# Special *PP&P* Buyer's Guide:
# Wireless Temperature Monitoring Systems

MONITORING TEMPERATURES IN YOUR MEDICATION STORAGE AREAS, when done manually, is a time-consuming and tedious – yet absolutely necessary – task. Fortunately, there is a viable and easy-to-implement technology to automate this process: the wireless temperature monitoring system. Comprising hardware, software, and a personal computer or server, a wireless temperature monitoring system measures temperatures with a probe that transmits data, via a radio frequency signal, to a receiver. The receiver is connected to the hospital's internal computer network, which routes temperature data to a PC equipped with system software that stores the data and determines if an alert should be triggered for out-of-range conditions. Users can view temperature data, respond to alarms, document follow-up actions, and generate summary reports from the computer.

In our annual "State of Pharmacy Automation" survey, *Pharmacy Purchasing & Products* polled directors of pharmacy on their rate of implementation of wireless temperature monitoring systems. Results indicate that a significant majority (85.6%) of facilities do not yet use this technology (see Figure 1). However, nearly half (47.1%) have plans to install a wireless temperature monitoring system in the future, indicating strong growth for this product class in the years to come. Interestingly, although a staggering 95.5% of pharmacists report satisfaction with their wireless temperature monitoring system (see Figure 2), 42.8% report they do not know the name of the vendor system in use at their facilities.

With this in mind, *PP&P* seeks to increase your awareness of the available systems and brings you the following buyer's guide, offering descriptions of some of the products in the market. You can use this buyer's guide to research your options and learn about the numerous vendors offering wireless temperature monitoring systems today. **To receive more information about any of the products listed in the guide, simply circle their corresponding numbers on the free reader service card bound in this issue.** You can also use the card to renew your free subscription to *PP&P*.

## Features to Consider During System Selection

- **Compatibility with Your Environment**: Will the system's radio frequency signals interfere with other systems, such as telemetry or portable phones? Are the software and network requirements compatible with your current systems? Your biomedical engineering, facilities, and IT departments should be able to answer these questions.

- **Customizable Alert Features**: Does the vendor offer several notification methods, such as e-mail, pages, and computer pop-up screens?

- **Responding to Alerts:** Does the system allow you to easily document follow-up actions taken after an alert?

- **Maintenance:** Will the system inform you if any components (i.e., transmitters, receivers, and probes) are malfunctioning or require attention?

- **Probe Options**: Air probes are standard for most systems, but submersible probes, which are less susceptible to temperature fluctuations during med passes, can cut down on "false alarms" in high-use refrigerators and freezers.

- **Documentation Features**: Does the system's software allow you to generate reports that illustrate trends in your medication storage areas? Does it track all of the information required by the Joint Commission, CMS, CDC, and your state board of pharmacy?

**Figure 1. Wireless Temperature Monitoring Systems In Use**

While a minority of health systems are currently using these systems, 47.1% plan to install a wireless temperature monitoring system in the near future.
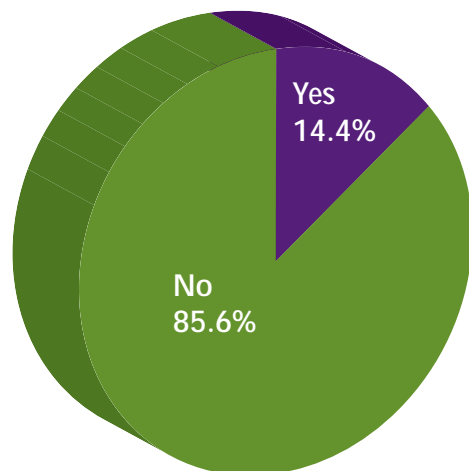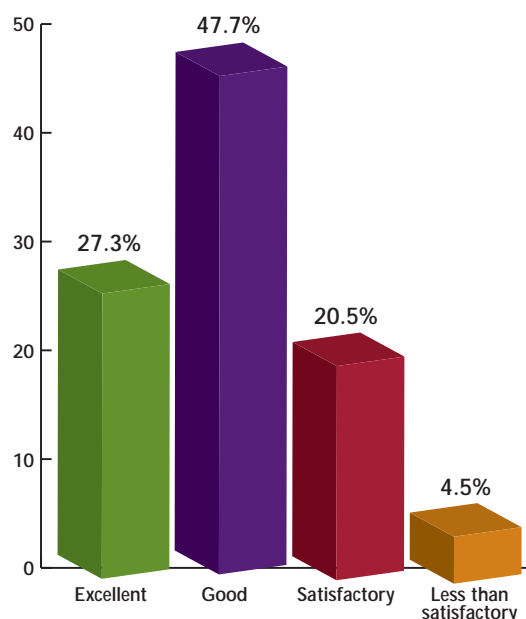


