Bio-Therapeutic
Skin Care for life inside and out®

bt-degree® IR

touchless infrared thermometer

operation manual

Contents

Welcome

Congratulations on your purchase of the bt-degree® IR! Your equipment has been built with the highest quality components for lasting precision and operating durability.

IMPORTANT:
READ ALL INSTRUCTIONS BEFORE USE

SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE

Intended use

Infrared Forehead Thermometer intended to measure human body temperature by measuring the forehead.

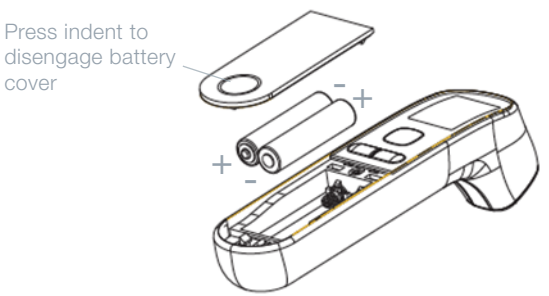
Unit Specifications

Dimensions: 2.2"x6.3"x2" (34×160×50mm)
Technology: Infrared, non-touch
Measuring range: 93.2°-109.4°F (34.0°C-43.0°C)
Object temperature range: 32°-199.7°F (0°C-93.2°C)
Display: Color LCD screen, backlight, special icons
Accuracy: ±0.4°F, ±0.2°C
Resolution: 0.1°F/°C
Measurement distance: 1.18"- 2" (3-5cm)
Measurement speed: Within 1 second
Sounds: Ready to measure, measurement finished, fever alert, system error or fault, audible on/off function
Fever alert: 10 short fast beeps
Memory: 9 memory settings
Automatic shutdown: Unit will power off after 30 seconds of non-use
Water resistant: IP22
Weight: 2.4oz (~68g) without batteries
Power supply: 2 AAA batteries (included)
Temperature units: Fahrenheit (°F) and Celsius (°C) measurement setting options
Carrying case: Blue silicone. Silver Ion infused.
Protective sleeve: Blue silicone. Silver Ion infused.

Equipment Diagram

Battery Installation

1. Gently press down on the battery cover. The cover will disengage automatically, gently lift upward.
2. Install two AAA alkaline batteries into the battery compartment. Align in correct polarity order.
3. Install the blue Silver Ion infused silicone sleeve.
4. When battery power is insufficient, the LCD screen will display a “LO” message and the battery image will remain visible on the screen. Replace the batteries when this message appears.
5. Remove batteries when the unit is not in use.
6. Dispose of batteries according to local standards.



Operation and Use

Sound Options

1. With the unit powered on, press the “mem” button to select sound on or off. A short beep will be audible and the symbol will appear.
2. Press the “mem” button again, the symbol will appear and the sound will be off.

Fahrenheit and Celsius setting options

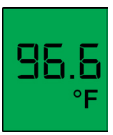
With power off, press and hold the “mem” button for 6 seconds to switch between Fahrenheit settings and Celsius settings. After 8 seconds the unit will automatically turn off, or press the power button to turn the unit off manually.

Memory storage function

With power on, press the “mem” button. The product is capable of reading and saving 9 measurement values in the order they were taken. The unit will turn off automatically after 30 seconds of non-use, or press the power button to turn off manually.

Backlight status

When measured temperature is < 93.2°F (34°C), screen shows LO
When measured temperature value is 93.2°F- ~98.8°F (34°C- ~37.1°C), backlight will be green
When measured temperature value is 98.96°F- ~100.58°F (37.2°C- ~ 38.1°C), backlight will be orange
When measured temperature value is 100.76°F- ~ 109.4°F (38.2°C- ~43.0°C), backlight will be red
When measured temperature value is > 109.4°F (43.0°C) , screen shows "HI"



