Please read this manual before operating unit.
Important safety information inside.
1. Product Introduction and Classification

The Non-Contact Forehead Infrared Thermometer measures body temperature using the infrared thermal radiation from the human forehead. Its operation is simple and sanitary, fast and accurate. This device quickly and accurately measures body temperature. Point the device at the forehead and press the measurement trigger. It is widely used in schools, hospitals, homes and customs. The patient is the intended user of this product and can measure temperature, change battery, and maintain device and accessories according to user manual.

The materials (ABS) which come into contact with the patient have passed the ISO 10993-5 and ISO 10993-10 standards tests and no toxicity, allergy or irritation was identified. The device is compliant with MDD requirements. Based on the current science and technology, other potential allergic reactions are unknown.

This device can be used to measure temperature of objects between 0°C and 118°C. It is widely used in the agriculture industry, food, petrochemical
and other industries. Not intended for use in the emergency medical services environment.

This device is a Type B applied part. It is a European Union Class II device and has an International Protection Code of IP22. (The first 2 indicates the device is protected against solid foreign objects of 12.5 mm in diameter and greater. The second 2 indicates the device is protected against vertically falling water drops when enclosure is tilted up to 15°. Vertically falling water drops shall have no harmful effects when the enclosure is tilted at any angle up to 15° on either side.)

Do not use this device for continuous temperature monitoring purposes. Do not use this device in an environment where flammable anesthetic mixture with air or with oxygen or nitrous oxide is available. There are no contraindications.

The CLINICAL BIAS, \( \Delta cb = -0.17 \), With its LIMITS OF AGREEMENT, \( L_a = 0.46 \),
The CLINICAL REPEATABILITY, \( \sigma_r = 0.15 \)

### Explanation of Symbols

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>!</td>
<td>Symbol for “General warning sign”</td>
</tr>
<tr>
<td>SN</td>
<td>Symbol for “Serial number”</td>
</tr>
<tr>
<td>LOT</td>
<td>Symbol for “Batch code”</td>
</tr>
<tr>
<td>☮</td>
<td>Symbol for “Manufacturer”</td>
</tr>
<tr>
<td>☤</td>
<td>Symbol for “Date of manufacture”</td>
</tr>
<tr>
<td>☫</td>
<td>Symbol for “The operation guide must be read”</td>
</tr>
<tr>
<td>☩</td>
<td>Symbol for “Fragile, handle with care”</td>
</tr>
<tr>
<td>☩</td>
<td>Symbol for “Non-ionizing electromagnetic radiation”</td>
</tr>
<tr>
<td>☩</td>
<td>Symbol for “This marking shown on the product or its literature, indicates that it should not be disposed of, with other household waste at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of waste and recycle it responsibly to promote the sustainable reuse of material resources.”</td>
</tr>
</tbody>
</table>

### 2. Operating Principle

All objects, solid, liquid or gas emit energy by radiation. The intensity of this energy depends on the temperature of the object. The Non-Contact Forehead Infrared Thermometer works by detecting the radiation energy being emitted by the arterial blood flow in the forehead which is in close proximity to the heart and runs just below the skin surface. When the radiation sensor of the thermometer is activated, the forehead temperature measurement is taken by detecting the infrared heat generated by the arterial blood flow.
3. Product Features

- Precision infrared sensor
- Quickly acclimates to ambient temperature
- Proprietary probe design to ensure more accurate measurements
- Two measurement modes (Body/Object) with convenient and practical mode selection switch
- High temperature alarm
- Automatically saves last measurement value
- Large LCD Screen
- Bright white backlight
- Selectable °C/°F
- Automatic power save

4. Updated Features

- Normal Temperature Display
  32°C - 37.5°C
  (89.6°F - 99.5°F)

- Slightly Higher Temperature Display
  37.6°C - 37.9°C
  (99.7°F - 100.2°F)

- Fever Temperature Display
  38.0°C - 42.5°C
  (100.4°F - 108.5°F)

