# THERMUSSAS PLUS

# HOME MODEL HM-2 PLUS USE & CARE MANUAL



For answers to questions concerning the use of your thermometer, call us TOLL FREE at: (800) EAR-SCAN/ (800) 327-7226 Monday - Friday 7:00 AM to 5:00 PM Pacific Time.

### IMPORTANT SAFEGUARDS

The Thermoscan Plus Instant Thermometer is a sophisticated electronic instrument that has been carefully engineered for both accuracy and safety. The shape of the thermometer prevents it from being inserted far enough to damage the eardrum. However, basic safety precautions should always be observed, especially when using the thermometer on or near children.

#### PLEASE READ ALL INSTRUCTIONS CAREFULLY BEFORE USING THIS PRODUCT.

- ➤ To use this instrument safely:
  - This product is designed to measure human body remperature by detecting heat from the eardrum and surrounding tissue. Do not use the instrument for any other purpose. Do not use any other type of thermometer in the ear.
  - Close supervision is necessary when using this thermometer on, near or by children or disabled persons.
  - Keep lens filters out of the reach of children.
- ► To ensure long life and accurate operation of this precision instrument:
  - This thermometer must only be used with genuine Thermoscan Lens Filters.
  - · Do not use this thermometer without a new or clean and intact lens filter attached. After each use, clean the lens filter or discard it and replace with a new one. (See Care and Cleaning, page 13.)
  - · If the thermometer is ever accidentally used without a lens filter attached, clean the lens. (See Care and Cleaning, page 13.)
  - Never submerge the Thermoscan Plus Instant Thermometer in water or any other liquid.
  - · When not in use, place the thermometer with a lens filter attached to protect it from damage and dirt in its storage case.

- · Store unit and lens filters in a dry location free from dust and contamination where the temperature remains fairly constant and within the range of 61°F to 104°F (16,1°C to 40°C).
- · Store lens filters away from direct sunlight and fluorescent lighting.
- Do not drop, mishandle, or expose to temperature or humidiry extremes [outside the range of -4°F to 122°F (-20°C to 50°C), 15-95% HR non-condensing], temperature readings may not be accurate. Do not use if the thermometer malfunctions or has been damaged in any manner.
- · There are no user-serviceable or replaceable parts except the 9 volt battery and lens filters. Refer to page 14 for service information.
- ➤ For best results, use a 9 volt alkaline battery.

	nail the enclosed Owner Registration Card and for your e. please record:		
Serial#_			
	(located inside battery compartment – See Figure 2)		
Date pro	oduct purchased or received		

THIS PRODUCT IS INTENDED FOR HOUSEHOLD USE ONLY.

USE OF THIS THERMOMETER IS NOT INTENDED AS A SUBSTITUTE FOR CONSULTATION WITH YOUR PHYSICIAN.

## THANK YOU FOR PURCHASING THE THERMOSCAN PLUS INSTANT THERMOMETER

Unlike other thermometers that must be held in place for several minutes, the Thermoscan Plus Instant Thermometer takes a temperature in just one second. It takes a "picture" of the infrared heat given off by the eardrum and surrounding tissue, calculates body temperature, converts it to an oral or rectal reading and displays it on the digital readout.

But why take a temperature at the ear? Because the eardrum is close to and shares blood vessels with the hypothalamus, the temperature control center of the brain. Therefore, it's an accurate indicator of true internal (core) body temperature, a fact that has been widely documented in clinical studies. The ear is also a protected cavity, so, unlike oral temperatures the accuracy of ear temperatures is unaffected by eating, drinking, smoking and breathing through the mouth. The ear is a dry cavity so cross-contamination through mucous membrane contact, a problem with oral sites, cannot occur. Also, the risk of bowel perforation, a concern when taking rectal temperatures on infants or children, is eliminated.

The Thermoscan Plus Instant Thermometer has been clinically proven to be safe and accurate. It meets American Society for Testing and Materials (ASTM) Standards for accuracy under normal operating conditions. To ensure the best results, please take the time to read this manual completely and keep it handy for future reference. In the unlikely event you experience any difficulty using the Thermoscan Plus Instant Thermometer, simply call us toll free at (800) EAR-SCAN or (800) 327-7226.

