

EXERGEN TAT2000-BT Temporal Artery Thermometer



# EXERGEN TAT2000-BT Temporal Artery Thermometer User Manual

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**EXERGEN**  
C O R P O R A T I O N

**EXERGEN TAT2000-BT Temporal Artery Thermometer**



## Product Information

- **Specifications**

- **Product Name:** TemporalScanner TAT-2000
- **Measurement Method:** Infrared Temporal Artery Thermometry
- **Accuracy:** #1 in Proven Accuracy by more than 100 published clinical studies
- **Age Range:** Suitable for all ages from preemies to geriatrics
- **Power Source:** 9-volt battery
- **Features:** LED Indicator Light, Probe LCD Display, Automatic turn-off in 30 seconds

## Product Usage Instructions

- **Safety Information**

- READ ALL INSTRUCTIONS BEFORE USING. Ensure the following safety precautions:
- Avoid using the thermometer aboard aircraft or near High-Frequency Surgical Equipment or Radio Frequency shielded rooms.
- Avoid stacking the thermometer with other equipment to prevent improper operation.
- Use only specified accessories, transducers, and cables provided by the manufacturer.
- Maintain a distance of at least 30 cm (12 inches) between portable RF communications equipment and the thermometer to prevent performance degradation.

## • Temporal Artery Thermometry

- The TemporalScanner TAT-2000 is designed for non-invasive temperature assessment at the temporal artery (TA). It offers:
- Accurate temperature measurement is comparable to arterial blood flow temperature.
- No risk of injury for the patient or clinician.
- Suitable for all ages without the need for disrobing.
- Cost-saving benefits with optional disposable covers.
- How to Use the TemporalScanner TAT-2000
- Place the thermometer against the patient's temporal artery.
- Press the Scan Button to initiate temperature measurement.
- Wait for the reading to display on the Probe LCD Screen.
- The thermometer will automatically turn off after 30 seconds of inactivity.

## FAQs

### • Q: What is arterial temperature?

- Arterial temperature is the same temperature as the blood flowing from the heart via the aorta, providing an accurate measure of body temperature.

### • Q: How accurate is the TemporalScanner TAT-2000?

- The TemporalScanner TAT-2000 has been clinically proven to be more accurate than ear thermometry in premier university hospitals.

### • Q: Can the TemporalScanner TAT-2000 be used on patients of all ages?

- Yes, the TemporalScanner TAT-2000 is suitable for use on patients of all ages, from preemies to geriatrics, without any risk of injury.

## Safety Information

### READ ALL INSTRUCTIONS BEFORE USING

**Intended Use:** The Exergen TemporalScanner is a handheld infrared thermometer used by medical professionals for the intermittent measurement of human body temperature of people of all ages, by scanning the forehead skin over the temporal artery. Intended users are physicians, nurses, and nursing assistants at all levels who normally provide patient care. The thermometer provides a peak temperature reading from plural readings during the step of scanning. Electronic circuitry processes the measured peak temperature to provide a temperature display based on a model of heat balance relative to a detected arterial temperature, the electronic circuitry computing an internal temperature of the body as a function of ambient temperature and sensed surface temperature. Training materials that are supplementary to this instruction manual are available at [www.exergen.com/s](http://www.exergen.com/s) and recommended for first-time users. TAT-2000 Series thermometers are used by medical professionals in clinical environments. Such medical professionals include physicians, nurses, nurses' aides, patient care technicians, and others who are trained to take the temperature of patients. Clinical environments include areas where medical professionals are providing medical services for patients, including hospitals, outpatient clinics, primary care offices, and other settings where temperature is taken as part of patient care. Clinical environments do not include Emergency Medical Services environments. Additionally, the TAT-2000 series thermometers are not for use aboard aircraft or near High Frequency Surgical Equipment or Radio Frequency shielded rooms, such as MRI (Magnetic Resonance Imaging) areas.