5. Structure and Composition

This product consists of an infrared sensor, microprocessor, memory, power supply, electro-acoustic components, LCD screen, and enclosure.
# 6. Technical Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring Method</td>
<td>Non-Contact</td>
</tr>
<tr>
<td>Measuring Distance</td>
<td>3cm - 5cm (1.2in - 1.9in)</td>
</tr>
<tr>
<td>Measuring Range</td>
<td>32°C - 42.5°C (89.6°F – 108.5°F)</td>
</tr>
<tr>
<td>Tolerance Scope</td>
<td>±0.2°C (Within 35°C - 42°C) (±0.36°F)</td>
</tr>
<tr>
<td></td>
<td>±0.3°C (Out of range 35°C - 42°C)</td>
</tr>
<tr>
<td>Display Resolution</td>
<td>0.1°C (0.1°F)</td>
</tr>
<tr>
<td>Operation Conditions</td>
<td>Temperature 10°C - 40°C (50°F - 104°F)</td>
</tr>
<tr>
<td></td>
<td>Relative Humidity 15% - 85% (Non-Condensing)</td>
</tr>
<tr>
<td></td>
<td>Atmospheric Pressure 80kPa - 106kPa</td>
</tr>
<tr>
<td>Transport and Storage Conditions</td>
<td>Temperature 0°C - 50°C (32°F - 122°F)</td>
</tr>
<tr>
<td></td>
<td>Relative Humidity 0°C - 90% (Non-Condensing)</td>
</tr>
<tr>
<td></td>
<td>Atmospheric Pressure 80kPa - 106kPa</td>
</tr>
<tr>
<td>Adjusted Mode</td>
<td>Body Mode</td>
</tr>
<tr>
<td></td>
<td>(Measuring Site: Forehead; Reference Body Site: Armpit)</td>
</tr>
<tr>
<td>Direct Mode</td>
<td>Surface Mode</td>
</tr>
<tr>
<td>Clinical Bias ( \triangle cb )</td>
<td>-0.3</td>
</tr>
<tr>
<td>Clinical Repeatability ( \sigma_r )</td>
<td>0.08</td>
</tr>
<tr>
<td>Limits of Agreement ( L_x )</td>
<td>0.28</td>
</tr>
<tr>
<td>Measuring Time</td>
<td>0.5 Second</td>
</tr>
<tr>
<td>Memory</td>
<td>32 Readings</td>
</tr>
<tr>
<td>Temperature Scale</td>
<td>Celsius or Fahrenheit</td>
</tr>
<tr>
<td>Backlight</td>
<td>High Brightness Backlight</td>
</tr>
<tr>
<td>Battery Indicator</td>
<td>Battery Symbol Displayed When Low</td>
</tr>
<tr>
<td>Power</td>
<td>DC 3V (2 AA batteries)</td>
</tr>
<tr>
<td>Auto Shut-Off</td>
<td>15 Seconds</td>
</tr>
<tr>
<td>Size</td>
<td>149mm L x 77mm W x 43mm H (5.9in L x 3in W x 1.7in H)</td>
</tr>
<tr>
<td>Weight</td>
<td>172g (6oz) (Without Batteries)</td>
</tr>
</tbody>
</table>
7. Configuration

1. Infrared Probe
2. LCD Screen
3. Mode Selection Switch
4. Down Button
5. Up Button
6. Set Button
7. Measurement Trigger
8. Battery Compartment Cover

LCD Screen Indicators

1. Surface Scanning Mode
2. Body Scanning Mode
3. Temperature Reading
4. Battery Symbol (displayed when low)
5. Memory Log Number
6. Stored Readings
7. Temperature Scale (°C/°F)
8. Buzzer Symbol (displayed when on)
8. Setting Operation

The following settings may be adjusted using the Function menu: Temperature Scale (°C/°F), Temperature Alarm, Temperature Calibration and Buzzer. See the table below for more information.

