



FREQUENTLY ASKED QUESTIONS

GENERAL SYSTEM QUESTIONS

What is Hothead?

Hothead Technologies is a RFID technology company that uses wireless technology to transmit body measurements such as temperature. Currently, Hothead offers body temperature surveillance, and is working to develop additional capabilities like G-force, heart rate, oxygen saturation, and others.

What is RFID?

RFID is Radio Frequency Identification Device---a short way of saying, a device that transmits information through radio waves.

What is the Hothead System comprised of?

The Heat Observation Technology (H.O.T.TM) System is comprised of two pieces of equipment, and several software systems and programs. The “tag” consists of a printed circuit board (PCB), a battery, a sensor lead wire, and a sensor---all of which are inserted into a piece of headgear. The other piece of equipment is the personal data assistant (PDA). The PDA contains a card that holds the H.O.T.TM System software necessary to operate the PDA in conjunction with the sensors and software. The PDA has a cradle that charges it and uploads data to a computer that holds the H.O.T.TM System main software. The H.O.T.TM System software can be kept on most computers, is Windows® based, and is the main way to build and update your “roster” of personnel and to print reports.

What does the Hothead System measure?

The Heat Observation Technology (H.O.T.TM System) measures the temperature of a person at the temporal artery, just above the eyebrow and on the side of the face where it meets the forehead. The H.O.T.TM System does not measure the “core body temperature.” However, Hothead has conducted many tests to determine the correlation between temporal artery temperature and rectal temperature (the standard for core body), and the system translates the temporal artery temperature to estimate the core body temperature.



Shouldn't it measure core body temperature?

The only way to get true core body temperature is to invade the body---either through the mouth or the rectum. We believe that people will be more comfortable without either of those measurements taking place while they are competing or working---and they can't be monitored remotely.

Aren't there monitoring systems that measure core body temperature?

Rectal thermometers are the "gold standard" for determining core body temperature. There is an item called the HQ pill. It is a very large "electronic thermometer" that must be ingested by a person several hours before exertion, is readable only within inches of the person, and costs about \$30-\$40 per person per event (for a player who does 4 weeks of 5 days of training, and then 2 months of hot weather practices and games, the cost per person per season is over \$2,000 for the pills, not including the reader device). It is a good product for measuring core body temperature, and might be appropriate for an individual who has been identified as having a heat stress problem. However, the cost, and the inability to remotely monitor the readings, prohibit its use as a monitor for a group of people.

What's the difference between temporal artery and core body temperature?

There is an established physiological relationship between skin temperature (forehead temperature) and core temperature. Forehead temperature is used by the medical community and is certainly very practical for the purposes of early identification of overheating. By placing the sensor in the headgear, the individuals who are monitored don't have to do anything more than they usually do---just put on their helmet. In fact, they don't even need to turn on the system---it's always on for them. The only person who needs to activate the system is the supervisor, and he does so by turning on the PDA.

Can the Hothead system monitor anything other than body temperature?

We are currently working to add several more sensors to the H.O.T.TM System, and expect that we will soon have the ability to measure heart rate, oxygen saturation, and the g-force of an impact (for assessing concussions). Of course, we expect that we'll develop some other capabilities that we don't know yet. So, the system we built is capable of receiving and transmitting information from a number of different sensors.



Won't the ambient temperature affect the temperature reading?

No, the only temperature that the sensor will measure is the temperature of the skin that it is touching. However, when the headgear is not being worn, the sensor reading will. The System will take a minute or two to get up to the correct temperature, and after that it will begin to report accurate temperatures again.

PLEASE NOTE: THE SYSTEM WILL NOT REPORT BODY TEMPERATURES IF THE USER IS NOT WEARING HEADGEAR CONTAINING THE H.O.T.™ SYSTEM TAG!

At what temperature does the System signal that a player should be checked for overheating?

It is user-selectable. We will work with your organization to set the threshold for the "alert temperature" for your use and application. In general, the temperature for heat exhaustion is between 98.6° and 104° Fahrenheit. Heat stroke occurs at any core temperature above 104° Fahrenheit. We generally recommend that you set a threshold temperature of 102.5° F.

Has the system been tested in real-life situations?

Of course, we wouldn't put it in the market until it was fully tested. We conducted in-house laboratory tests, had a full independent study conducted by Kennesaw State University, have field tested it with several division I colleges such as Penn State, Texas, Ole Miss, TCU and South Florida. Further, the University of Florida Gators put our system to the test during its 2010 spring drills, and gave it a Perfect 10. Additionally, for our firefighter and safety applications, we have been testing with fire units in live burn situations.

How many sensors can be monitored simultaneously?

Up to one thousand (1,000) tags can be monitored by a PDA, so if you have several teams in your organization (school or league), you should consider saving money by obtaining only one PDA for all of the teams / players. Please call us to discuss the specific circumstances in your situation so we can explore the best system and pricing for you.

How far can one be from the PDA and still be monitored by it?

We warranty that the System will measure up to 300 yards. It has been known to do better than that, but distance beyond 300 yards will depend on various circumstances.



Will I feel the sensor against my forehead?

Probably not. We try to use materials similar to those that are in your headgear sweatband or forehead padding. The sensor is very tiny. We haven't had any complaints yet.

Can the tag be used with any type of headgear?

The H.O.T.TM system tags can be purchased "embedded" in helmets from Schutt Sports, Inc., or fitted into any helmet on the market, from football helmets by Schutt or others, to fire helmets, hardhats, or any helmet that makes sufficient contact with the temporal artery area. Hothead also offers headbands into which the tags can be inserted and worn alone or under/inside a helmet.