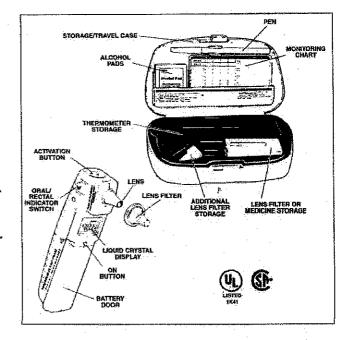
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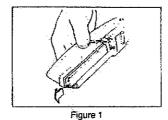
#### **COMPONENTS AND FEATURES**

- ➤ Model HM-2 Plus includes the following components:
  - · Thermoscan Plus Instant Thermometer
  - Lens Filters (20 plus one on thermometer)
  - \* Storage/Travel Case
  - 3 Alcohol Pags
  - · Erasable Pen
  - Temperature Monitoring Chart
  - Use and Care Manual with Owner Registration Card
  - Quick Reference Guide
- ► Not included, but required:
  - · 9 volt battery (For best results, an alkaline battery is recommended)



#### PREPARING THE THERMOSCAN PLUS **INSTANT THERMOMETER FOR USE**

► Open the battery door by pressing in at the arrow and sliding the door down toward the base of the instrument (Figure 1).



➤ The thermometer is shipped with the Fahrenheit/Celsius switch set to Fahrenheit. If you wish to have remperatures displayed in Celsius (°C), slide the switch as shown in Figure 2, using diagram a or b, whichever best represents your thermometer.

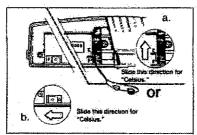
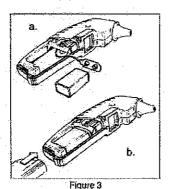


Figure 2

➤ The Thermoscan Plus Instant Thermometer uses a 9 volt battery. To install it, snap the positive and negative terminals of the battery onto the appropriate receptacles on the connector (Figure 3a). Place the battery inside the compartment and slide the battery door back into place (Figure 3b). Note: Minimum battery life is one year or 300 temperatures when an alkaline battery is used.



Lens filters are located inside the storage case. Remove the box from the case and open the box of lens filters by completely removing top of box (Figure 4). You may return the box to the case for convenient storage.

The thermometer is shipped with a lens filter in place. To install a new lens filter, remove one from the box and

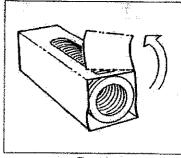
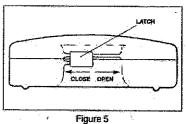


Figure 4

holding it by its edges, slide it onto the lens until it is snug and snaps in place. Caution: Do not touch the tip of the lens or lens filter when installing.

➤ To open the Thermoscan Plus case, push latch with your thumb and slide latch to your right until it stops (Figure 5). To close case, simply repeat, this time sliding latch to the left. To ensure the case is closed tightly, make sure the larch slides as far to the left as possible or



until you feel it completely stop. Note: Always use and store the thermometer with a new or clean lens filter attached.

#### TO HELP ENSURE ACCURACY, PRACTICE TAKING TEMPERATURES USING THE THERMOSCAN PLUS INSTANT THERMOMETER

Many people believe that normal temperature is 98.6°F (37:0°C). Clinical studies have proven that there is really a "range of normal" that fluctuates throughout the day. In addition, normal oral readings can range from 96°F (35.6°C) to 99.5°F (37.5°C) and normal rectal readings from 97.9°F (36.6°C) to 100.4°F (38.0°C). It also varies from person to person and can rise with excessive clothing, hot weather, or accelerated activity (such as crying or exercise). In order to observe these naturally occurring variations and determine the normal temperature range for each member of your family. practice taking temperatures on yourself and healthy family members at different times of the day to determine their "baseline" temperature. When consulting your physician about fever, the baseline or "normal" temperature for that individual should also be communicated.