<table>
<thead>
<tr>
<th>Menu</th>
<th>Function</th>
<th>“-” Key</th>
<th>“+” Key</th>
<th>Default</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>Temperature Scale</td>
<td>°C</td>
<td>°F</td>
<td>°C</td>
<td></td>
</tr>
<tr>
<td>F2</td>
<td>Temperature Alarm</td>
<td>Decrease 0.1°C</td>
<td>Increase 0.1°C</td>
<td>38°C</td>
<td>Range 37°C – 42°C</td>
</tr>
<tr>
<td>F3</td>
<td>Temperature Calibration</td>
<td>Decrease 0.1°C</td>
<td>Increase 0.1°C</td>
<td>0.0°C</td>
<td>Range -3°C – +3°C</td>
</tr>
<tr>
<td>F4</td>
<td>Buzzer</td>
<td>OFF</td>
<td>ON</td>
<td>ON</td>
<td></td>
</tr>
</tbody>
</table>

Measurement Mode

- The LCD screen displays the current Measuring mode. (Figure 8.1)
- Slide the Mode Selection switch to select the new Measuring mode. (Figure 8.2)
- The new mode will take effect immediately.

Notes:

- When in Object mode, the LCD screen will display Surface temp.
- The Object mode measures forehead surface or surface of an object. It does not measure core body temperature.
F1: Temperature Scale
- Press the Set button for 2 seconds.
- The screen will show F1. (Figure 8.3)
- Press “+” button to select °C (Figure 8.4) or “-” button to select °F. (Figure 8.5)

F2: Temperature Alarm
- Press the Set button for 2 seconds.
- The screen will display F1.
- Press the Set button again to display F2.
- Press the “+” button to increase the temperature.
- Press the “-” button to decrease the temperature.
- Note: The alarm default is 38°C (100.4°F).

F3: Temperature Calibration
- Press the Set button for 2 seconds.
- The screen will display F1 (Figure 8.3).
- Press the Set button twice to display F3.
- Press “+” button to increase the temperature. Press the “-” button to reduce the temperature.
- Note: The alarm default is 38°C. (100.4°F)

F4: Activating the Buzzer
- Press the Set button for 2 seconds.
- The screen will display F1.
- Press the Set button 5 times.
- The screen will display F4.
- Press the “+” button to turn on the Buzzer.
- “On” will appear on the screen.
- Press the “-” button to turn off the Buzzer.
Modify Settings

To modify a setting, press the Set button until the appropriate menu is displayed and follow the instructions above.

9. Temperature Calibration Method

- To calibrate the Non-Contact Infrared Forehead Thermometer, first take the subject’s temperature with a CLINICAL THERMOMETER. The result will be 36.5°C (99.5°F), for example.

- Take the temperature of the same individual using the Non-Contact Infrared Forehead Thermometer. Maintaining a distance of 3 to 5cm (1.18 to 1.97 in), aim the device at the forehead. Press the measurement trigger to take the temperature. Be sure to remove any obstacles which could alter the measurement, such as hair, perspiration, cosmetics, etc.

- If the result is the same as the CLINICAL THERMOMETER, the Non-Contact Forehead Infrared Thermometer is properly set and ready to use.

- If the result is NOT the same as the CLINICAL THERMOMETER, adjust the temperature on The Non-Contact Infrared Forehead Thermometer, by subtracting or adding degree points as appropriate, using the instructions for Temperature Calibration.

- The offset range is -3°C to +3°C. The factory setting is 0.0°C.

10. Helpful Tips for Reliable Results

- Prior to use, become familiar with the device.
- Avoid extreme ambient/room temperature.
- Wait at least five minutes before measuring an object when moving to a new environment.
- When the ambient temperature changes significantly (such as from indoors to outdoors, equal to or more than 10 degrees), wait 30 minutes before taking temperature measurement.
- Wait 30 minutes after exercising or bathing before taking temperature.
- Remove hair, sweat, cosmetics and clothing from forehead before
taking temperature.