Is there a risk of illness or cancer from the radio transmissions so close to my head (as has been reported with cell phones)?

No, as the transmission power of the System is about 1/100th of a cell phone.

Why did you choose Kennesaw State University to test the technology?

The Wellstar College of Health and Human Services at Kennesaw State University has a strong reputation for conducting studies designed to benefit the community. The H.O.T.TM System is also designed to benefit the all of us, therefore, our missions are highly compatible. In addition, Dr. Laurie Tis, PhD, ATC, FACSM, Associate Dean for the Wellstar College of Health and Human Services, is a nationally recognized scholar and certified athletic trainer. We knew her expertise would be critical to the success and acceptance of the project.

HOW TO USE THE SYSTEM

Who is responsible for monitoring the PDA and removing athletes from play?

Your organization decides who should monitor the equipment and who should make the decisions about removing and returning people to work or play. When the PDA alerts that a person has exceeded the threshold temperature, the supervisor must acknowledge that alert and change that person's "status" to turn off the alarm. The monitor can "remove from work/play" or "send to medical" or other actions. Either way, the PDA tracks, records and time-stamps the actions.



Does a coach really need technology to know when a person is overheating?

Yes. Many times athletes and workers will push themselves until they are in a heat stress zone and not tell their supervisor or coach in fear of losing a position, work hours, or raising questions about his ability to perform. Heat exhaustion and heat stroke will cause a number of symptoms, from short term to long term health problems. The H.O.T.™ System is designed to give an “early” warning system so that people don’t suffer any of the problems of overheating---this may require a short term removal from play or work, but will eliminate days or weeks of inability to perform.

What information do I get from using the System?

While using the System the person assigned to monitor the PDA can determine the status—Good, Attention, Alert---of each individual user. Further, he can observe the real-time temperature of each user. If a user’s temperature exceeds a pre-set threshold temperature, the PDA will audibly and visually signal an alert, specifically identifying the individual who is on the verge of overheating. After any session, the data from the PDA can be uploaded to a computer and used to print reports showing peak temperatures, trends, and other helpful information.

SYSTEM SPECIFICATIONS

What type of software system does the PDA use?

The PDA is a Windows® based system, so the user screens are operate in a computer environment with which the users are familiar. All of the operations are touch-screen operable with a stylus or finger. The actual H.O.T.™ System software is proprietary.

How is the H.O.T.™ System powered?

The tag has a lithium battery incorporated in it. The battery will operate for as long as the license for use of the System.

Is this a weather-proof device?

Technology developers reached out to General Electric, and together designed a non-invasive encapsulate that isolates the sensor from any element that could interfere with readings, including rain, sweat, exterior heat and wind.



What are the special hardware requirements of the receiving unit?

The receiving unit, our proprietary PDA device loaded with the H.O.T.TM System software, is “plug and play.” It comes with a cradle to recharge the battery, download periodic updates for the software system, and upload data for use with the computer-based software system.

COST OF THE SYSTEM

How much does the system cost?

The total cost will depend on the type of application, and the total system requirements, you desire to obtain. Please call or email us for a quote to discuss your application requirements and a quote.

Can I purchase the H.O.T.TM System? And how long does it last?

Typically, Hothead Technologies will sell the tags and PDA to you, and license the software system for a period of time, usually one or two years. If you decide to renew your license, you will have to order new tags, with or without additional capabilities, and enter into a new license agreement. You may choose to purchase a new PDA at that time too, but it likely will not be necessary, as you can upload the current version of the software.

Can I get an insurance coverage reduction for using the H.O.T.TM System?

We have not learned of any insurance companies that have agreed to do so, but it certainly is worth asking your provider because your organization is taking active measures to reduce the risk to its students/players of heat illness and death.

Who pays for the H.O.T.TM System for my son’s football team? Whom do I contact at my school system to tell them we want the H.O.T.TM System?

We highly recommend that you undertake a joint effort between your school risk management team (may be at the district or higher level), the school principal, Athletic Director, team Coach, and the Booster Club. Though school budgets have been slashed almost everywhere, this device is designed to reduce liability risks for the schools, and for that reason could lead to reduced insurance rates. Further, we suggest some creative solutions to financing, such as splitting costs between the school, the Booster Club, and the players’ parents. For example, the school could pay the cost of the PDA and software license, and the Booster Club and parents could pay the cost of the individual helmet sensors.



TECHNICAL SUPPORT

What if the wire becomes disconnected or cut between the sensor patch to the rubber-coated electronic component?

The hard-wired portion of the H.O.T.™ System, from a sensor to the “tag,” requires a wire---so if it is disconnected for any reason, you will have to replace it. We do take care to prevent them from being ripped from the “tag” housing by wrapping it around an “anchor” before feeding it out of the “tag”.

Can I re-attach the sensor if it is removed from the helmet?

You can remove the entire “tag,” the rubber coated piece with the printed circuit board, battery, wire and sensor. You can reattach it to another piece of headgear if you like. However, if you do so, you must ensure that the sensor is secured to the headgear in the proper location and securely enough to stay attached.

Can I repair the components inside the rubber-coated casing?

No. The rubber casing is intended to be permanently sealed. This ensures that the “tag” keeps its waterproof ability, and that the components work as they are supposed to work. Opening the rubber casing will void all warranties, tech support, and assistance.

Can I remove and replace the battery in the “tag”?

No. Doing so will void all warranties, tech support, and assistance. Additionally, you couldn't reconnect and attach the unit properly.

Whom do I call if I have problems with the H.O.T.™ System?

Call Hothead Technologies at the Technical Help Line. Check the website at www.hotheadtechnologies.com for the number.