**When using the product basic safety precautions should always be followed, including the following:**

- Use this product only for its intended use as described in this manual.
- Do not take temperature over scar tissue, open sores or abrasions.
- The operating environmental temperature range for this product is 15.5 to 40°C (60 to 104°F).
- Always store this thermometer in a clean, dry place where it will not become excessively cold (-20°C/-4°F), hot (50°C/ 122°F) or humid (max RH 93% non-condensing, at 70 to 106 kPa).
- The thermometer is not shockproof. Do not drop it or expose it to electrical shocks.
- This thermometer is not intended to be sterile. Do not try to sterilize it. Do not autoclave. Please note the cleaning procedures in this manual.
- Do not use this thermometer if it is not working properly, if it has been exposed to temperature extremes, damaged, been subject to electrical shocks or immersed in water.
- There are no parts that you can service yourself except for the battery, which you should replace when low by following the instructions in this manual.
- For service, repair, or adjustments, return your thermometer to Exergen.
- **Warning:** no modification of this equipment is allowed.
- Never drop or insert any object into any opening, unless stated in this manual. Never put any foreign object into the battery compartment.
- If your thermometer is not used regularly, remove the battery to prevent possible damage due to chemical leakage.
- Not designed for lithium batteries. Do not use lithium batteries.
- Follow the battery manufacturer's recommendations or your hospital policy for the disposal of used batteries.
- Not suitable for use in the presence of flammable anesthetic mixtures.
- Do not use corrosive substances on the thermometer.
- Do not use this thermometer outdoors.
- If the device fails to operate as described above, see the FAQ section of this manual. Additionally, ensure that you are not in the presence of electromagnetic disturbances.
- If you have any additional questions regarding the use or care of the thermometer, please see [www.exergen.com](http://www.exergen.com) or call customer service at +1 617-923-9900.
- **WARNING:** Use of this equipment adjacent to or stacked with other equipment should be avoided because it could result in improper operation. If such use is necessary, this equipment and the other equipment should be observed to verify that they are operating normally.
- **WARNING:** Use of accessories, transducers and cables other than those specified or provided by the manufacturer of this equipment could result in increased electromagnetic emissions or decreased electromagnetic immunity of this equipment and result in improper operation.
- **WARNING:** Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the TAT-2000 with Bluetooth thermometer. Otherwise, degradation of the performance of this equipment could result.

## Temporal Artery Thermometry

- The temporal artery (TA) area has a long history of temperature assessment dating back thousands of years with recorded references to palpation of the head for fever assessment.
- Branching from the external carotid, the superficial TA courses within about a millimetre of the skin's surface over the lateral forehead, providing good heat conduction to the skin surface, is readily accessible, and provides no risk of injury from being touched.

- Since it is not an anastomosing vessel, perfusion remains high and stable, ensuring the reliability of conditions for the patented Arterial Heat Balance method to compute accurate temperatures.
- This new, superior class of thermometry has been shown to improve outcomes and reduce costs by noninvasively measuring temperature with a degree of clinical accuracy unachievable with other methods of thermometry.



- **What is arterial temperature?**

- Arterial temperature is the same temperature as the blood flowing from the heart via the aorta. It is the best determinant of body temperature and is unaffected by the artifactual errors and time delays of oral and rectal methods.

- **What is the TemporalScanner?**

- The TemporalScanner is an infrared thermometer designed for non-invasive temperature assessment at the temporal artery (TA).
- It is a kinder, gentler way to take temperature and a better method for patients and clinicians alike. It is a breakthrough technology.

- **How does it work?**

- Temperature is measured by gently stroking the TemporalScanner across the forehead, and includes a momentary touch of the probe to the neck area behind the ear lobe, to account for any cooling of the forehead as a result of diaphoresis.
- The patented arterial heat balance technology (AHBTM) automatically measures the temperature of the skin surface over the artery and ambient temperature, synthesizing the two to produce arterial temperature by sampling and calculating these paired readings some 5000 times with each use.

