

# Adtemp™ 424 Digital Ear Thermometer



Use, Care and Maintenance

**ADC**<sup>®</sup>  
AMERICAN DIAGNOSTIC CORPORATION

## INTRODUCTION

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Congratulations on your purchase of the ADC® Adtemp™ 424 Tympanic Digital Thermometer. ADC® professional diagnostic products are the instruments of choice in hospitals and physician's offices throughout the world, where accuracy and dependability are critical.

Now, you too can enjoy the benefits of ADC® engineering and quality in the home. This feature rich instrument was designed to simplify use and deliver consistent, dependable results.

Your ADC® Adtemp™ 424 Digital Tympanic Thermometer is an automatic measuring device that offers the Advantages of Multiple Use (Wide Range Measurement). The Adtemp™ 424 offers a wide range measurement feature ranging from 89.6°F ~ 108°F (32°C ~ 42.2°C); the product can be used as an ear thermometer to measure body temperature.

- Quick Measurement: The innovative infrared technology allows measurement of ear temperature in only 1 second.
- Accurate and reliable: Due to the unique probe assembly construction, the advanced infrared sensor, and the complete calibration process this unit can offer a very accurate and reliable ear temperature measurement.
- Gentle and Easy to Use
  - Special ergonomic design enables simple and easy use of the thermometer.
  - This thermometer can be used without interference to daily lifestyle. A measurement can be taken even while a child is sleeping.
  - This thermometer is convenient to use for children.
  - This thermometer is less threatening to a child than a rectal thermometer and more pleasant to use than an oral thermometer.
- Auto-Display Memory: The product displays the last reading automatically for 3 seconds when the unit is switched ON.
- Safe and Hygienic
  - No risk of broken glass or mercury ingestion
  - Completely safe for use on children
  - Disposable probe covers make Adtemp™ 424 completely hygienic

## 2. Important Safety Instructions

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- Never use the thermometer for purposes other than body or surface temperature measurement. Please follow the safety precautions when using on children.
- Always use the thermometer with a new undamaged Probe Cover for each measurement to prevent infection. Readings taken without probe covers will not be accurate. Only ADC® brand probe covers can ensure that you get an accurate measurement from the 424 Digital Ear Thermometer.
- Never immerse the thermometer into water or other liquids. (not waterproof) For cleaning and disinfecting please follow the instructions in section 10, "Cleaning and Storage".
- Keep the instrument and the probe covers away from direct exposure to the sun and keep it in a dust-free, dry area at a temperature between 10° - 40° (50°F - 104°F).
- If the instrument is not going to be used for a prolonged period the battery should be removed.
- Ensure that children do not use the instrument unsupervised; some parts are small enough to be swallowed.
- Do not use the thermometer if there are signs of damage on the probe or on the instru-

ment itself. If damaged, do not attempt to repair the instrument!

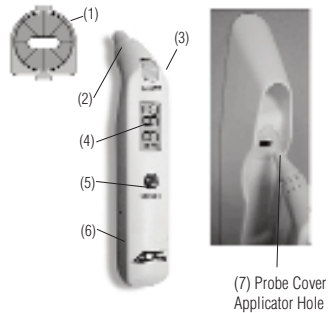
- Earwax in the ear canal may cause a lower temperature reading. Make sure subject's ear canal is clean to ensure an accurate reading. Use caution when cleaning ears.
- The ADC® 424 Digital Ear Thermometer consists of high quality precision parts. Protect it from severe impact and shock. Keep the unit in its storage case when not in use.

### WARNING:

- Please keep the probe covers out of the reach of children. They may present a choking hazard.
- Use of this thermometer is not intended as a substitute for consultation with your physician.
- This thermometer is not waterproof! NEVER immerse into liquids!
- Cleaning the ear canal using improper techniques can harm the inner ear. Follow doctors instructions for proper cleaning.

### 3. Product Description

- (1) Probe Cover
- (2) Probe
- (3) Start button/ mode change
- (4) Display
- (5) ON/OFF button
- (6) Battery Cover
- (7) Storage case/ probe cover applicator




### 4. How to Measure Body Temperature

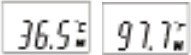

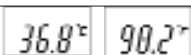

The ADC® 424 Digital Ear Thermometer measures the heat radiated from the eardrum and the surrounding tissue. This energy is collected through the lens and converted to a temperature value. The measured reading obtained directly from the eardrum (Tympanic Membrane) can ensure the most accurate body temperature. Measurements taken from the surrounding tissue of the ear canal generate lower readings and may result in misdiagnosis of a fever.

