	
Accuracy (Tobj=15-35°C, Tamb=25°C)	±1.0°C (1.8°F)	±1% of reading or 1°C (1.8°F), whichever is greater (Test under Tamb.=23±6°C)
Accuracy (Tamb= 23±3°C)	Tobj=-60~0: ±(2+0.05/°C)°C, Tobj=0~1000: ±2% of reading or 2°C (4°F), whichever is greater	
Emissivity Range	0.95 default – adjustable 0.1 to 1 step .01	
Resolution	0.1°C/0.1°F at -83.2 to +999.9(°C/°F), otherwise 1°C/1°F	
Response Time (90%)	1sec	
Distance: Spot	30:1 (90% energy covered)	
Internal Memory	Detailed 50 Memories with Temperature & Emissivity	
Relative Humidity (Tamb=23±5degC	1~99%, accuracy: ±3% from 20~80%, otherwise ±5%	
Dry bulb temperature	-20 ~ +65°C, accuracy: ±2.5°C	
Wet bulb temperature	-20 ~ +65°C, accuracy: ±2.5°C	
Dew Point Temperature (DPT)	-50 ~ +50°C, accuracy: ±2.5°C from 20~30%RH; ±2°C from 31~40%RH; ±1.5°C from 41~95 %RH	
Battery Life (Alkaline)	Typical 8 hours, minimum 7 hours continuous use (with laser and backlight) Typical 32 hours, minimum 30 hours continuous use (with backlight only) *Backlight is default set fixed ON/ Laser is selectable ON/OFF	
Laser	Class IIIa Laser	
Dimensions	53 x 124 x 171 mm (2.1 x 4.9 x 6.7 inch)	
Weight	~240 g (8.5 oz.) including batteries (AAA*2pcs)	
Note: Not recommend using an external K-type thermocouple for long time measurements above 1000°C (1832°F)		

4. THERMOMETER DESCRIPTIONS



(DPT) Display

(THB) Display

5. OPERATION

⚠ WARNING

1) The measurement range is for thermometers only. Users should choose proper probe types for different kinds of applications. Please ensure the target to be measured will not exceed the temperature range of the probe to avoid permanent damage to the thermocouple probe.
2) Caution: To avoid electric shock and thermometer damage, do not measure the live circuit with the thermocouple probe voltage exceeding 24V AC RMS or 60V DC.
3) EMC/RFI: Readings may be affected if the unit is operated within radiofrequency electromagnetic field strength of approximately 3 volts per meter, but the instrument's performance will not be permanently affected.

5.1 Function Selection

Press Mode Key (4) for scrolling display functions as follows:

Display	Function
THB	**THB (thermal bridge detection) is the default mode.** (a) IRT (infrared temperature) – Tamb (temperature ambient) > 6.5°C: icon displays "**red side flashing**", the bar shows **RED** color, and "Hi" is beside the THB mode icon. (b) IRT - Tamb < -6.5°C: icon displays "**blue side flashing**", the bar shows **BLUE** color, and "Lo" is beside the THB mode icon. (c) IRT – Tamb > 5.75°C or < -5.75°C: The buzzer and optional vibration functions will start activating at the same time. (d) According to the following value, "CHK" (check) is displayed beside the THB mode icon and please continue to observe. 4.25°C < IRT - Tamb < 6.5°C: the bar shows **RED** color; -3.5°C ≦ IRT - Tamb < 4.25°C: the bar shows **YELLOW** color; -6.5°C < IRT - Tamb < -3.5°C: the bar shows **BLUE** color.
E	Here will show the emissivity data. (The default emissivity is 0.95.)
∧E ∨	Press Mode key (4), then press Up key (2) or Down key (3) to set the emissivity, then press Mode key (4) to confirm it. The emissivity can be changed from 0.10 (10E) to 1 (100E).
MAX MIN DIF AVG	Press Mode key (4) for the **Maximum (MAX), Minimum (MIN), Different between MAX and MIN (DIF) and Average (AVG) modes. During the measurement, the special modes reading will be displayed beside the mode icon**.
HAL LAL	Press Up key (2) or Down key (3) to change the **High Alarm (HAL)** or **Lo Alarm (LAL)**, then press Meas. key (6) to confirm it. When the reading is outside the **High Alarm (HAL)** or **Lo Alarm (LAL)** limit. The High or Low icon will flash and you will hear a beep sound.
PRB	Connect the thermocouple with Thermocouple Socket (10) and put the probe in/on the target, the thermometer will display the temperature automatically without pressing any button. To see the minimum or maximum data during the probe measurement, please hold down the Up key (2 or Down key (3). ⚠ After measure high temp, the probe may remain HOT for a while.
RH% DBT WBT	Press Mode key (4) for the **RH% (relative humidity) mode**, then press Up key (2) for **DBT (dry bulb temp)**, **WBT (wet bulb temp.) modes. During the measurement, the special modes reading will be displayed beside the mode icon.** (a) 60% < RH ≦ 75%: The screen displays 💧 icon. (b) 75% < RH ≦ 90%: The screen displays 💧💧 icon. (c) RH > 90%: The screen displays 💦 icon.
DPT	Press Mode key (4) for **DPT (dew point temperature) modes. During the measurement, the special modes reading will be displayed beside the mode icon**. (a) IRT (infrared temperature) - DPT (dew point temperature) > 1.9°C: The bar shows **YELLOW** color. (b) 1.1°C < IRT - DPT ≦ 1.9°C: The bar shows **Blue** color and displays 💧 icon. (c) -0.5°C < IRT - DPT ≦ 1.1°C: The bar shows **Blue** color and displays 💧💧 icon. (d) IRT - DPT ≦ -0.5°C: The bar shows **Blue** color and displays 💦 icon. In (b), (c) and (d) cases, the icon 💧, 💧, 💧, 💦 is the indication for the risk of condensation as well as mold warning, the buzzer and optional vibration functions are activated at the same time.
M00	After taking the temperature, press Mode key (4) for the **Memory (M00)**, then press Meas. key (6) to save the measurement. Under the **Memory (M00)**, press Up key (2) or Down key (3) key to display the record up to 50 sets. In "Memory" mode, press and hold the "Up" key, then press the "Down" key for 2 seconds to clear the records.