Yes 14.4%

No 85.6%

## Figure 2. **Wireless Temperature Monitoring System Satisfaction**

**A vast majority of users report satisfaction with their wireless temperature monitoring systems.**



▶ **Aegis Scientific, Inc.**
**Circle reader service number 150**
or visit www.aegisfridge.com

The Aegis Wireless Network Monitor can monitor temperature conditions across all of your facility's depart-ments, from pharmacy to surgery. The



system consists of a wireless temper-ature module, which serves as the pri-mary measuring device and collects data from the refrigeration unit; a wireless environment manager, which receives data from the wireless tem-perature modules and serves as a net-work access point; and the Web-based INM software platform, through which users can view temperature logs, daily reports, and alerts.
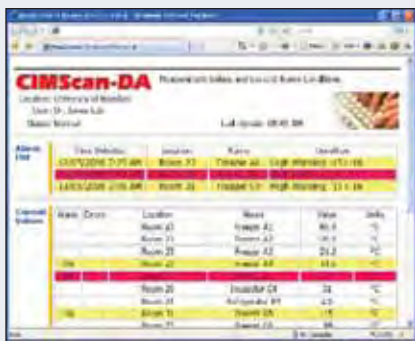
▶ **CIMTechniques, Inc.**
**Circle reader service number 151** or visit www.cimtechniques.com

CIMScan-6 monitors multiple points for temperature and humidity, relays data continuously, produces custom reports, and immediately alerts staff when there is out-of-range data. Facilities can choose between a variety of probes. Able to monitor medication storage conditions in up to eight refrigerators, freezers, or incubators, compact CIMScan Remote Monitoring Stations link to a CIMScan host via a facility's existing LAN. The stations contain built-in data buffering and can alert personnel to abnormal conditions, even during LAN drops or network outages. The CIMScan software allows users to view the current conditions remotely and displays alarm lists and organizes measurement values in spreadsheets. Users can view a recent history of one or more monitoring points in a strip or trend-chart format.

▶ **Hampshire Controls**
**Circle reader service number 155** or visit www.hampshirecontrols.com

The CMS-II temperature monitoring system runs off an industry standard SQL server, can operate on its own or in an existing IT environment, and is compatible with third-party maintenance tools. The system allows users to create custom reports using off-the-shelf SQL reporting software. Multiple simultaneous users can access the system from anywhere on your network. A notification client provides location-specific alarm notification on any networked PC. Facilities can use both wireless and wired sensors, and the system is compatible with third-party backup tools.

▶ **Cooper-Atkins Corporation**
**Circle reader service number 153** or visit www.cooper-atkins.com

The Temp Trak Wireless Monitoring System has the ability to monitor:
• temperatures from -200ºC to +450ºC
• humidity
• open and close status
• moisture/leak detection
• and – soon to be introduced – an analog transmitter that can support a variety of sensors.

The Temp Trak System samples temperatures once a minute and transmits temperature data once every five minutes, if the equipment has not had a drastic temperature swing. Protected through user IDs and passwords, the Temp Trak software automatically logs data for multiple medication storage areas. Transmitted data is stored in a central server within your facility and is archived indefinitely. The Temp Trak system analyzes reported temperatures against a set of pre-configured parameters, and sends a series of alert notifications if data is out of a specified range. Notifications can be delivered via e-mail, telephone, pager, message board, lights, sirens, alarm systems, and computer screen pop-ups. Temp Trak also provides a variety of standard reporting tools and data can be shown in graphs or tabular reports. Temperature data can also be exported into Excel.

