

CorTemp[®]

Core Body Temperature
Monitoring Systems



Convenient
Accurate
Realtime
Wireless

The CorTemp[®] core body temperature monitoring system, featuring the CorTemp[®] ingestible temperature sensor, monitors, records and reports core body temperature accurately, wirelessly, and comfortably...even during periods of high physical activity

98.6°
37.0°C



When Absolute Accuracy Is Critical...

A NASA® Originating Technology

The CorTemp® core body temperature sensor technology was developed in the mid 1980's by the Johns Hopkins Applied Physics Laboratory in collaboration with the Goddard Space Flight Center.

Introduced as the "ingestible thermometer pill", the sensor was

used to monitor deep internal core body temperature in astronauts to detect hypothermic and hyperthermic conditions during space flight. HQ, Inc. licensed the sensor in 1988 for widespread commercial use and today the CorTemp® core body temperature monitoring system is globally recognized and used in sport, military, occupational safety, medicine, research, agriculture, and industrial applications.

Why Use CorTemp®?

Accurate core body temperature reveals vital information for treatment and study in both active and inactive subjects and when monitoring and preventing heat stroke in athletes on the field. Yet, before CorTemp®, monitoring in non-laboratory environments proved difficult, if not impossible. The absence of catheters, probes and wire connections frees ambulatory patients, athletes and research subjects from discomfort and confinement. CorTemp® brings new comfort to bedside monitoring in surgery, recovery, ICU, sleep study and other resting environments.

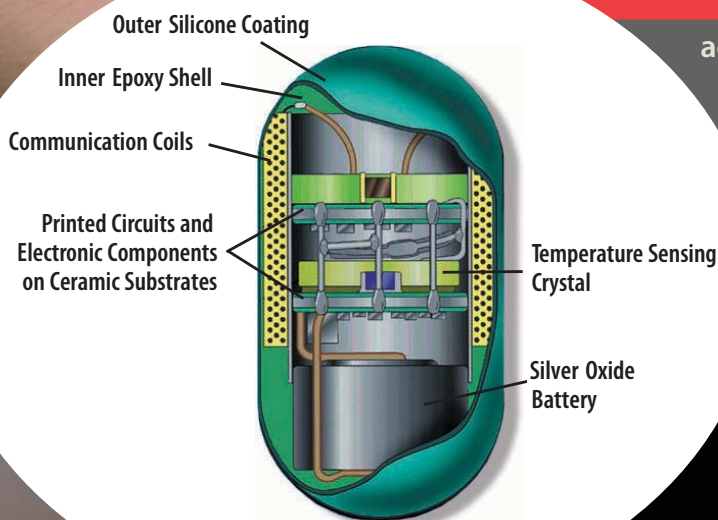
Accurate core body temperature measurement is critical when monitoring athletes in hot environments. Research indicates that external methods of temperature measurement, such as tympanic, temporal, or other measurement devices are not

accurate in assessing core body temperature during intensive activity in the heat. The CorTemp® system will enable you to monitor your at risk athletes and evaluate the effectiveness of cooling methods so cooling can be applied to the athletes that need it the most.

±0.1°C



Space-Age Technology



How the CorTemp® Sensor Works

The silicone coated sensor contains a micro battery, quartz crystal, communication coil and circuit board, all encapsulated in medical grade epoxy. Once ingested, the crystal sensor vibrates at a frequency relative to the body's internal temperature, produces a magnetic flux and transmits a low-frequency signal harmlessly through the body. The sensor passes through the body at the subject's normal rate of motility which can vary anywhere from 24-36 hours. Monitoring can be extended by administering another sensor after the initial pill has passed. The CorTemp® sensor is accurate to ±0.1°C and is FDA cleared and registered as a single use device.

CorTemp® Delivers...Everytime.

What Customers Say about CorTemp®

"For the last 5 years we have used the CorTemp® sensors to study temperature responses in college and professional football players. We had not realized the incredible clinical use of these sensors until we had an asymptomatic professional lineman with a core temperature of 105.7 °F. He was removed from practice and quickly cooled while his core temperature was being continuously monitored. We may have saved his life!"

"The CorTemp® System worked flawlessly for us during our response to an extremely hot (130-140 F) indoor environment where we had to wear chemical protective suits. The handheld PDA was the perfect application for keeping a real-time check on our vitals."

"We have successfully used HQ, Inc. CorTemp® core body temperature monitoring systems since 2002 with both emergency service and military personnel. The systems have given us

the flexibility and accuracy we need to conduct a number of physically demanding field trials where the use of the "gold standard" rectal thermometers would not have been accepted, or tolerated by our participants for such prolonged monitoring periods."

