

## ***EDX SYSTEM OVERVIEW***

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The **EDX** system was designed to monitor temperature and humidity conditions 24 hours a day, 7 days a week, and 365 days a year. Using the validated **EDX** platform, with its unique data management and portal system, users can store, and then securely access their temperature and humidity data across the entire cold chain.

The **EDX** system makes use of a number of different electronic devices to collect temperature and humidity data across the entire cold chain. In warehouse and fixed location settings, license-free wireless sensors collect and report environmental conditions in real-time to the validated **EDX** web based application. For in-transit, or remote conditions, the **EDX** system makes use of portable electronic data loggers that collect temperature and humidity conditions in their on-board memory for downloading and transmission to the **EDX** application at appropriate intervals. In the background, the **EDX** platform provides a structured validated environment in which data from multiple collection locations and devices are integrated to provide comprehensive database of environmental conditions, across the complete cold chain, which can be easily and securely accessed by users.

### **Wireless Components and Network Description**

**IMS'** advanced wireless technology provides clear advantages for warehouse and facility installations in terms of cost, size, power, flexibility, and distributed intelligence as an effective method of transmitting data over long distances. The **EDX** system provides cost and performance benefits that rival and exceed those of hardwired systems, including:

- Utilize existing WiFi 802.11 network
- Faster installation and reduced costs.
- Operates in RF-dense environments.
- Tolerates extended temperatures (-200° to +200°C)
- Small form factor fits inside space-constrained enclosures.
- Device level logging for increased reliability
- Device level alerting (audio & visual).
- Less invasive than cable installation.
- Up to 5 years battery life.

The central element of the **EDX** web based system is the wireless temperature and humidity sensors, which are battery operated digital sensors, with a microprocessor controlled FCC certified radio transmitter. The sensor also has an on-board time of day clock that allows it to spend most of the time in a low power quiescent (sleep) state. This architecture allows **EDX** sensors to consume very low energy resulting in a battery life of up to 5 years.

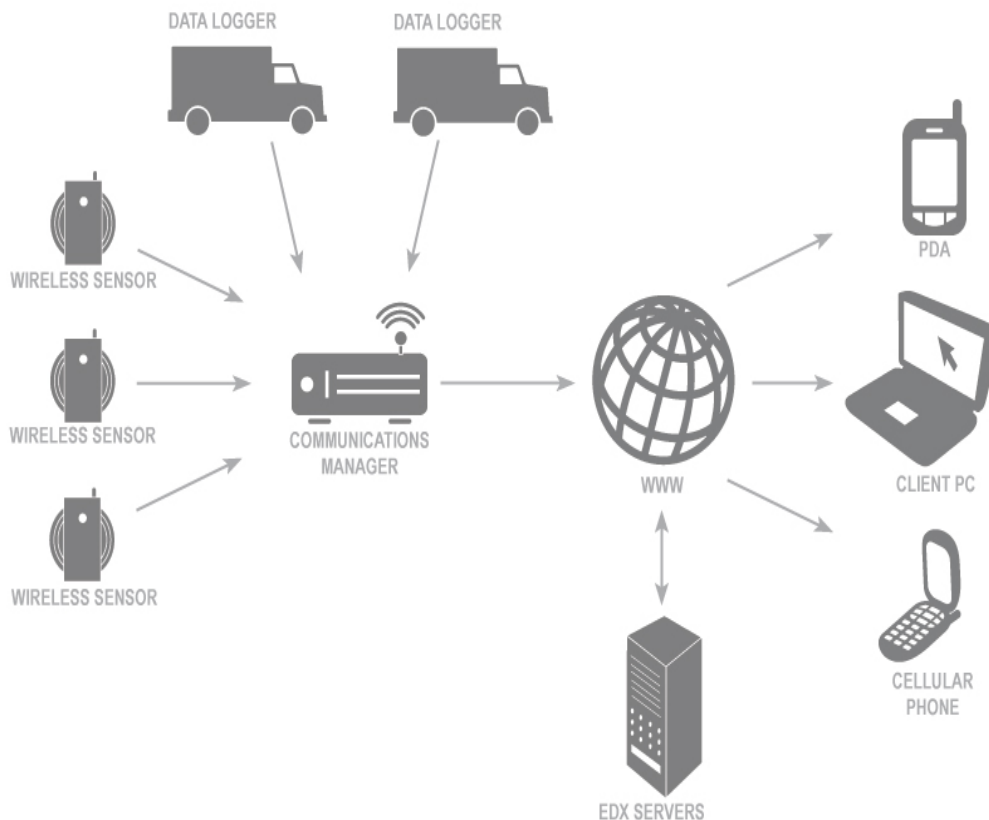
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Wireless networked systems differ from conventional centralized monitoring systems in that they employ a highly distributed architecture. Each sensor is independent and capable of collecting data on its own, without a reliance on a network or power connection. Its data is also highly accessible, on a historical and real-time basis which permits central monitoring and alarming. This architecture makes the **EDX** system exceptionally easy to install, scalable, accessible, reliable, and cost-effective.

The following diagram outlines the typical topology for an **IMS** wireless system. Hardware specifications are available upon request.

*Diagram 1 – EDX Wireless System Topology*



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### **EDX Platform Description**

The following paragraphs outline a number of system components, and their functions within the validated **EDX** application:

**Web based-** The **EDX** system is a secure, validated web based application that gives users the ability to access information from any computer or internet enabled device. Multiple sites, departments and zones can be viewed from one secure login.

**Real-time Monitoring** - The **EDX** system provides the means to easily access current sensor readings and alarm conditions.

**Historical Monitoring** – Historical data can be retrieved for later analysis in tabular reports, min/max reports or graph format.

**Automated reports** – All reports can be emailed in PDF format daily, weekly and monthly for specific sensors, locations and zones.

**Thermal mapping and floor plan views** – The **EDX** system can display facility floor plans with sensor locations, current readings and alarm conditions. For a more detailed analysis live thermal imaging can be generated to help identify areas of concern.

**Out of Range Alerts** – Each **EDX** system can be configured to send out of range alerts via cell phone, text message or phone call based on user definable thresholds.

**EDX Flexibility-** The **EDX** system has been designed for maximum flexibility by allowing multiple transmitter types the ability to report, including but not limited to WiFi 802.11, 900 MHz, 418MHz and independent data logger.

**Robust Sensing** – The **EDX** system can monitor multiple environmental conditions including temperature, humidity, flood detection, pressure differential, air flow, vibration, open/ close door and power consumption.

**In Transit Monitoring** – The **EDX** system incorporates the use of portable temperature and humidity data loggers as part of its systems to collect relevant data, in remote or in-transit situations. The value of data loggers is that they contain on-board memory to store the temperature profiles, which can be downloaded to the **EDX** application at appropriate intervals.