#### **HOW TO USE THE THERMOSCAN PLUS** INSTANT THERMOMETER

- 1. Remove the instrument from its storage case. If stored properly, a new or clean and intact lens filter will already be in place. (See procedure on page 6.) Do not use thermometer without lens filter attached.
- 2. Select either the oral or rectal indicator to convert "ear temperature" into a familiar frame of reference for interpretation. See page 8.
- 3. Depress the "ON" button that is located directly below the LCD (liquid crystal display) to turn the power on.
  - All segments on the LCD (Figure 6) will be displayed for two seconds to indicate a fully functional display (some models may not display the words "ORAL" or "RECTAL").
  - \* The display will switch to "NOT READY", then, within one second to "READY" (Figure 7) indicating that the thermometer is ready to take a temperature. If no temperature is taken within two minutes, the thermometer will automatically shut off.





Flaure 6



Figure 7

- 4. Stabilize the head. In infants, this is best achieved by laying them flat with the head rotated so the ear is up.
- 5. Perform an ear tug and position the thermometer. In order to take an accurate temperature, the thermometer must be in the proper setting and positioned correctly in the ear. In addition, an "ear canal straightening" technique must be used to straighten the natural bend of the canal and ensure that the thermometer has a clear view of the eardrum.
  - . If you are right handed, hold the thermometer in the right hand and take the temperature in the right ear. If you are left handed, hold it in the left hand and use the left ear. This will help ensure proper placement.
  - Perform an "ear mg" by using your free hand to grasp the outer edge of the top half of the ear and follow the steps in the chart below. To take your own temperature, an ear mg is best achieved by wrapping your free hand around the back of your head, grasping the ear from behind. Continue pulling the ear until you are finished taking the temperature.

#### Ear Tug and Positioning Technique





Figure 8a

• Children under 1 yr.

Setting Recal Indicator

Ear Tug Gendy but firmly pull ear straight back (Figure 8a)

Approach the ear from behind child. Point lens toward the op-**Positioning** 

posite eye. Gently insert lens as far as possible.

· Children 1-3 yrs.

Setting Recal Indicator

Ear Tug Gendy but firmly pull car up and back (Figure 8b)

Positioning Approach the ear from behind child. Point lens slightly in from

of opposite ear. Follow the natural path of the ear canal, Using a slight back and forth rocking motion, gendy insert lens as far as possible until car canal is fully scaled off.

• Children 4 yrs.-Adults

Setting **Oral Indicator** 

Ear Tug Gently but firmly pull ear up and back (Figure 8b)

Approach the ear from behind person. Point lens slightly in **Positioning** front of opposite ear. Follow the natural path of the ear canal.

Using a slight back and forth rocking motion, gently insert lens as far as possible until car canal is fully sealed off.

6. ► After the thermometer is correctly positioned, press the "Activation" button with the index finger and hold fully depressed for one second.

NOTE: In the following situations, it is recommended that you take three temperatures in the same ear. If they differ, use the highest reading. (1) Infants in the first 90 days of life. (2) Children under 3 years of age who have a condition such as a compromised immune system and for whom the presence or absence of fever is critical. (3) When you are first learning to use the ear thermometer until you are comfortable with the technique and are obtaining consistent readings.

No more than three readings should be taken consecutively in the same ear since repeatedly inserting the cool thermometer into the ear canal can lower the reading.

- 7. When the unit is removed from the ear, the temperature will be shown on the display until another temperature is taken or the unit powers down. The thermometer is ready to take a new temperature when "READY" appears on the screen along with the last temperature reading. To help ensure accuracy, you must change or clean the lens filter after each reading. Two minutes after the final temperature reading, the thermometer will automatically turn itself off to conserve battery power.
  - 8. Before storing the thermometer in its storage cover, change or clean the lens filter (See page 13 "Care and Cleaning") and check to make sure the filter is intact with no visible scratches or holes. If a filter is damaged, dispose of it and replace it with a new one. Additional lens filters are available at most stores carrying Thermoscan Instant Thermometers or call our Customer Service at (800) EAR-SCAN to find a dealer near you.