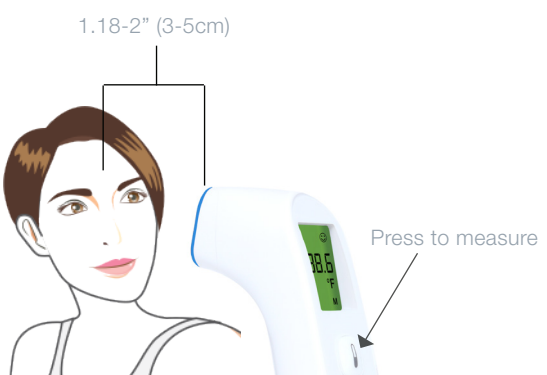
93.2°F- ~98.8°F
34°C- ~37.1°C)

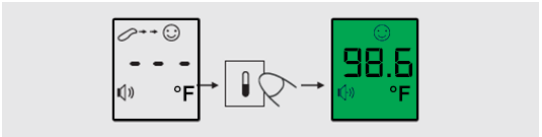
98.96°F- ~100.58°F
(37.2°C- ~38.1°C)

100.76°F- ~109.4°F
(38.2°C- ~43.0°C)

Temperature readings

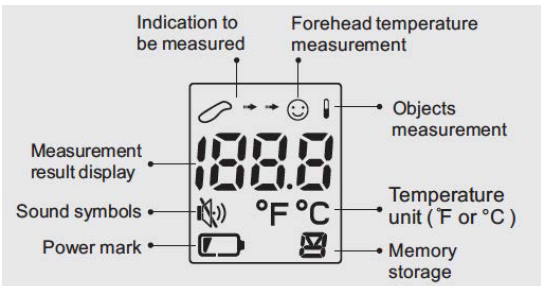
1. Press the ⏻ button. The LCD will display the measurement of the last reading. A short beep will be heard when the unit is ready to measure.
2. Hold and aim the sensor 1.18-2" (3-5cm) away from the center of the forehead.
3. Press the button. Hold the unit in place until you hear a long beep.
4. The result of the measurement will appear on the LCD screen.
5. For accurate measurements, do not use the bt-degree IR near air conditioning
6. System error or fault: Three short beeps





When LCD is flashing, unit is measuring

Measurement result



Maintenance and Cleaning

Maintenance

- Store the unit with power off and batteries removed from the unit.
- Store in a clean, dry environment.
- Store away from direct sunlight, high temperatures, and humidity.
- Inspect the unit before each use for damage and proper functionality.
- The expected service life of the bt-degree IR internal power source, and parts and accessories is 3 years. No maintenance is required under normal conditions of use.
- Contact the manufacturer or your sales representative with any questions regarding use or repair of equipment.

Cleaning

To ensure precise measurements, clean the bt-degree IR after each use.

1. Use a cotton swab with 75% alcohol to gently wipe the thermometer probe. Wait 10 minutes before using the device after cleaning.
2. To avoid damage to the sensor, do not wipe with facial or toilet tissue
3. Do not touch the sensor with your hands or blow on it with your mouth
4. Wipe the case with a clean, soft, dry cloth

Troubleshooting

Screen display	Cause	Solution
HI	When the target object temperature is higher than measurement range, more than 109.4°F (43.0°C) in the forehead temperature mode, over 199.76°F (93.2°C) in object temperature mode , the LCD screen will show “HI”.	1. Decrease the distance from the forehead to the sensor. The measured result may be low if the sensor it too far from the forehead 2. Clean the sensor/ probe with a cotton swab and alcohol. The measured result may be low if the sensor is soiled.
LO	When the target object temperature is lower than measurement range, less than 109.4°F (43.0°C) in the forehead temperature mode, under 32°F (0°C) in object temperature mode , the LCD screen will show “LO”.	
Er.H	The maximum operating environment temperature is 104°F. If the environment temperature exceeds this point, an error message will occur.	Operate in an environmental temperature of less than 104°F.
Er.L	The lower limit of operating environment temperature is 50°F. If the environment temperature is below this point, an error message will occur.	Operate in an environmental temperature of higher than 50°F.
Err	When the operating environment temperature changes rapidly by approximately 5 degrees, an error message will occur and the unit will turn off automatically.	Place the unit in a steady environmental temperature for 30 minutes before next measurement.