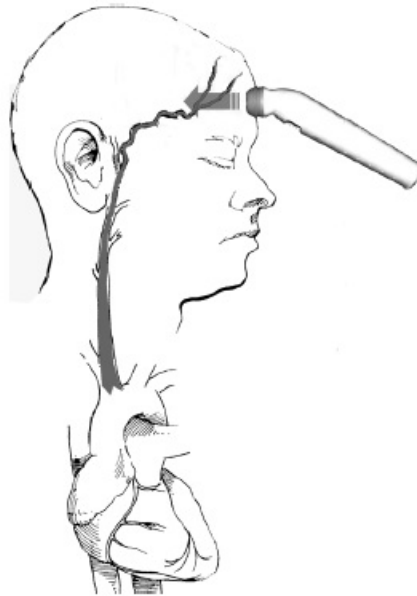
- **How accurate is it?**

- It has been clinically proven in all departments for all patients in premier university hospitals and proven to

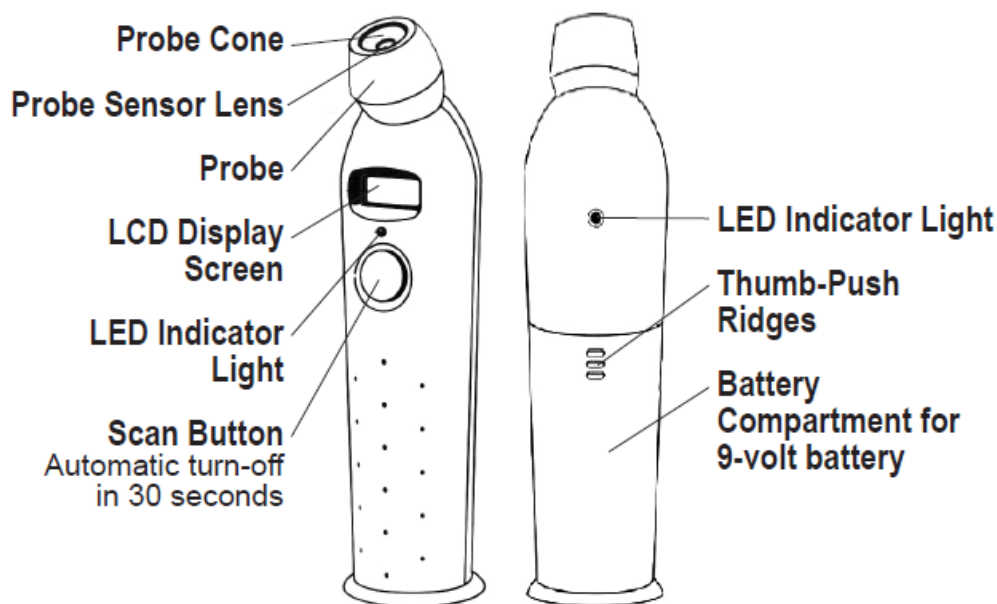
be more accurate than ear thermometry.

- **What are the benefits of TA thermometry?**

- Besides the inherent accuracy, as a site for temperature measurement, TA presents many benefits: no risk of injury for the patient or clinician eliminates the need for disrobing or unbundling, and is suitable for all ages from preemies to geriatrics.
- Unique to infrared thermometry, the instrument can be used with or without disposable covers, thereby providing substantial cost savings unavailable with other methods of thermometry.



## Product Map



## Probe Caps & Dispenser

TemporalScanner Model 2000 can be used either with disposable caps (Part No. 134203), or if preferred, without disposable caps by simply wiping the probe with alcohol or other disinfectant between patients. Disposable covers can be used once and discarded, or reused on the same patient.

- If using disposable caps, they are easily applied on the probe as illustrated in Figure 1, and easily ejected by a

gentle push of your thumb as illustrated in Figure 2.

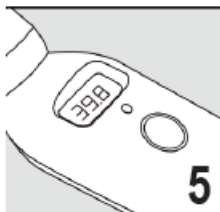
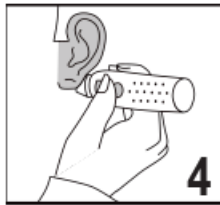
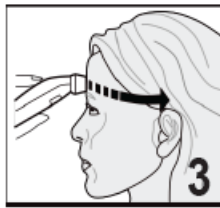
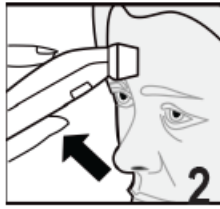
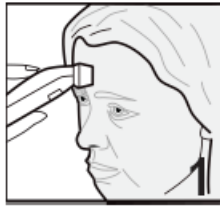
- A convenient wall-mounted dispenser holding 100 disposable caps is available, illustrated in Figure 3 (Part No. 134315).
- Ancillary items, including disposable caps, are available from many distributors, or by calling Exergen Customer Service at 1-617-923-9900, or by emailing [service@exergen.com](mailto:service@exergen.com).