#### **TEMPERATURE TAKING HINTS**

- The Thermoscan Instant Thermometer takes a "picture" of the infrared heat that naturally radiates from the part of the ear at which the lens is pointed. Therefore, it is important to use an ear tug, point the thermometer lens toward the eardrum and gently insert far enough into the ear canal to obtain an accurate reading. Since the eardrum is always the warmest location in the ear canal, taking three temperatures and using the highest one can help to ensure accuracy.
- ▶ It is not uncommon for a person's temperature in the right car to be slightly different than in the left ear. When monitoring temperature during illness, use the same car to maintain a constant frame of reference.
- ▶ If a person has been sleeping on one ear for an extended period of time, the temperature of that ear may measure too high. Wait a few minutes before taking a temperature to allow the ear to stabilize.
- ➤ The best temperature measurements are taken when the ear is free of obstruction. If you suspect an obstruction or excessive earwax build up, contact your physician.
- ▶ Inspect and change or clean the lens filter after each use. If the lens or lens filter is soiled with fingerprints, earwax, or dirt, discolored or not intact, temperature measurements will not be accurate.
- ▶ To protect the instrument's lens, always keep a lens filter attached. If the thermometer is accidentally used without a filter, gently clean the lens and surrounding area (see instructions on page 13). It is also a good idea to inspect the lens whenever you replace a lens filter.
- ▶ Although it may be difficult to consistently position the thermometer in someone's ear, you can usually "feel" when the unit is properly placed in your own ear. If the person whose temperature is to be taken is old enough, ask for assistance in the positioning process.
- ▶ The thermometer is designed to take accurate temperatures with a lens filter in place. Temperatures taken without a lens filter attached will not be accurate.

#### TROUBLESHOOTING

The Thermoscan Plus Instant Thermometer has been designed to provide feedback to ensure proper usage and accurate temperature taking. In many cases this means that instead of displaying a temperature that is not meaningful, a message will be displayed that will help you take corrective action. These messages are outlined below:

STTUATION		SOLUTION	
"ERROR I" displayed	Appears after "ON" hutron is pushed if themometer's own temperature is not within its operating range .61°F to 104°F (16.1°C to 40°C).	Move the thermometer to a morn within the 61°F to 104°F (16.1°C to 40°C) operating lange for 30 minutes and reake temperature.	
ERROR 2" displayed	Appears after "Activation" button is pushed if temperature measurement is not within typical human temperature range 94°F to 106°F (34.4°C to 41.1°C).	Be sure a lens filter is attached and the thermoneter is properly inserted, fully scaling off the ear canal and retake temperature.	
*ERROR 3* displayed	Appears after "Activation" button is pushed if it is nor held down for a full second.	Recake temperature by slowly depressing the "Activation" button and holding it down for one full seemed.	
"ERROR 4" displayed	Appears after "Activation" button is pushed if the internal temperature of the thermometer is changing too rapidly.	Allow the thermometer to remain in the room where the temperature is being taken for 30 minutes to stabilize.	
"ERROR 000" displayed	The thermometer performs a self diagnostic test on its circuitry after each initial activation and when a new battery is installed. If any faelis are detected, "ERROR 000" will be displayed.	Wait 2 min. for the thermometer to power down (blank screen), Reset the indicator to the desired setting, push "ON" button and retake temperature. If "ERROR 000" is repeated, the thermometer must be returned for service (see juge 14).	
"NOT READY" displayed	"Activition" button was depressed somer than 10 seconds from previous activation. "NOT READY" and the countdown in seconds will appear until another temperature can be taken.	Wait until the display shows "READY" before attempting to take another temperature.	

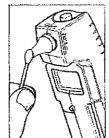
SITUATION		SOLUTION	
the shing	Flashing low battery warning: alkaline harrery has enough remaining life for about 10 days or 10 temperatures. (Some models will flash the words "CFIANGE BATTERY").	tuscall fresh battery.	
constant	Battery is so low that no intore temperatures can be taken. (Some models will show the words "CHANGE BATTERY").	Install fresh battery.	
blank display	Thermonieter has powered down.  Batteries are dead, improperly connected, or missing.	Depress "ON" button,  Remove and reinstall battery, If blank display continues, replace with firsth battery. If display is stiff blank, return thermometer for service.	