"In addition to its universal acceptance by all of our participants, the development of the CorTemp® RF capability has enabled us to remotely monitor core body temperature in real time during some of our more realistic scenario simulations. For example, we were able to continuously monitor the core body temperature of a team of 10 firefighters responding to a simulated high rise building fire, where temperatures in the firehouse exceeded 200 °C (at 2 m above floor) and visibility was almost zero due to smoke. We were able to stand at a safe distance outside the firehouse, and continue to monitor

the core body temperature of all the participants during the scenario, ensuring their wellbeing during the simulation. Firefighters who became too warm during the trials could then be safely withdrawn and cooled, thereby minimizing the danger of developing any heat illness during the scenario. This was an essential ethics requirement for our study, and would not have been possible without the RF capabilities of the HQ, Inc. CorTemp® system."

"The CorTemp® system has been a fantastic addition to our Heat Illness Prevention Protocol in keeping our athletes safe. We have seen a significant impact in our extremely hot, humid environment in reduction of heat related problems by earlier identification of struggling athletes. The support through HQ, Inc. has been second to none and made it very easy to use and apply to our program."

CorTemp® Data Recorder

The data recorder detects the signal from the CorTemp® sensor, then displays and stores the data in memory. The unit can be preprogrammed manually or via the CorTrack® II software. A clinician can easily transfer the recorder's data directly to a PC platform where the data can be read into Excel® or similar spreadsheet program for analysis. The data recorder will monitor up to 99 different CorTemp® sensors and can be either worn by a subject for continuous monitoring or can be used to take random, manual readings of multiple subjects in a field or laboratory setting. Polar® Heart Rate is an optional feature available on the CorTemp® data recorder.

Long Range RF Remote Transmission

RF modules are available as accessories to the CorTemp® recorder system. The RF accessories enable remote, wireless data transmission up to a 300 ft. line of sight distance to an RF base station. Data can be viewed in real-time on a PC or handheld.

Data Recorder



CorTemp® Product Specifications

CorTemp® Data Recorder

Size:	L 4.72"/W 2.36"/H .98"
Weight:	6.8 ounces
Antenna:	Internal with 65 cm effective range
Power:	9V DC
Continuous Operating Time:	Battery life/sample rate dependent
Sampling Rate:	User programmable, 10 secs to hourly
Display:	Two-line liquid crystal alpha-numeric 2x16 character
Data Entry:	16-pad keyboard, or via proprietary PC compatible software
Operating Temp Range:	0 degrees C to +50 degrees C (32 deg. - 122 deg. F)
Data Storage:	25,000 data points
Data Display/Recording:	Time-correlated temperature (F or C) data for as many as 99 preprogrammed sensor calibration numbers
Data Output:	Serial RS232 to IBM compatible computer. Data filtering software, Excel® graphing spreadsheet template, and data transfer cable provided
Recorder Calibration:	Factory calibration required on annual basis
Miscellaneous:	Carrying case with belt loop, durable padded storage/travel case, and CorTemp® User's Manual are included
Warranty:	90 days parts and service, one-year extended warranty available

Polar® is a registered trademark of PolarElectro, Inc.

ProCare

We take intensive Care

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CorTemp® Ingestible Thermometer Pill

Size:	L 0.88" (22.352mm) approx. Dia. 0.42" (10.9mm) approx.
Sensor Element:	Crystal
Transmission Method:	Near field magnetic link
Frequency:	262 khz
Temperature Range:	30 degrees C to 45 degrees C (86 degrees F to 113 degrees F)
Accuracy:	± 0.1 degree C
Effective Range:	24" minimum
Power Source:	Silver oxide battery
Capsule Material:	Dimethyl Polysiloxane (silicone) Complies w/21CFR177.260 & 175.300 USFDA Regulations
Battery Life:	Approx. 7-10 days
Usage:	One-time use only
Patented:	U.S. Patent #4,844,076
Calibration:	Factory calibrated
Warranty:	90 days
FDA:	Registered and cleared 510K No. K880639

Other CorTemp® Products

- Customized Sensors for Use in Animal and Industrial Applications
- Polar® Heart Rate Upgrade Option Available
- Sensor Signal Detector/Alarm
- High/Low Alarm Adaptors
- Long Range RF Remote Transmission Accessories

About HQ, Inc.

HQ, Inc. is a privately held company located in Palmetto, FL. We are the global leader in designing, manufacturing and marketing of leading edge, wireless, temperature monitoring systems for sport, research, industry, and medicine. For over 20 years, we have been committed to providing reliable, high quality products in a consistent manner to ensure customer satisfaction and loyalty.