## Measuring TA Temperature

### What you should know before using the TAT:

- Measure only the side of the head exposed to the environment. Anything covering the area to be measured (hair, hat, wig, bandages) would insulate the area, resulting in falsely high readings.
- Slide the thermometer straight across the forehead, not down the side of the face. Midline on the forehead, the TA is about a millimetre below the skin, whereas at the side of the face, the TA is much deeper, and measuring there would result in falsely low readings.
- When taking a temperature behind the ear lobe, first push away any hair, exposing the area. Then, tuck the thermometer on the neck under the ear lobe, in the soft conical depression below the mastoid, (the place where perfume is typically applied).
- Wait about 30 seconds before measuring the same patient again to avoid excessive cooling of the skin.
- An infant frequently presents with blankets and clothing covering the neck area. Since the perfusion rate is normally strong for infants, and unless visibly diaphoretic, one measurement at the TA area is typically all that is required.
- Should you feel the temperature is low, then push aside any clothing or blankets covering the neck area for ~30 seconds or so, and repeat the measurement behind the ear.



- Brush hair aside if covering the TA area Place the probe flush on the center of the forehead. Depress the Scan button and keep depressed throughout measurement... Slowly slide the probe midline across the forehead to the hair line Brush hair aside if covering ear Lift the probe from the forehead and touch the neck just behind the ear lobe Release the button, read and record
  - The display will remain for 30 seconds, before automatic turn-off.
  - To turn it off immediately, press and release
  - To restart immediately, depress button and continue as above

## Measuring TA Temperature

- **What else should I know?**
  - A dirty probe lens and cone can cause a low reading. If not shiny, clean the lens and cone with an alcohol prep or a Q-tip moistened in alcohol.
  - It is preferable to hold the instrument sideways. Approaching your patient with the instrument straight up and down could be somewhat intimidating, especially to an agitated patient.





- If you are right-handed, you might find it easier to measure the left side of your patient; a left-hander would find measuring the right side of the patient to be easier.
- Consider holding the thermometer like a pencil or pen as illustrated.
- If your patient is agitated or squirms away before you have completed your measurement, just keep the button depressed and you can continue the measurement without having to wait.



- **Why measure behind the ear lobe (BE) as well as the temporal artery?**
  - To avoid any possibility of false low temperature caused by diaphoresis, which many times is not obvious. Think of it as a touch of insurance.
- **How does diaphoresis affect readings?**
  - Moisture cools the skin over the temporal artery area.
- **Why behind the ear lobe?**
  - If your patient is sweaty, vasodilation will always be present, and blood flow BE will be as high as the TA area where it is dry.
- **What if the TA area has been traumatized by burns or lacerations, or is completely covered with dressings?**
  - With head trauma, surgical or accidental, the temperature can be obtained from the alternative site on the neck BE. Just as with diaphoresis, the perfusion will be high.
- **Why not use the area BE as a sole site?**
  - Without diaphoresis or head trauma, this area is just too variable to be reliable as a sole site.

## Clinical Information

- **Normal Body Temperature (BT)**
  - Normal BT is not a single temperature, but a range of temperatures influenced by age, time of day, and measurement site.
- **General Rule of Thumb**
  - Rectal temperature is  $\approx 1^{\circ}\text{C}$  ( $2^{\circ}\text{F}$ ) higher than axillary and  $\approx 0.5^{\circ}\text{C}$  ( $1^{\circ}\text{F}$ ) higher than oral temperature.<sup>1</sup>
- **Expect the Differences**
  - Arterial temperature measurement (PA Catheter, TA Thermometry) leads all other methods in identifying fever or defervescence, and is unaffected by activities of daily living.
  - Accordingly, it will sometimes be different from your present methods — but accurate.