Important Safety Precautions

WARNING

1. The product is to be used only for human body temperature measurement. Do not use this product for any other purpose.
2. Seek professional medical advice for explanations of body temperature measurements. Inform your medical professional that the temperature measurement was taken with an infrared touchless forehead thermometer.
3. The bt-degree IR is not intended for use in the diagnosis of disease or other conditions, or in the cure, mitigation, treatment, or prevention of disease.
4. The bt-degree IR is not intended for use in emergency or surgical settings.
5. Not for use by children. Small parts may be swallowed or inhaled by children or pets.
6. Use only as described in this manual. Do not use attachments, accessories, or parts not supplied by the manufacturer.
7. Do not modify the equipment in any way, and do not open the unit. There are no serviceable parts.
8. Unauthorized modification or repair of the bt-degree IR, including the use of non-original supplied parts, or accessories can lead to injury, damage, failure, and degradation of equipment performance.
9. Do not operate if any portion of the bt-degree IR is damaged in any way.
10. Do not rinse or submerge under water or allow any liquids to enter the unit at any time.
11. Do not use near mobile phones.
12. Do not use near equipment that generates electromagnetic fields.

Disposal

Equipment Disposal
Contact your local waste disposal organization for instructions on proper disposal of electronic parts.

Environmental Conditions

Performance may be affected if the bt-degree IR is operated or stored beyond the range of specified temperature and humidity conditions. If there is a temperature difference between the storage site and the measurement site, place the bt-degree at room temperature (measurement site) for 30 minutes before measurement.

Operating Conditions: temperature range +10°C - +40°C, humidity range 15%RH - 93%RH
Storage Conditions: temperature range -25°C - +55°C, humidity range 0%RH - 93%RH

Definitions of Symbols

SN	Serial Number
IP22	Splash resistant, <15 degrees from vertical, solid particle protection >12.5 mm
CE 0197	Class 2 medical device
	Recyclable materials
	Caution
	Contact your local waste disposal organization for instructions on proper disposal of the device and or wires once they have reached their lifetime.
	Refer to instruction manual / booklet
	Type BF applied part
	Manufacturer's trade name and address
EC REP	Authorized Representative in the European Community

Warranty

Bio-Therapeutic / Micro Current Technology, Inc. guarantees the bt-degree IR for 1 year after the date of purchase. Defects due to faulty materials and workmanship will be repaired or replaced by Bio-Therapeutic / Micro Current Technology, Inc. provided that convincing proof of purchase in the qualifying period is provided. Bio-Therapeutic / Micro Current Technology, Inc. does not guarantee the bt-degree IR of water/liquid damage, normal wear and tear including chips, scratches, abrasions, discoloration, fading, or damage determined by Bio-Therapeutic / Micro Current Technology, Inc. as misuse, abuse, neglect, alterations, or unauthorized repair.

Additional Specifications
Object temperature: 0°C- 93.2°C (32°F-199.7°F)
Resolution ratio: 0.1°C/°F
Measurement Location: laboratory
Accuracy: (35.0°C~42.0°C) ±0.2°C, (95.0°F~107.9°F) ±0.4°F, other temperature ±0.3°C
Relative maximum humidity: 15%RH~93%RH
Atmospheric pressure: 70kPa~106kPa
Relative maximum humidity: 0%RH~93%RH
Atmospheric pressure: 50kPa~106kPa
Display screen: LCD display screen, 4 bit numbers and icons.

1602 Forehead mode
Clinical bias, Dcb: 0.078
Limits of Agreement, LA: .243
Clinical Repeatability, σr: 0.069
The reference body site: forehead
Measuring site: forehead

Appendix 1 Guidance and Manufacturer Declaration Tables

Guidance and manufacturer's declaration - electromagnetic emissions		
The bt-degree IR Infrared Thermometer is intended for use in the electromagnetic environment specified below. The customer or the user of the bt-degree IR Infrared Thermometer should assure that it is used in such an environment.		
Emissions	**Compliance**	**Electromagnetic environment-guidance**
RF emissions CISPR 11	Group 1	The bt-degree IR Infrared Thermometer uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	The bt-degree IR Infrared Thermometer is used in home and is powered by DC 3V
Harmonic emissions IEC 61000-3-2	N.A.	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	N.A.	

