

## **Vet-Temp® VT-150 Ear Thermometer**

### **Frequently Asked Questions**

#### **1) Is the Vet-Temp accurate?**

Yes, the Vet-Temp has a laboratory (in vitro) accuracy of  $\pm 0.2^{\circ}\text{C}$  ( $0.3^{\circ}\text{F}$ ). Clinical studies have verified the accuracy of the Vet-Temp. A clinical study conducted at the University of Missouri, Columbia and published in JAVMA concluded “Our results revealed that the animal ear thermometer yields an accurate assessment of body temperature” (JAVMA, Vol. 221, No. 3, August 1, 2002). Another clinical study at the San Diego Humane Society has verified in vivo accuracy on dogs and cats (right ear to glass rectal SD= $0.68^{\circ}\text{F}$ , left ear to glass rectal SD= $0.59^{\circ}\text{F}$ ).

When comparing ear temperatures of the Vet-Temp with rectal temperatures taken with either a glass or digital electronic thermometer, the Vet-Temp will typically read in the same range and will trend in the same direction. For clinical purposes, when used correctly, the Vet-Temp gives readings that are similar to rectal temperature measurements, however, the Vet-Temp will not be perfectly equal to rectal temperatures for the following reasons:

- A. Rectal temperatures are different from ‘core’ temperatures. Studies on animals and humans have shown that the rectum is not a perfect indicator of ‘core’ body temperature. It is believed that this is due to the distance of the rectum from the ‘core’ areas of the body along with the bacterial action inside the intestines and rectum.
- If the ‘core’ body temperature is stable, the Vet-Temp and the rectal readings will typically be similar.
  - If the ‘core’ body temperature is not stable, there may be some variance between the Vet-Temp and the rectal readings. In these situations, the Vet-Temp will be more accurate than the rectal temperature because the Vet-Temp measure ‘core’ body temperature changes immediately and the rectum does not.
- B. Accuracy of rectal temperature measurements with a glass or digital electronic thermometer depends on a number of factors including:
- How long the thermometer is in the rectum.
  - The type and calibration of the thermometer. In checking new digital and glass thermometers at Advanced Monitors Corporation in an extremely accurate water bath reference, these rectal thermometers typically are mis-calibrated anywhere from 0.2 to 1.0 degree Fahrenheit.
  - The success in having the measurement bulb of the thermometer to stay in contact with the rectal tissue.

- If there is air in the animal's bowels, the thermometer may not make good contact with the tissue and this can lead to low readings. This lack of contact will also occur on anesthetized animals because of relaxation of the sphincter.

Even with the normal variances between ear and rectal, the Vet-Temp gives the clinician an accurate indication of the animal's temperature range: hypothermic, normothermic or hyperthermic.

To get an accurate reading on animals, the user must first pull the ear (pinna) out and down while inserting the probe as deep as possible in the ear and pointing the probe tip towards the angle of the opposite jaw (below the opposite ear and slightly forward). This technique will give the temperature of the deep horizontal canal, which is an accurate indicator of 'core' temperature. If the probe is pointed towards the wall of the vertical canal, the reading may be low. It will take practice to become familiar with the correct technique.

## **2) What is the difference between the Vet-Temp and the human ear thermometers sold over the counter for home use?**

The Vet-Temp has been designed exclusively for animal temperature measurement. The two main design features, ***an extended sensor arm and a reduced probe tip diameter***, allow the sensor probe to be positioned at the animal's horizontal ear canal for accurate readings. Human ear thermometers were designed specifically for human ear anatomy, which is different than that of most animals.

The Vet-Temp has also been designed for **high volume** professional use such as that found in a busy animal health care facility. The over-the-counter human ear thermometers are intended for very limited (occasional) use found in a home environment. The Vet-Temp is intended to last 4-5 years with heavy usage. The expected lifetime of a typical human consumer ear thermometer is only a few thousand temperatures - not nearly enough for a busy veterinary practice.

## **3) What is the difference between the professional model Vet-Temp and the consumer model Pet-Temp®?**

The Vet-Temp is manufactured for high-volume usage in a professional environment whereas the Pet-Temp is manufactured for low-volume usage in a home setting. In a professional environment with rigorous daily usage, the Vet-Temp is expected to last several years whereas the Pet-Temp is expected to last only several months. Both models have the same accuracy.

## **4) On What size animals will it work?**

Clinical data validates that the Vet-Temp works effectively on dogs and cats of all sizes. It has been used on kittens as small as 4 weeks and on large dogs that weigh 150 pounds. It is routinely used on many exotic animals such as ferrets, rabbits, chinchillas and guinea pigs. It is not recommended for full grown horses or cows.

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**5) Do I have to point the Vet-Temp at the tympanic membrane to get an accurate temperature (or from what part of the ear does the Vet-Temp take the temperature)?**

The Vet-Temp does not have to be pointed exactly towards the tympanic membrane; however it should be pointed down the horizontal canal and in the general direction of the tympanic membrane. We recommend an "ear tug" (as in standard otoscope technique), to align the vertical canal with the horizontal canal. The Vet-Temp should be seated as deep as possible (it should be snug) while pointing towards the angle of the opposite jaw. It will take practice to become familiar with the correct technique.