## Guidelines for Patient Temperature Assessment

1. **Normal TA Temperature:** On a stable resting patient, TAT is  $\approx 0.4^{\circ}\text{C}$  ( $0.8^{\circ}\text{F}$ ) higher than an optimum oral temperature, and is about the same as a rectal temperature. However, during febrile episodes, the difference can be much higher, mainly because of the artifacts of oral and rectal sites.
2. **Fever Definition:** Clinically, fever is defined as a BT  $\geq 1^{\circ}\text{C}$  ( $1.8^{\circ}\text{F}$ ) above the mean standard deviation at the site of recording.<sup>2</sup> A single oral temperature of  $\geq 38.3^{\circ}\text{C}$  ( $101^{\circ}\text{F}$ ) in the absence of obvious environmental causes is usually considered fever. An oral temperature of  $\geq 38.0^{\circ}\text{C}$  ( $100.4^{\circ}\text{F}$ ) over at least 1 hour indicates a fever state.<sup>3</sup> A single arterial temperature  $> 38.8^{\circ}\text{C}$  ( $101.8^{\circ}\text{F}$ ) in the absence of obvious environmental causes is usually considered fever. An arterial temperature  $> 38.4^{\circ}\text{C}$  ( $101.2^{\circ}\text{F}$ ) over at least 1 hour indicates a fever state. While the above are recommended guidelines, not all fevers require laboratory tests, and clinical assessment in concert with standard hospital protocol for fever workups should always prevail.
3. **Oral Temperature Risks:** Oral temperature can be clinically misleading, and many febrile patients can have a “normal” temperature.<sup>4</sup> Mouth breathing, tachypnea, heated gases, and hot or cold fluids can distort the reading, as can intubation or inability of the patient to cooperate. Accordingly, comparisons with TA may not be reliable.
  - **Normal Body Temperature Ranges at Various Measurement Sites:**
    - **Arterial:**  $36.3\text{--}37.8^{\circ}\text{C}$   $97.4\text{--}100.1^{\circ}\text{F}$
    - **Oral:**  $35.9\text{--}37.5^{\circ}\text{C}$   $96.6\text{--}99.5^{\circ}\text{F}$
    - **Esophageal:**  $36.9\text{--}37.8^{\circ}\text{C}$   $98.4\text{--}100.0^{\circ}\text{F}$
    - **Rectal:**  $36.5\text{--}37.9^{\circ}\text{C}$   $97.7\text{--}100.3^{\circ}\text{F}$
    - **Axillary:**  $35.3\text{--}37.1^{\circ}\text{C}$   $95.5\text{--}98.8^{\circ}\text{F}$
    - **Oronasal:**  $35.9\text{--}37.2^{\circ}\text{C}$   $96.6\text{--}99.0^{\circ}\text{F}$
4. **Rectal Temperature Risks:** Rectal temperature should only be considered as a good approximation of core temperature when the patient’s thermal balance is stable, but is not suitable during and after surgery,<sup>5</sup> and may be misleading after antipyretics, physical exercise, or other intervention that may change temperature quickly.
5. **Axillary Temperature Risks:** Based on strong evidence cited by the NIH, “axillary temperature is contraindicated in critically ill adults, and its use in the general patient population should be discouraged due to its unreliable correlation with core temperature and its poor reproducibility.”<sup>6</sup>

## References:

1. Kuzucu EY. Measurement of temperature. *Int Anesthesiol Clin*, 3(3):435-49, May, 1965
2. El-Radhi AS, Carroll JE. *Fever in Paediatric Practice*, Ch 2, pp 15-49, Oxford Blackwell Scientific Publications, 1994
3. Hughes WT et al. 1997 Guidelines for the use of antimicrobial agents in neutropenic patients with unexplained fever. *Infectious Diseases Society of America (IDSA)*
4. Tandberg D et al. Effect of tachypnea on the estimation of body temperature by an oral thermometer. *NE J Med*, 308, 945-46, 1983
5. O’Grady NP, Barie PS, Bartlett JG, et al. Practice guidelines for evaluating new fever in critically ill adult patients. Task Force of the Society of Critical Care Medicine and the Infectious Diseases Society of America. *Clin Infect Dis* 1998 May; 26(5):1042-59
6. Houdas Y, et al. *Human body temperature*. Ch 5, p89, Plenum Press, 1982, USA, UK