Guidance and manufacturer's declaration – electromagnetic immunity			
The bt-degree IR Infrared Thermometer is intended for use in the electromagnetic environment specified below. The customer or the user of the bt-degree IR Infrared Thermometer should assure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment-guidance**
Electrostatic discharge (ESD)IEC 61000-4-2	±8 kV contact ±2 kV, ±4 kV, ±8 kV, ±15KV air	±8 kV contact ±2 kV, ±4 kV, ±8 kV, ±15KV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment-guidance
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	30 A/m, 50/60Hz	30 A/m, 50/60Hz	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE: U_T is the a.c. mains voltage prior to application of the test level			

Guidance and manufacturer's declaration – electromagnetic immunity

The bt-degree IR Infrared Thermometer is intended for use in the electromagnetic environment specified below. The customer or the user of the bt-degree IR Infrared Thermometer should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment-guidance
Conducted RF IEC 61000-4-6	3 Vrms 150kHz to 80MHz 6 Vrms 150 kHz to 80 MHz outside ISM	N.A.	Portable and mobile RF communications equipment should be used no closer to any part of the bt-degree IR Infrared Thermometer, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance** $d = \left[\frac{3.5}{V_1}\right]\sqrt{P}$ $d = \left[\frac{3.5}{E_1}\right]\sqrt{P}$ 80MHz to 800MHz $d = \left[\frac{7}{E_1}\right]\sqrt{P}$ 800MHz to 2.7GHz where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in metres(m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, [a] should be less than the compliance level in each frequency range [b] Interference may occur in the vicinity of equipment marked with the following symbol: 
Radiated RF IEC 61000-4-3	10 V/m 80 MHZ to 2.7 GHz	10 V/m	

NOTE 1 At 80 MHz and 800 MHz, the higher frequency range applies.
NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

a The ISM (industrial, scientific and medical) bands between 0,15 MHz and 80 MHz are 6,765 MHz to 6,795 MHz; 13,553 MHz to 13,567 MHz; 26,957 MHz to 27,283 MHz; and 40,66 MHz to 40,70 MHz. The amateur radio bands between 0,15 MHz and 80 MHz are 1,8 MHz to 2,0 MHz, 3,5 MHz to 4,0 MHz, 5,3 MHz to 5,4 MHz, 7 MHz to 7,3 MHz, 10,1 MHz to 10,15 MHz, 14 MHz to 14,2 MHz, 18,07 MHz to 18,17 MHZ, 21,0 MHz to 21,4 MHz, 24,89 MHz to 24,99 MHz, 28,0 MHz to 29,7 MHz and 50,0 MHz to 54,0 MHz.

b The compliance levels in the ISM frequency bands between 150 kHz and 80 MHz and in the frequency range 80 MHz to 2,7 GHz are intended to decrease the likelihood that mobile/portable communications equipment could cause interference if it is inadvertently brought into patient areas. For this reason, an additional factor of 10/3 has been incorporated into the formulae used in calculating the recommended separation distance for transmitters in these frequency ranges.

c Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the bt-degree IR Infrared Thermometer is used exceeds the applicable RF compliance level above, the bt-degree IR Infrared Thermometer should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the bt-degree IR Infrared Thermometer.

d Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.observed, additional measures may be necessary, such as re-orienting or relocating the bt-degree IR Infrared Thermometer.

Recommended separation distances between portable and mobile RF communications equipment and the bt-degree IR Infrared Thermometer

The bt-degree IR Infrared Thermometer is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the bt-degree IR Infrared Thermometer can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the bt-degree IR Infrared Thermometer as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output of transmitter	Separation distance according to frequency of transmitter m		
	150 kHz to 80 MHz	80 MHz to 800 MHz	800 MHz to 2.7 GHz
W	$d = [\frac{3.5}{V_1}]\sqrt{P}$	$d = [\frac{3.5}{E_1}]\sqrt{P}$	$d = [\frac{7}{E_1}]\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE 1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

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Models and items shown are not available in all countries.
The bt-degree IR is not intended in the diagnosis of disease or other conditions, or in the cure, mitigation, treatment, or prevention of disease, and is not intended to affect the structure of the human body.

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SA-TM-1070
REV042320

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