



Zebra Technologies Environmental Sensors Bring Visibility and Cold Chain Confidence to Environmentally Sensitive Products

Zebra environmental sensors provide insights into products, such as biologics and pharmaceuticals when temperature limits have been exceeded during transit, storage, and utilization.

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Company Background

Zebra (NASDAQ: ZBRA) helps organizations monitor, anticipate, and accelerate workflows by empowering their frontline and ensuring that everyone and everything is visible, connected, and fully optimized. Our award-winning portfolio spans software to innovations in robotics, machine vision, automation, and digital decisioning, all backed by a 50+ year legacy in scanning, track-and-trace, and mobile computing solutions. With an ecosystem of 10,000 partners across more than 100 countries, Zebra's customers include over 80% of the Fortune 500. Newsweek recently recognized Zebra as one of America's Most Loved Workplaces and Greatest Workplaces for Diversity, and we are on the Fast Company's list of the Best Workplaces for Innovators. Learn more at zebra.com or sign up for news alerts. Follow Zebra's Your Edge blog, LinkedIn, Twitter, and Facebook, and check out our Story Hub: Zebra Perspectives.

Product Overview

For more than 50 years, Zebra has delivered innovative solutions and technologies that help organizations manage their inventories and activities — from barcode printers and scanners to RFID tags and readers, to mobile and wearable computers, to enterprise software and more.

Our comprehensive temperature monitoring and sensing portfolio meets the cold chain needs of specialty pharmacies and their patients. This portfolio includes:

- Visual, low-cost, chemically based heat and freeze indicators for blood products, vaccines, biologics, and other medication during shipment.
- Printable indicators for monitoring the temperature of medications during shipment.

Wireless Bluetooth Electronic Sensor

The ZS300 wireless Bluetooth® enabled sensors monitor and record temperature at regular intervals in storage and shipping applications. The ZS300 is a fully configurable datalogger which is ideal for monitoring temperatures during transport, allowing users to:

- View and share temperature data via an Android mobile device.
- Customize alarm limits, datalogging intervals, startup options, and more.
- Securely store data in the cloud and generate reports.

It's the perfect solution for conducting pack out testing or for use when couriers medications. Additionally, the ZS300 can be used for

monitoring temperature in medication storage areas between -40° F – +185° F (-40° C – +85° C) to help with accreditation, compliance, and regulatory requirements. Data is uploaded automatically via the ZB200 Bridge or mobile device which can be accessed remotely and provides customized alerts to notify users instantly if there have been any temperature excursions. It's available with a full suite of enterprise software development tools to easily integrate into existing software solutions.

■ Product Use Cases

- Wireless Bluetooth electronic sensors to monitor medication, biologics, and other temperature-sensitive products during shipment and storage utilizing a cloud-based storage and alerting system.

Zebra is striving to improve supply chain efficiency, global health, and patient care through the effective deployment of devices and solutions that identify temperature excursions and provide information so that action can be taken.

Ready to Use Environmental Indicators

TransTracker® visual temperature indicators monitor medication heat and freeze events during shipment. They are simple to read and understand, so patients can tell immediately if medication has been handled within the appropriate temperature range. These devices instill a higher level of patient confidence so that unnecessary, costly reshipments due to suspected temperature damage can be reduced or eliminated. These cost-effective, single-use indicators also help specialty pharmacies comply with state regulations.

FREEZEmarker® easy-to-read freeze indicators provide supply chain intelligence and a visual indication when temperature-sensitive products are exposed to freeze events. With its advanced freeze detection technology, this temperature indicator monitors environmental conditions to help manage your environmentally sensitive supply chain.

LIMITmarker® provides an easy-to-read, irreversible visual signal within the specified response time that heat exposure at or above the response temperature has occurred. It is adhesive-backed and can be applied directly to product surfaces or packaging. The indicating “window” on the label changes color when the response temperature has been exceeded.

Package Performance Qualification Testing

For specialty pharmacies, Packaging Qualification Field Testing (PQ) ensures that the shipment packaging can provide the necessary temperature range for the required period during transport of critical and often lifesaving medications to patients. More than that, PQ testing is also required for certain pharmacy accreditations, such as URAC. Customized 3rd-party PQ testing services also help meet the requirements of pharmacy networks that make third-party validation testing a condition of participation.