▶ **Isensix, Inc.**
**Circle reader service number 156** or visit www.isensix.com

The Isensix Advanced Remote Monitoring System (ARMS) continuously monitors parameters, such as refrigerator and freezer temperatures, room temperature, and humidity. With a broad suite of sensors and applications, ARMS was designed to enable pharmacies to maintain the highest level of quality assurance and more efficiently meet USP <797> and JCAHO requirements. ARMS's data management system utilizes a centralized Web-based architecture and real-time data/documentation capture.

### ▶ Rees Scientific Corporation
**Circle reader service number 158** or visit www.reesscientific.com

Rees Scientific's Environmental Monitoring Systems (EMS) offer centralized alarm notification and data collection on an independent, validated, networked, or Web-based platform. Wireless and/or hardwire sensors automatically monitor critical areas to replace manual readings. The CentronSQL runs on a SQL or Oracle platform and features advanced and custom Crystal Reports capabilities; sonic, relay, text messaging, and e-mail alert notification; and pre-alarm alerts to provide early warnings. Integration with building automation/maintenance systems and time zone management for multiple site facilities will soon be available.

### ▶ Sensicast Systems, Inc.
**Circle reader service number 159** or visit www.sensicast.com

The SensiNet general purpose temperature starter kit provides the SensiNet Temperature and Humidity Smart Sensors and probes necessary to measure ambient temperature and humidity in a wide variety of environments. Each of the two-temperature sensors can support two probes that can measure the temperature of many different types of materials. SensiNet tracks conditions, eliminating manual data retrieval and reporting.

### ▶ Freshloc Technologies, Inc.
**Circle reader service number 165** or visit www.freshloc.com

The FreshLoc Monitoring System includes wireless sensors that monitor temperature in chilled areas, sending signals every 30 seconds and enabling alerts for out-of-range conditions. A reader receives signals from the sensors and transmits them to a PC via the Web, allowing users to view real-time temperature readings from any networked PC. FreshLoc's TempAssure Software is Windows-based and manages all of the system components.

### ▶ Veriteq Instruments, Inc.
**Circle reader service number 163** or visit www.veriteq.com

viewLinc 3.0 browser-based monitoring and alarming software allows users to remotely monitor temperature and relative humidity (RH) from any PC on a network in real time. System capabilities include a multi-stage alarm for out-of-tolerance conditions, sent locally or across a network, and alert preferences that can be set for cell phone, pager, e-mail, or PC notification. Using Spectrum software, users can graph and analyze historical data.

### ▶ TempSys, Inc.
**Circle reader service number 161**
or visit www.checkpointwireless.com

The CheckPoint G3 wireless temperature monitoring system can be used hospital-wide and utilizes wireless, battery-operated, waterproof sensors that have been drop-tested and have up to one year of memory. During a computer failure or power outage, each sensor individually stores data and automatically downloads it upon system restore. CheckPoint can monitor temperatures from -200°C to +250°C, $CO_2$ levels, relative humidity, door closure, motion, and differential air pressure. A dual temperature sensor can simultaneously monitor the upper and lower temperatures of a refrigerator.

### ▶ Accsense, Inc.
**Circle reader service number 148**
or visit www.accsense.com

Accsense's Web-based wireless monitoring system tracks temperatures, $CO_2$ levels, humidity, and other measurements in refrigerators, freezers, and other medication storage areas, as well as incubators. Alarm notifications can be sent via e-mail, phone, or pager if problems arise. Reports can be printed to demonstrate that products are under consistent control. Accsense sensor pods are compatible with a range of standard external plug-in sensors and probes, and because Accsense's reporting platform is a secure online service, there is no software to install.

## findit
findit.pppmag.com

### WHERE TO FIND: Wireless Temperature Monitoring Systems

**www.findit.pppmag.com**

| Vendor | Reader Service Number |
|---|---|
| Accsense, Inc. | 148 |
| Aegis Scientific Inc. | 150 |
| CIMTechniques, Inc. | 151 |
| Cooper-Atkins Corporation | 153 |
| Freshloc Technologies, Inc. | 165 |
| Hampshire Controls | 155 |
| Isensix, Inc. | 156 |
| Rees Scientific Corporation | 158 |
| Sensicast Systems, Inc. | 159 |
| TempSys, Inc. | 161 |
| Veriteq Instruments, Inc. | 163 |