- When used outside the appropriate operating environment, the temperature reading may be inaccurate.
- The device measures the surface temperature of an object. It does not measure the core temperature.
- To prevent injury, be aware that the actual temperature of an object is much higher than the measurement given by the infrared non-contact thermometer.
- When the LCD displays “HI”, the measurement exceeds the normal temperature range. This applies to body temperature higher than 42.5°C (108°F) and object temperature of 60°C (140°F). (Figure 10.1)
- When the LCD displays “Lo”, the measurement is below the normal range. This applies to body temperature lower than 32°C (90°F) and object temperature below 0°C (32°F). (Figure 10.2)
11. Instructions for Taking Body Temperature

- Ensure **Body** Mode is indicated on the LCD screen.
- Point the thermometer probe at the middle of the subject’s forehead from a distance of 3 to 5cm (1.18 to 1.97in). (Figure 11.1)
- Press the **Measurement** trigger.
- The measurement will be displayed on the screen in one second. (Figure 11.2)
- If the temperature is higher than the alarm setting, a tone will sound.
- Extreme ambient temperatures can influence the forehead temperature. In this event, temperature may also be taken behind the ear. (Figure 11.3)
12. Instructions for Taking Surface (Object) Temperature

- To take surface/object temperature, switch device to **Object** mode.
- From a distance of 3 – 5cm (1.18 – 1.97 in), holding the device vertically, point it at the surface/object.
- Press the **Measurement** trigger.
- The device will “beep” and the surface/object temperature will display on the LCD screen. (Figure 12.1)

![Surface temp](image)

(Figure 12.1)

13. Replacing the Batteries

- When the LCD displays ⚠️, the batteries are depleted and should be replaced.
- To replace batteries, open the battery cover and remove old batteries. (Follow local regulations for disposing.)
- Insert new batteries, observing the correct polarity. A mistake could damage the apparatus and compromise the device warranty.
- Wait 10-15 minutes after replacing batteries for the device to acclimate to the ambient temperature.
- Never use rechargeable batteries. Only use disposable AA batteries.
- Remove batteries when the device will not be used for an extended period, to prevent battery leakage causing damage to the device.
- Do not mix old and new batteries, or batteries of a different type.
14. Maintenance and Cleaning

- Always clean the sensor and the area around the probe to prevent issues with measurement accuracy.
- Wipe dirt with a clean soft cloth or cotton swab moistened with Isopropyl alcohol or water.
- Do not expose the device to water.
- Do not disassemble or modify device.
- Do not place the device in extremely low or high temperature for extended period.
- Do not drop or strike the device.
- Do not hit with sharp object.
- Do not use in sunlight or water.
- Do not use device where there is strong electromagnetic interference.
- Keep away from children.
- Use of this device does not replace physician consultation.
- Do not change the factory settings.
- When device is inoperable, follow local regulations for disposal of device, battery, packing and accessories.
- Contact retailer or manufacturer for repair. Do not open or attempt to repair device.
- If device is dropped performance may decline. Contact retailer for assistance.
- Do not allow heat or cold producing devices to touch thermometer, such as electric blankets or ice packs. Performance may be impaired and patient may be injured.
- Allow device to acclimate at least 30 minutes when not in use for long periods.
- Wireless communications equipment such as wireless home network devices, mobile phones, cordless phones (and phone bases), and walkie-talkies can affect the device. The device should be kept at an appropriate distance, based on the 800 MHz to 2.5 GHz column of Table 6 of IEC 60601-1-2:2007.
- Do not use the device if it is damaged in any way.
- The device should be kept out of reach of children and pets to avoid inhalation and swallowing of small parts.
- When not in use, store device in a dry room, protected from extreme moisture, heat, lint, dust and direct sunlight. Never place heavy objects on storage case.
## 15. Troubleshooting