To avoid an inaccurate measurement:

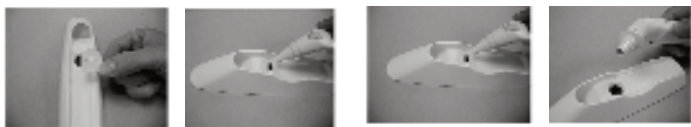
- Use ONLY ADC® probe covers, as this unit is calibrated to work with probe covers.
- Straighten the ear canal by gently pulling the middle of the ear back and up. This ensures measurement of heat from the eardrum. (Please note: Pull outer ear out for new-borns - age 1)
- Place the probe firmly into the ear canal. Press the Start button and keep the probe in the ear until the thermometer beeps to indicate completion of the measurement.
- The 424 Digital Ear Thermometer has been clinically tested and proven to be safe and accurate when used in accordance with operating instructions.

### 5. How to Read the Display

Display	Display Meaning	Description
 98.8°F	Self-check ensures proper functioning	Press the ON/OFF button to turn on the unit. All icons will be shown for 2 seconds.

	Last reading stored in memory.	The last reading will be shown on the display automatically for 3 seconds.
	Ready to measure.	The unit beeps once and the °F or °C icon is flashing.
	Measurement complete °F or °C stops flashing.	Unit beeps once. When the °F or °C starts to flash you can take another temperature.
	Low battery indication. Unit will not take accurate measurements.	The battery icon will flash to remind the user to replace the battery.

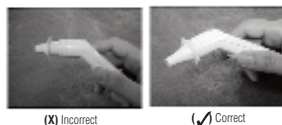
## 6. How to Apply a New Probe Cover



- (1) Place a probe cover onto the storage case hole with paper side upwards. Align the cover to fit the hole exactly.
- (2) Take the unit, vertically penetrate the probe into the center part of the probe cover.
- (3) Completely push the probe into the probe cover holder hole. Push firmly.
- (4) After feeling a slight click, take out the probe. The cover should be securely attached.

**Please Note:** Unit is calibrated to work with probe covers. Only use of ADC® probe covers ensures accuracy and hygienic use.

- In order to avoid spreading germs, please use a new probe cover for each measurement.
- Check to ensure probe cover is fitted on firmly before use (please see the diagrams).
- If the probe cover is broken, discard and apply a new one immediately.



## 7. Directions for Use

Important: Prior to every measurement, fit a new undamaged Probe Cover on the measuring probe. Failure to do so may result in incorrect temperature readings.

1. Press the ON/OFF button. The display is activated to show all symbols for 2 seconds. (Fig. 1)
  2. The last measurement reading will be shown on the display automatically for 3 seconds with the "M" symbol visible. (Fig. 2)
  3. A beep sound is heard. The °C or °F symbol will flash. The thermometer is ready to measure. (Fig. 3)
  4. Straighten the ear canal by pulling the outer ear up and back to give a clear view of the eardrum.
    - Children ages 1 year to adult: Pull the ear up and back. (Fig. 4)
- (Caution: Many pediatricians suggest use of ear thermometers for children older than 6

months.)

- For children under 1 year: Pull the ear straight back (Fig. 5)
5. While pulling the outer ear, insert the probe snugly into the ear canal and press the "START" button. Release it, when you hear a beep sound. A beep indicates measurement is complete. (Fig. 6)
  6. Remove the thermometer from the ear. The display shows the measured temperature.
  7. Replace the probe cover after each measurement. To do this, follow the instructions in section 6, (How to apply a new probe cover).
  8. In order to assure accurate readings, please wait at least 30 seconds after 3-5 continuous measurements.



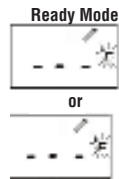
**NOTE:**

- For an infant, it is best to have the child laying flat with head sideways so the ear is facing towards you. For an older child or adult, it is best to stand behind and slightly to the side of the patient.
- Always take measurements in the same ear since temperature readings may be different from the right and left ear.
- Wait a few minutes before taking ear temperature after sleeping.
- It is recommended that three temperatures in the same ear be taken and the highest one taken as the reading. This is very important with:
  - 1) Newborn infants in the first 100 days.
  - 2) Children under three years of age with a compromised immune system and for whom the presence or absence of fever is critical.
  - 3) When the user is learning how to use the IR thermometer for the first time until he/she has familiarized himself/herself with the instrument and obtains consistent readings.

**Caution: If you are not confident with readings obtained, confirm temperature with a standard digital thermometer.**


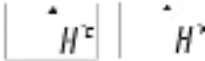
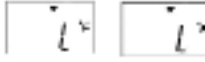
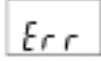

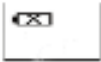
**8. Changing from Fahrenheit to Celsius and vice-versa**

The ADC® Digital 424 Thermometer can display temperature measurements in either Fahrenheit or Celsius. To switch the display between °F and °C, turn the unit off. Press and hold the Start button for 5 seconds, the display will show ---°C or ---°F. Release the Start button. Push the Start button again to toggle between °C or °F. Five seconds after completing the change to °C or °F, the unit will prepare for a measurement, and beep when ready.