## Product Specifications

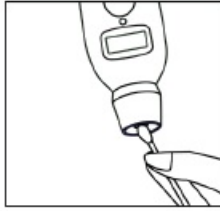
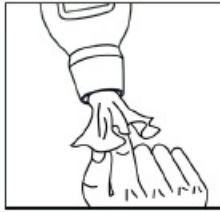
- **Clinical Accuracy:** Meets ASTM E 1965-98 and EN60601-1 standards for electronic and radiation thermometers to the extent applicable to thermometers that measure the surface of the skin over the temporal artery.
- **EMI/RFI Protection:** Error message displayed
- **Calibration Protection:** Error message displayed
- **Temperature Range:** 15.5 to 42°C (60 to 107.6°F)
- **Operating Environment:** 15.5 to 40°C (60 to 104°F)
- **Resolution:** 0.1 °C or °F
- **Response Time:** Approximately 0.03 second
- **Time Displayed on Screen:** 30 seconds before automatic shutdown
- **Battery Life:** Approximately 7,500 readings with an alkaline battery, depending on Bluetooth usage
- **Size:** 7.0 in x 1.75 in x 1.25 in (17.8 cm x 4.45 cm x 3.18 cm)
- **Weight:** 120 g (4.16 oz) incl batt
- **Display Type:** High contrast LCD
- **Bluetooth:** Bluetooth 4.2 BLE, Custom GATT Service
- **Construction Method:** Impact-resistant casing, hermetically sealed sensing system
- **Warranty:** 3 years
- **Patents:** Listed at [www.exergen.com/patents](http://www.exergen.com/patents).

ASTM laboratory accuracy requirements in the display range of 37° to 39°C (98 to 102°F) for IR thermometers is  $\pm 0.2^{\circ}\text{C}$  ( $\pm 0.4^{\circ}\text{F}$ ) whereas for mercury-in-glass and electronic thermometers, the requirement per ASTM standards E667-86 and E1112 is  $\pm 0.1^{\circ}\text{C}$  ( $\pm 0.2^{\circ}\text{F}$ ). Full responsibility for this product meeting applicable portions of this standard is assumed by Exergen Corporation, Watertown, MA 02472 Contact Exergen for Bluetooth interface details. The CLINICAL THERMOMETER is an ADJUSTED MODE CLINICAL THERMOMETER. The correction method is proprietary. Laboratory testing protocol for laboratory accuracy is available upon request.

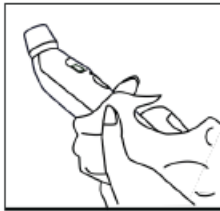
## Cleaning the Instrument

The TemporalScanner is an optical instrument. Like a camera or eyeglasses, a dirty lens will distort the view. If the thermometer is unable to see the heat clearly, it will be unable to measure it accurately, resulting in low readings.

- The probe lens and cone should be shiny and clean, if not, wipe with an alcohol prep, or with a swab moistened in alcohol or water.
- Hold upside-down to prevent excess moisture from entering the sensor area. It will not harm the sensor, but if it becomes too wet, you will be unable to take a temperature until it dries.

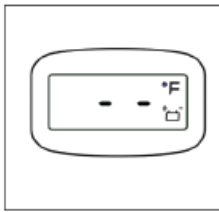


- Do not hold the TemporalScanner under the faucet or submerge it in water. It is not waterproof.
- The thermometer case can be cleaned with any hospital-approved disinfectant, alcohol, or even bleach solutions. Avoid gritty, abrasive cleaners as they can scratch the thermometer.

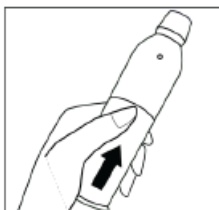
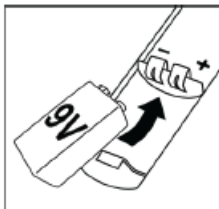


## Changing the Battery

- Blinking battery icon with temperature displayed: the battery is low but will still operate correctly. Replace soon.
- Blinking battery icon with 2 dashes: not enough energy in the battery to measure the correct temperature. Replace battery.
- Remove the battery compartment door by squeezing on the ridges with your thumb, and pushing away as indicated. Use both thumbs if necessary.



- Insert a 9-volt battery as illustrated, with the positive (small terminal) always on the right.
- Use an alkaline or a heavy-duty 9V battery.
- Replace the battery compartment door as indicated, with a push of your thumb on the ridges.



