

Healthcare Applications with Airborne™ Embedded Wireless Device Server Modules and Radios

Airborne™ Embedded Wireless Device Server (Serial to Wireless LAN) Modules and Radios are a highly integrated solution that allows manufacturers to quickly "drop-in" wireless connectivity to a wide variety of healthcare devices in as little as six weeks. The module eliminates the need for a cable connection making a broad range of monitoring, diagnostic and treatment equipment truly mobile and remotely accessible.

A medical device on the hospital floor that is equipped with an Airborne module can transmit data via an 802.11 wireless access point to the LAN. Information is then sent directly to network-connected display monitors located at the nurse's station on the floor. Display stations would be able to gather data and monitor the results from many medical devices located in various patient rooms.

For example, a patient's monitoring device enabled with an Airborne module can:

- Be monitored from a central nursing station, a doctor's PDA or the web
- Share data with hospital, care center or medial group databases
- Send alert messages to doctors or other personnel via email or text messaging, or send alarm conditions to nursing stations
- Be accessed remotely to set alarm points, monitoring conditions and control points
- Be remotely controlled or control other devices



Some healthcare applications that are suitable to integrate an Airborne module include (but not limited to):

- Infusion Pump
- Dialysis Machines
- Patient Monitors
 - Epileptic Brain Monitor
 - Heart Rate Monitor
 - Respiratory Monitor
 - Sleep Monitor
- Handheld Wireless Medical Devices
- Medical Beds
- Defibrillator
- Telemetry
- Ultrasound
- Medical Imaging Systems
- Blood Processing Equipment

Coordinated data sharing becomes possible when multiple systems are equipped with the Airborne module. Treatment is improved because diagnostic information is readily available.

The FDA has approved the 802.11 Wired Equivalent Privacy (WEP) data encryption standard as meeting the requirements of the Health Insurance Portability and Accountability Act (HIPAA). The module is interoperable with industry standard 802.11 access points and advanced security standards including WEP, WPA, and EAP, that provide a low cost infrastructure for connection to a LAN and to the Internet.

Development and Healthcare Benefits

During development, Airborne is easy to integrate into new and existing designs and gives manufacturers a highly integrated solution to quickly differentiate their products. By reducing development time, it lowers costs and facilitates faster time to market. The 802.11 standard supports a high data rate and works with standard enterprise software that is ideal for key medical device applications.

With increased monitoring efficiencies and information recorded in real-time, healthcare providers can improve patient care with fewer resources. Similarly, real-time notification of vital information to a patient's physician

improves responsiveness and the overall healthcare experience.

WiFi technology provides increased connectivity required by the medical community to connect medical devices and patient information with hospital networks. The Airborne module gives manufacturers a cost-effective solution that reduces their need for RF and communications expertise. By providing a competitive product, medical device manufacturers are also addressing many healthcare needs that ultimately result in improved patient care and convenience.

Industry Need for Wireless Capabilities

Medical devices such as diagnostic and treatment equipment are typically attached to each patient. Wires and cables are used to connect these devices to monitoring or data-gathering devices.

In some cases, data is passed to nurses via display stations connected to a hospital LAN. Many patient rooms do not have LAN connections requiring nurses to frequently gather and record data manually. These inefficiencies can be eliminated using the Airborne Embedded Wireless Device Server module.

A wireless link also eliminates wires and cables, and the need to disconnect and reconnect each time a patient is moved. More manufacturers are realizing the advantages and are looking to add wireless capability to increase device connectivity with a WiFi solution.