**6) Why use the tympanic membrane or eardrum as a measuring site?**

The tympanic membrane region shares the blood supply of the brain. For this reason, it gives a brain blood temperature and is more accurate than a rectal temperature. Because the rectum is not located near the brain and due to naturally occurring digestive processes that generate heat, the temperature of the rectum may not be a good indicator of "brain blood" temperature. In a paper titled *Brain, Blood and Rectal Temperature During Whole Body Cooling*, James P. Kiley concluded that "rectal temperature cannot be used as an accurate measure of brain or arterial blood temperature" in humans. Human and animal physiology is similar.

**7) Will ear wax affect the reading?**

For most cases, when the amount of cerumen is moderate, no. Earwax will be warmed up to the same temperature as the ear canal and will not cause inaccurate readings. If the ear debris (exudate) is excessive and the sensor has to be inserted through this material to be properly positioned, then the Vet-Temp reading will likely not reflect an accurate core temperature. It is recommended that the ear be cleaned and the temperature be retaken after a five minute wait.

**8) How will an ear infection affect the readings?**

In the clinical study that was published in JAVMA that is referenced above, ear infections had no affect on the ear temperature. However, if an animal has a severe ear infection, using the Vet-Temp may be contraindicated due to sensitivity of the ear canal. Advanced Monitors recommends that when an animal has an injured or infected ear, the clinician should take the temperature from the other ear. If both ears are infected and sensitive, the clinician may have to resort to a traditional rectal temperature.

**9) Over what ambient temperature range will the Vet-Temp work?**

The room or outside air temperature range of the Vet-Temp is from 50° to 104° F (10° to 40° Celsius). However the thermometer must be given sufficient time to equalize to the new ambient temperature if moved from a hot to cold environment or vice versa.

**10) What is the patient temperature range?**

The patient temperature range is 93° to 109° F (34° to 42.8° C).

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**11) How long does it take for the Vet-Temp to register a temperature?**

One second.

**12) How do I know when the Vet-Temp is finished taking a temperature?**

A short audible beep indicates the completion of the measurement.

**13) What type of maintenance is required?**

The Vet-Temp and the optical window should be kept clean and dry. The Vet-Temp thermometer body can be cleaned with a soft cloth dampened with soap and water and/or alcohol. The optical probe window should be cleaned everyday, or when soiled, with alcohol and a cotton swab. After cleaning the optical window, the user should wait at least five minutes after cleaning and drying the optical window before taking a temperature.

**14) Can the Vet-Temp register temperature in Fahrenheit and Celsius?**

Yes, there is a switch that will change between Fahrenheit and Celsius. To change from °F to °C or vice versa, push the C/F switch found next to the LCD with the end of a paper clip.

**15) Do I need to use a probe cover?**

Absolutely! The Vet-Temp's® calibration is based on having a probe cover installed. Failure to use a cover will lead to inaccurate readings. The probe cover is also designed to keep the probe optical window free from dirt and ear wax. If the Vet-Temp probe is inserted in the ear without a probe cover the optical window can also become damaged. Also, the probe cover prevents the transmission of infection from one animal to another.

**16) Do I need to use a new probe cover every time?**

Absolutely! Re-using a probe cover will lead to low temperature readings. This is because earwax will solidify on the cover and block the heat waves, which will cause a low infrared signal. Also, re-using a previously used probe cover may result in transmitting an infectious agent from one animal to another.

**17) How long will the built-in battery last?**

The life span of the battery is over 20,000 temperatures, with a shelf life of up to 10 years. If the Vet-Temp were used 20 times a day, 6 days per week, the battery would last approximately 4 years. Although, more extensive thermometer usage may somewhat shorten the life of the battery.

### **18) How do we replace the battery after it has lost its efficacy?**

Due to the fact that the Vet-Temp will need recalibration after a the battery is changed, the Vet-Temp must be returned to Advanced Monitors Corporation for a new battery. This charge will include any other repairs, reconditioning and recalibration that the instrument may require. During the warranty period, Advanced Monitors Corporation will either replace the battery or replace the thermometer with a comparable device at the Company's discretion. Advanced Monitors Corporation offers discount on new Vet-Temp thermometers that have a dead battery. Please contact Advanced Monitors at 877-838-8367 x102 or at 858-536-8237 x102 or at [support@admon.com](mailto:support@admon.com) for current pricing.

### **19) What is the warranty of the Vet-Temp?**

The Vet-Temp thermometer has a limited warranty for one year from the date of purchase. During the warranty period, Advanced Monitors Corporation will either replace the battery or replace the thermometer with a comparable device at the Company's discretion.

### **20) What is the policy for warranty repair returns?**

If a Vet-Temp is within the warranty period, it will be repaired or replaced at no charge at Advanced Monitors discretion. For a warranty repair, the user must contact Advanced Monitors Corporation's Customer Service toll free at 877-838-8367 x102 or 858-536-8237 x102 or at [support@admon.com](mailto:support@admon.com) to receive a Return Material Authorization (RMA) number. Once the RMA is issued, this number should be written on the outside of the shipping case and then the thermometer should be sent back to Advanced Monitors Corporation. This assures prompt repair and return shipment.

### **21) What is the policy for out-of-warranty repair returns?**

Advanced Monitors Corporation offers a discount for the purchase of a new Vet-Temp thermometer if the customer's thermometer stops working outside the warranty period. For an out-of-warranty repair, please contact Advanced Monitors Corporation's Customer Service toll free at 877-838-8367 x102 or 858-536-8237 x102 to get the latest pricing.