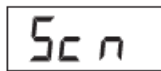
## Smart Glow

- **Soft Glow Display:** Soft lighting for easy reading in any light. Perfect for checking the temperature of a sleeping infant (or adult) in a darkened room.

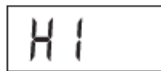
## Bluetooth

- The TAT-2000 with Bluetooth TemporalArtery Scanner is equipped with a special Bluetooth system to automatically transmit the temperature data to an app or a monitor.
- The temperature reading is automatically transmitted when the button is released at the end of a scan.

## Display Messages



A flickering Scn on display is visible during measurement. At completion, releasing the button will display and lock temperature on the screen for 30 seconds.



The target temperature measured is higher than 42°C (107.6°F).



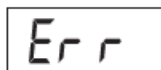
The target temperature measured is lower than 16°C (61° F).



Temperature of the thermometer is higher than 40°C (104°F). Let the instrument acclimatize for about 10 minutes or so in the area in which it will be used.

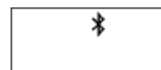


The temperature of the thermometer is lower than 16°C (61°F). Let instrument acclimatize for about 10 minutes or so in the area in which it will be used.



EMI/RFI (like static on a radio) protection is preventing a temperature from being taken. Wait a minute and you should be able to proceed. If not, reset by removing and replacing the battery. Be sure battery is tightly connected.

## Bluetooth Display Messages



A blinking Bluetooth icon appears on the display during search for a device to link up with.


A solid Bluetooth icon appears on the on display when the TAT-2000 with Bluetooth is linked.

The Bluetooth icon is not displayed when the TAT-2000 with Bluetooth is neither trying to connect nor is connected.

Guidance and Manufacturer's Declaration – Electromagnetic Emissions		
The infrared forehead thermometer model TAT-2000 series is intended for use in the electromagnetic environment specified below. The user of the TAT-2000 series should ensure that it is used in such an environment.		
Emissions test	Compliance	Electromagnetic environment-guidance
RF emissions CIS PR 11	Group 1	The TAT-2000 with Bluetooth 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 CIS PR 11	Class B	
Harmonic emissions	Not applicable	
Voltage fluctuations	Not applicable	The TAT-2000 with Bluetooth is suitable for use by a healthcare professional in a typical healthcare environment.

## Guidance and Manufacturer's Declaration – Electromagnetic Immunity

The TAT-2000 series thermometer is intended for use in the electromagnetic environment specified below. The user of the TAT-2000 series should ensure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	<p>Portable and mobile RF communications equipment should be used no closer to any part of the TAT- 2000 series including cables if applicable, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</p> <p>Recommended separation distance</p>
			$d=1,2 \cdot P^{1/2}$
Conducted RF IEC 61000-4-6	3Vrms 150 kHz to 80 MHz	Not applicable	$d=1,2 \cdot P^{1/2}$ 80 MHz to 800MHz $d=1,2 \cdot P^{1/2}$ 800MHz to 2,7 GHz
			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 meters (m). Field strength from the fixed RF transmitters, as determined by an electromagnetic site survey, a. should be less than the compliance level in each frequency range and b. interference may occur in the vicinity of equipment with the following symbol:
Radiated RF IEC 61000-4-3	10V/m 80 MHz to 2,7 GHz 80% AM at 1kHz	10V/m	

- **a.** Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcasts and TV broadcasts 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 strengths in the location in which the TAT-2000 series thermometer is used exceed the applicable RF compliance level above, the TAT-2000 series thermometer should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the TAT-2000.
- **b.** Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3V/m.
- **c.** Portable and mobile RF communications equipment can affect performance.
- **WARNING:** Electronic equipment may be influenced by Radio Frequency (RFI). Caution should be exercised concerning the use of portable communications in the area around such equipment. Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the ME Equipment or ME System. Degradation of the performance of this equipment could result. In a strong electromagnetic field, "Err" or erratic readings may result.

- **WARNING:** This equipment shall not be used adjacent to or stacked with other equipment.
- **WARNING:** TAT-2000 thermometers are not for use aboard aircraft or near High-Frequency Surgical Equipment or Radio Frequency shielded rooms, such as MRI (Magnetic Resonance Imaging) areas.