- ▶ If temperatures appear to be reading low, check that the instrument is in proper setting (some models will display setting on screen). Ensure proper technique (see pages 8–9). Make sure the lens is clean and a new or clean lens filter is installed.
- ▶ If temperatures appear to be reading high, check that the instrument is in proper setting (some models will display setting on screen). Be sure a new or clean lens filter is attached. Inspect the lens; if it is damaged, the thermometer must be serviced.

#### **CARE AND CLEANING**

#### Lens: Keep It Clean

- The lens up is the most delicate part of the thermometer. It is covered with a soft, thin membrane which forms a surface that is transparent to hear waves. To ensure accuracy, it is very important to keep the lens clean and intact, and to always keep a clean lens filter attached. Fingerprints, ear wax, dust and other soiling compounds reduce transparency of the lens; resulting in lower temperature readings. Remember: always store the thermometer in its cover when not in use.
- Inspect the lens whenever you replace a lens filter. To clear the lens, very gently wipe its surface with a corton swab or soft cloth moistened with alcohol or mild soap and warm water (Figure 10). After cleaning, allow at least 45 minutes drying time before reattaching a lens filter and taking temperatures. If the lens is damaged, it must be returned to Thermoscan for repair.



#### Figure 10

#### ➤ Lens Filters: Change or Clean Them

Change or clean lens filter after each use.
 Clean without removing it from the thermometer with a soft clean or correct such me

mometer with a soft cloth or cotton swab moistened with alcohol or mild soap and water. Do not use hot or boiling water. Dry completely with a soft cloth before reusing. Replace lens filter if tears, scratches or discoloration is visible.

 Keep lens filters out of direct sunlight and ultraviolet light for extended periods of time. Store lens filters away from dust and contamination.

#### ➤ Thermometer and Case

- Use a soft, dry, clean cloth to clean the instrument display and exterior.
   Do not use abrasive cleaners or submerge in water or other liquids.
- This instrument contains precision components and should not be subjected to extremes in temperature, humidity, direct sunlight, shock or dust.
- The case has been designed so most children's medicine can be stored
  in the space provided for the box of lens filters. If you do store medicine
  in this case, be sure it's in a leak-proof container that is rightly closed.
  Any type of moisture that gets on or in the thermometer will cause the
  thermometer to malfunction. It is recommended that the medicine container also be stored in a leak-proof plastic bag.
- Store unit in a location where the temperature remains fairly constant and within the range of 61°F to 104°E. To ensure that the Thermoscan Plus Thermoneter is always ready to take a temperature (and avoid "ERROR 4"), store it in the room where it is most frequently used.

#### SERVICE

The Thermoscan Plus Instant Thermometer has a limited one year warranty. Should service be required during or after the warranty period, call Thermoscan's Technical Service Center at (800) 327-7226 to obtain a Returned Goods Authorization number and repackage the thermometer carefully in its original box or any sturdy carron with enough packing material to prevent damage, Include a note describing the problem, your RGA number and your return address. For your protection when mailing packages, use insured Parcel Post or United Parcel Service. Send the instrument to:

Thermoscan Inc.
Attention: Service Center
10309 Pacific Center Court
San Diego, CA 92121

Answers to any questions regarding operation of the Thermoscan Plus Instant Thermometer may be obtained by calling us toll free at:

> (800) EAR-SCAN (800) 327-7226 Monday – Friday 7:00 AM to 5:00 PM Pacific Time

#### LIMITED ONE YEAR WARRANTY

Thermoscan Inc. warrants this product against any defects that are due to faulty material or workmanship for a period of one year from the original date of consumer purchase or receipt as a gift. This warranty applies when used for normal household use in accordance with the Use and Care Manual and excludes damage to the product resulting from accident or misuse. This product is not warranted when used in a professional environment.

In no event shall Thermoscan be liable for any special, incidental, indirect or consequential damages in connection with the purchase or use of this product or costs over and above the original cost of the product.

If the product should become defective within the warranty period, contact Thermoscan's Technical Service Center at (800) 327-7226 for repair or replacement at no charge. Thermoscan reserves the right to replace a defective product with the most comparable product currently available.

While this warming gives you specific legal rights, you may also have other rights which vary from state to state.