<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
</table>
| **The screen displays “Hi”** | 1. Ensure there is no sweat, hair, cosmetics or clothing covering the forehead. Do not measure temperature immediately following hot bath, sun exposure or when hot air is blowing.  
2. The device may need to be calibrated. Ensure temperature offset setting is greater than 0. The factory setting is 0.0.  
3. Check the operating environment. If the device was used in a very high ambient temperature and then measured a very low temperature object, allow device to remain in a mild environment for 10 minutes and repeat measurement.  
4. The temperature reading exceeds the upper limit of the normal temperature range. |
| **The screen displays “Lo”** | 1. Ensure there is no cosmetics covering the forehead. Do not measure temperature immediately after a cold bath or when there is cold wind or air blowing.  
2. The device may need to be calibrated. Ensure temperature offset setting is less than 0. The factory setting is 0.0.  
3. Check the operating environment. If the ambient temperature changes too much or the device measures a low temperature object and immediately measures a high-temperature object, allow it to remain in a mild environment for 10 minutes, then repeat measurement.  
4. Ensure measurement distance is 3cm to 5cm.  
5. The temperature reading is less than the lower limit of the normal temperature range. |
| **The buttons do not respond** | 1. Reinstall or install new batteries.  
2. Review setting/operation instructions. |
| **There is no display or an abnormal display** | Reinstall or install new batteries. |
| **Alarm does not sound** | Ensure buzzer is set to “ON”. |
| **The device shuts down immediately after starting** | Check the battery power; install new batteries. |

### Contact Tech Support at:

Phone: 925-249-2250 Ext 5120 Toll Free: 800-390-0804  
US & Canada Email: techsupport@deltatrak.com

## 16. Warranty

The Non-Contact Forehead Infrared Thermometer has a limited warranty period of 1 year from the date of purchase against defects in material and workmanship.
## EMC Declaration

### Guidance and manufacturer’s declaration – electromagnetic immunity

The “CK-T1501” is intended for use in the electromagnetic environment specified below. The customer or the user of the “CK-T1501” should ensure that it is used in such an environment.

<table>
<thead>
<tr>
<th>Immunity test</th>
<th>IEC 60601 test level</th>
<th>Compliance level</th>
<th>Electromagnetic environment – guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrostatic discharge (ESD)</td>
<td>±6 kV contact ±8 kV air</td>
<td>±6 kV contact ±8 kV air</td>
<td>Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.</td>
</tr>
<tr>
<td>IEC 61000-4-2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Electrical fast transient/burst</td>
<td>±2 kV for power supply lines ±1 kV for input/output lines</td>
<td>Not Applicable</td>
<td>Mains power quality should be that of a typical commercial or hospital environment.</td>
</tr>
<tr>
<td>IEC 61000-4-4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surge</td>
<td>±1 kV line(s) to line(s) ±2 kV line(s) to earth</td>
<td>Not Applicable</td>
<td>Mains power quality should be that of a typical commercial or hospital environment.</td>
</tr>
<tr>
<td>IEC 61000-4-5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Voltage dips, short interruptions and voltage variations on power supply input lines</td>
<td>&lt;5 % UT (&gt;95 % dip in UT) for 0.5 cycle 40 % UT (60 % dip in UT) for 5 cycles 70 % UT (30 % dip in UT) for 25 cycles 5 % UT (&gt;95 % dip in UT) for 5 sec</td>
<td>Not Applicable</td>
<td>Mains power quality should be that of a typical commercial or hospital environment. If the user of the “CK-T1501” requires continued operation during power mains interruptions, it is recommended that the “CK-T1501” be powered from an uninterruptible power supply or a battery.</td>
</tr>
<tr>
<td>IEC 61000-4-11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power frequency (50/60 Hz) magnetic field</td>
<td>3 A/m</td>
<td>3 A/m</td>
<td>Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.</td>
</tr>
<tr>
<td>IEC 61000-4-8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTE UT is the a.c. mains voltage prior to application of the test level.
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