** The Thermometer will automatically shut off if left idle for more than 60sec. unless in PRB mode. (In PRB mode, it will shut off if left idle for more than 12 minutes.)

5.2 Other Function Selection

In all modes:	Press Up key (2) for LOCK mode ON/OFF. The lock mode is particularly useful for continuously monitoring temperatures for up to 60 minutes.
	Press Down key (3) for **°C** or **°F transferred.**
In MAX, MIN mode: Hold the Meas. key (6)	The Bar display indicates the measuring temperature. The bar shows **RED** colour when the reading is close to the maximum value and **BLUE** when close to the minimum. While the temperature is between the maximum and minimum, the bar will display in **YELLOW**. 
In all modes:	LCD Backlight: always on.
In all modes: First, hold the Meas. key (6)	Press Down key (3) for **laser function** ON/OFF.

5.3 Temperature Measurement

Aim the Thermometer at the measured target with Lens (7) and press Meas. key (6) to display the surface temperature. The Distance:Spot is 30:1. Please make sure the target area is within the field of view.

5.4 LCD Error Messages

The Thermometer incorporates visual diagnostic messages as follows:

HI / LOW	'**Hi**' or '**Low**' is displayed when the measured temperature is outside the settings of HAL and LAL.
Er2 Er3	'Er2' is displayed when the Thermometer is exposed to rapid changes in the ambient temperature. 'Er3' is displayed when the ambient temperature exceeds the range of 0°C (32°F) ~ 50°C (122°F). The Thermometer should be allowed plenty of time (minimum of 30 minutes) to stabilize the working/room temperature.
Er	**Error 5~9**, for all other error messages, it is necessary to reset the Thermometer. To reset it, turn the instrument off, remove the battery and wait for a minimum of one minute, reinsert the battery and turn it on. Please contact the Service Department for further assistance if the error message remains.
Hi Lo	'Hi' or 'Lo' is displayed when the measured temperature is outside the measurement range.

6. MAINTENANCE

⚠ CAUTION

BEFORE ATTEMPTING BATTERY REMOVAL OR REPLACEMENT, DISCONNECT EXTERNAL PROBES FROM AN ARTICLE UNDER TEST AND TURN THE THERMOMETER OFF.

6.1 Fitting and replacing the battery

The Thermometer incorporates visual low battery indication as follows:

	'Battery OK'. Measurements are possible
	'Battery Low': battery needs to be replaced. Measurements are still possible
	'Battery Exhausted'. Measurements are not possible

1. When the 'Low Battery' icon indicates the battery is low, the battery should be replaced immediately with AAA, 1.5V batteries. Please note: It is essential to turn the instrument off before replacing the battery; otherwise, the Thermometer may malfunction.
2. Dispose of used battery promptly and keep away from children.
3. If the device is not used for a long time, turn the power off, remove and store the batteries in a cool, dry place.

6.2 Storage & Cleaning

The Thermometer should be stored at room temperature between -20 to +65°C (-4 to +149°F) and 85% of relative humidity with no condensation or less. The sensor lens is the most delicate part of the Thermometer. The lens should be kept clean at all times. Take care when cleaning the lens using only a soft cloth or cotton swab with distilled water or medical alcohol, allowing the lens to entirely dry before using the Thermometer. Do not submerge any part of the Thermometer.

7. ACCESSORIES

The accessories contained inside the packaging are the following:

• English instruction manual	• 1.5V AAA battery x 2

SERVICE

8.1 Limited Warranty Conditions

This Thermometer is guaranteed against any material fault or manufacturer's defect under the general conditions of sale. During the warranty period (12 months from shipment date), faulty parts may be replaced, with the manufacturer reserving the right to repair or replace the product.

The customer pays the inward outward transporter when returning the Thermometer to the after-sales Service or a regional branch. The delivery must be agreed upon in advance with the consignee.

For delivery, indicate the reasons for returning it through an enclosed note as simple as possible. Use only the original packing.

Any damage caused by shipment using NOT the original packaging will be charged in any case to the consignor.

The manufacturer will not be responsible for any damage to persons/ things.

The warranty does not apply to the following cases:

- Accessories and batteries are not included in the warranty.
- Unsuitable use of the Thermometer or combining the latter with incompatible Thermometer or accessories.
- Repairs resulting from incorrect shipping.
- Repairs resulting from servicing carried out by a person not approved by the company.
- Modifications to the Thermometer without explicit authorization from our technical department.
- Inappropriate applications are not provided for by the definition of the Thermometer or by the instruction manual.

The contents of this manual may not be reproduced in any form whatsoever without the manufacturer's authorization.

8.2 Before Calling Service

If the Thermometer should not work correctly, before contacting the DEALER OR THE SERVICE CENTRE, check the battery condition, etc. Change them if necessary.

If the Thermometer still does not work, check if your operating procedure agrees with the description in this manual.

FOR TECHNICAL ASSISTANCE, PLEASE CONTACT:

Remarks: Due to our policy of continual product development, we reserve the right to amend the specifications of the mentioned products without notice.

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