Guidance and Manufacturer's Declaration – Electromagnetic Immunity (cont.)			
The TAT-2000 series thermometer is intended for use in the electromagnetic environment specified below. The user of the TAT-2000 series should ensure 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	8kV contact 15kV air	8kV contact 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 %.
Electrical fast transient/ burst IEC 61000-4-4	2kV for power supply lines 1kV for input-output lines	Not applicable	Mains power quality should be that of a typical home healthcare environment.
Surge IEC 61000-4-5	1kV line(s) to line(s) 2kV line(s) to earth	Not applicable	Mains power quality should be that of a typical home healthcare environment.
Interruptions and voltage variations on power supply Input lines IEC 61000-4-11	<5% UT (>95% dip in UT) for 0,5 cycles 40% UT (60% dip in UT) for 5 cycles 70% UT (30% dip in UT) for 25 cycles < 5% UT (>95% dip in UT) for 5 sec.	Not applicable	Mains power is not applicable. The TAT-2000 series is powered by battery and battery only.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	30A/m	30A/m	Power frequency magnetic fields should be at the level characteristic of a typical location in a typical home healthcare environment.
Note UT is the a.c. mains voltage before the application of the test level			











## Recommended separation distances between portable and mobile RF communication equipment and the TAT-2000 Series

The TAT-2000 series forehead thermometer is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled or the user of the TAT-2000 series thermometer can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the TAT-2000 series thermometer as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of the transmitter (W)	Separation distance according to frequency of transmitter m		
	150 KHz to 80 MHz d=1,2 P <sup>1/2</sup>	80 MHz to 800 MHz d=1,2 P <sup>1/2</sup>	800 MHz to 2,7 GHz d=2,3 P <sup>1/2</sup>
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 d 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. This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

	Symbol for Manufacturer
	Consult instructions for use
	Degree of Protection Against Electrical Shock Type B Applied Part, Battery Operated
	Do not throw this device away in the trash, contact Exergen Corp. for disposal and recycling instructions.
IPX0	No protection against water.
	Batch code
	Keep dry
	Humidity Limitation
	Unique device identifier

### Three Year Warranty

- Exergen Corporation warrants each new Exergen TemporalScanner 2000 Series (except battery) against defects in materials or workmanship for three years from the date of purchase and agrees to repair or replace any defective product without charge.
- **IMPORTANT:** This warranty does not cover damage resulting from accident, misuse or abuse, lack of reasonable care, the affixing of any attachment not provided with the product loss of parts or subjecting the product to any but the specified battery.
- Use of unauthorized replacement parts will void this warranty.
- Exergen Corporation will not pay for warranty service performed by a nonauthorized repair service and will not reimburse the customer for damage resulting from warranty service performed by a non-authorized repair service.
- No responsibility is assumed for any special, incidental or consequential damages.
- If repair is required, please go to our website at [www.exergen.com/rma](http://www.exergen.com/rma) to request a Return Materials Authorization (RMA) number.
- You will receive an email response with an RMA number and instructions on where to return your unit.
- Alternatively, you may contact Exergen customer service at +1 (617) 923-9900 or [service@exergen.com](mailto:service@exergen.com) or contact your local distributor.
- **NOTE:** No other warranty, written or verbal, is authorized by Exergen Corporation. \*Read the enclosed instructions carefully.

## CONTACT

- To evaluate, email: [medical@exergen.com](mailto:medical@exergen.com).
- For general information: [www.exergen.com](http://www.exergen.com).
- For clinical information, visit [www.TAThermometry.org](http://www.TAThermometry.org).
- For educational videos, clinical studies, and manuals: [www.exergen.com/s](http://www.exergen.com/s).
- To contact Customer Service, email: [service@exergen.com](mailto:service@exergen.com).




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## Documents / Resources

	<p><a href="#">EXERGEN TAT2000-BT Temporal Artery Thermometer</a> [pdf] User Manual</p> <p>TAT2000-BT Temporal Artery Thermometer, TAT2000-BT, Temporal Artery Thermometer, Artery Thermometer</p>
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## References

-  [Home Page - Exergen Corporation](#)
-  [Home Page - Exergen Corporation](#)
-  [Home Page - Exergen Corporation](#)
-  [Patents and Innovations | Exergen](#)
- [User Manual](#)

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