**9. Error Messages**

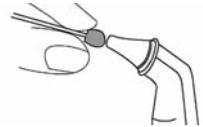
Display Problem	Display Meaning	Possible Cause & Remedy
	Measured Temperature too high	Measured temperature higher than 108.0 °F or 42.2 °C. <b>*Caution!</b>

	Measured Temperature too low	Measured temperature lower than 32 °C or 89.6 °F. See section 7 for proper technique.
	Room temperature too high	Displays "H" in conjunction with the ▲ when room temperature is higher than 40.0 °C or 104.0 °F.
	Room temperature too low	Display "L" in conjunction with the ▼ when room temperature is lower than 10.0 °C or 50.0 °F.
	System malfunction	Check battery. Possible damage from dropping or getting wet.
	Blank display	Dead battery? Check battery polarity. (+ and -)
	Low battery indication	Battery should be replaced immediately.

\* Caution: High fever requires immediate medical attention!

## 10. Cleaning and Storage

- Use an alcohol swab or cotton swab moistened with alcohol (70% Isopropyl) to clean the thermometer casing and the measuring probe. Ensure that no liquid enters the interior of the thermometer.
- Never use abrasive cleaning agents, thinners or gasoline for cleaning and never immerse the instrument in water or other cleaning liquids.
- Take care not to scratch the surface of the lens or display.
- Remove the battery from the instrument if it is not required for extended periods of time in order to avoid damage to the thermometer resulting from a leaking battery.

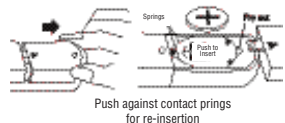


Please Note: Ear wax or dirt on the lens will result in an inaccurate reading. Clean the lens as indicated above.

## 11. Replacing the Battery

The ADC® Digital 424 Ear Thermometer is supplied with one lithium battery, type CR2032. Replace with a new CR2032 battery when the low battery symbol appears on the display.

Use a screwdriver to loosen the screw from battery cover. Remove the battery cover and replace battery. Do not overtighten screw when replacing the cover.



## 12. Warranty

This product was manufactured with the utmost care according to international quality standards. This product is warranted for 2 years against manufacturing defects. Claims beyond this, including claims for damages, are excluded.

- The warranty covers the instrument and the batteries. The packaging is not included.

- Opening or altering the instrument invalidates the warranty.
- The warranty does not cover damage caused by improper handling, discharged batteries, accidents or non-compliance with the operating instructions. Contact ADC® Customer Service Dept. for more information.

### 13. Technical Specifications

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Type:	Ear Thermometer 424
Measuring Range:	89.6°F ~ 108°F (32°C ~ 42.2°C)
Accuracy:	Laboratory: : ±0.2 °C, 32.0 ~ 42.2 °C ±0.4 °F, 89.6 ~ 108.0 °F
Display:	Liquid Crystal Display with 0.1 °C (0.1 °F) resolution.
Beeps When:	a. The unit is turned ON and ready for measurement: (1 short “beep” sound) b. Measurement complete: 1 long beep sound. c. System error, malfunction, or “Hi”/“Low” measurement. 3 short “beep” sounds.
Memory:	Automatically displays the last measured temperature.
Illuminated Display:	a. The display will be lighted for 4 seconds when the (Back-Lite) unit is turned ON. b. The display will be lighted again for 5 seconds when the measurement has been completed.
Operating Temperature:	10°C to 40 °C (50.0 °F to 104 °F)
Storage/Transport Temp:	-25 °C to +55 °C (-13 °F to 131 °F)
Automatic Switch-off:	Approx. 1 minute after last measurement has been taken.
Battery:	1 each CR2032 BATTERY - at least 1000 measurements
Dimensions:	5.5" x 1" x .79" (141mm L x 26 mm W x 20 mm H)
Weight:	1.59oz. (45g) (with battery), 1.41oz. (40g) (w/o battery)
Device Standard:	Device corresponds to the requirements of the standard for infrared thermometers ASTM E 1965, EN 12470-5, ICE 60601-1, IEC 60601-1-2
Electromagnetic Compatibility:	Device fulfills the stipulations of the standard IEC 60601-1-2



ADC  
55 Commerce Drive  
Hauppauge, NY 11788  
U.S.A.

Inspected in the U.S.A.  
Made in China  
tel: 631-273-9600, 1-800-232-2670  
fax: 631-273-9659



ADC (UK) Ltd.  
Unit 6, PO14 1TH  
United Kingdom

[www.adctoday.com](http://www.adctoday.com)  
email: [info@adctoday.com](mailto:info@adctoday.com)