Technologies

Data-Linc Group researches markets and industries to assess changing needs and emerging trends in order to develop technologies and products to meet those challenges.

- Security, data integrity, and reliability in high-noise environments
- Exceptional long-range communications
- Support of automation equipment architectures, interfaces, and protocols
- Industrial ruggedness and environmental compatibility
- Ease of installation and maintenance-free operations

Wireless Technologies

Since 1996, Data-Linc Group has focused on research and development of wireless technologies for industrial systems that are field-proven to operate in the most challenging conditions.

Smart Spectrum™ Frequency Hopping Technology

Data-Linc's flagship wireless technology is designed to offer the longest-range, highest-interference immunity and robust performance for industrial systems using license-free bands. It uses an advanced frequency hopping transmission method coupled with 32-bit CRC error correction and an outstanding receiver sensitivity of -108 dBm. With data rates up to 100 Kbps and transmission distances up to 25+ miles (40+ km), Smart Spectrum provides the ultimate solution for long-range SCADA, high-noise environments, and mobile systems. Modems are available in 902–928 MHz and 2.4–2.4835 GHz bands.

PlantLinc™ Frequency Hopping Technology

PlantLinc wireless technology was developed to fill the need for a cost-effective but robust, short-range wireless serial solution. Using frequency hopping techniques, PlantLinc offers secure wireless serial solutions up to 4 miles (6.5 km) in a compact, rugged enclosure.

FastLinc™ High-Speed Wireless Ethernet Technology

FastLinc takes advantage of the high-speed characteristics of direct sequence technology for industrial applications. Based upon the IEEE 802.11b standard, FastLinc offers a much higher output power (200 mw) than most commercial devices and will operate in harsh industrial environments. With data rates up to 11 Mbps, FastLinc securely connects plant networks up to 5 miles (8 km) apart and provides plantwide wireless connectivity to portable PCs, PDAs, and video systems. Operating in the 2.4–2.483 GHz band, it offers the highest data rates for industrial applications.

Wired & Telephone Line Technologies

Sometimes it's desirable to use wiring or telephone lines for communication to remote sites or within plants. Data-Linc Group offers a number of field-proven wire technologies.

FSK Modulation

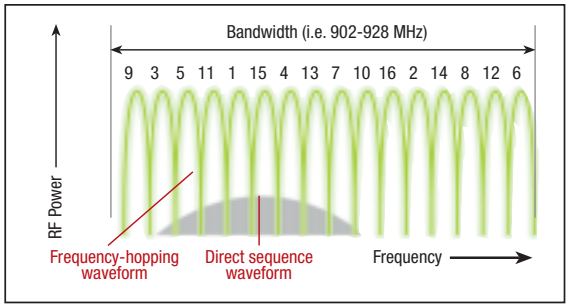
Frequency Shift Key (FSK) modulation is ideal for communication in high-noise environments, long-range wire communications, and transmission over leased phone lines. FSK is also ideal for communicating over power lines, rails/slip rings using brushes, and superimposing data over existing instrumentation lines. Data rates range from 1200 to 9600 bps.

V.34 Modulation

V.34 modulation offers communications up to 19.2 Kbps over dialup or point-to-point leased telephone lines, and V.34 is ideal for remote SCADA, plant maintenance, and PLC networks.

Frequency Hopping & Direct Sequence Tutorial

Spread spectrum modems use either frequency hopping (FHSS) or direct sequence (DSSS) RF spreading techniques. Both technologies have advantages and disadvantages for wireless network communications. FHSS uses many narrow channel frequencies within the band and "hops" from channel to channel over time. Coupling error correction and encryption techniques with FHSS provides unsurpassed security and noise immunity. FHSS also may use very sensitive RF receivers for ultra long-range communication, but because of the packet nature of FHSS, data rates are relatively slow. DSSS continuously spreads its RF modulation across a wide channel within the band. DSSS systems offer the highest data rates; however, DSSS receivers are not very sensitive, limiting range and interference immunity. If too many DSSS systems occupy the band, then performance will degrade. DSSS is ideal for systems that need high speed, but not the long range and interference immunity of FHSS.



Applications

Thousands of companies across all major industries use Data-Linc Group products within their industrial automation systems every day. Data-Linc Group's customers include many Fortune 500 companies such as automotive, consumer goods, and pharmaceutical companies as well as utilities, transportation firms, and the military. Below is a small sample of projects. Please visit our website for more application examples and case studies.

Water/Wastewater

Sussex County Water Authority located in Delaware uses over 150 SRM6210E Wireless Ethernet Modems to connect their remote pump stations to the water treatment plant. Covering over 100 square miles, the wireless system provides pump control, monitoring, and PLC maintenance without phone line charges and outages.

CAMROSA Water District located in California uses SRM Wireless Serial and Ethernet Modems to link 29 remote pump stations. CAMROSA saves over $24,000 per year in phone line charges and the system has been operating without failure for over 5 years.

Oil & Gas

Most major oil/gas firms use Data-Linc Group technology for well head, pipeline, tank farm, and refinery SCADA communications.

Shell Oil uses LLM1100 and MDL500 FSK Modems in a number of plants for RTU communications. Shell also uses SRM6210E Wireless Ethernet Modems for offshore oil rig communications.

PEMEX, located in Mexico, uses SRM6210E Wireless Ethernet Modems for monitoring pollution emissions in their refineries.

Power Utilities

Many utilities have selected Data-Linc Group wireless technologies for substation communications, coal-handling systems, water management, and cooling tower controls.

Coal-Burning Power Plant uses SRM6210E Wireless Ethernet Modems for its plantwide SCADA network for water management and coal-handling system control.

Mining

Data-Linc has many mining customers in both open pit and underground systems for water management, conveyor, and HMI applications.

Kennecott Copper uses SRM6000 Wireless Serial Modems for SCADA pit communications.

Automotive

Automotive and parts manufacturers use Data-Linc Group wireless technology for assembly line automation, overhead crane control, and plant networking.

A *Volvo* truck assembly plant located in Virginia uses SRM6210E Wireless Ethernet Modems for communication along their assembly line.

Metals

Mills are very harsh environments. Data-Linc Group has provided solutions for overhead cranes, transfer cars, automatic guided vehicles, coal/coke oven handling systems, and water management.

USX Steel Plant located in Braddock, PA, uses SRM6000 Wireless Serial Modems for steel transfer car controls. The system has been performing flawlessly for over five years.

Material Handling Systems

Many material handling OEMs have selected Data-Linc Group wireless technology for automatic guided systems, stacker/reclaimer cranes, overhead cranes, and warehouse storage/retrieval systems.

A *shipbuilder in China* uses SRM6310E Wireless Ethernet Modems for HSLT (Hydraulic Synchronizing Lifting Technique) crane controls designed to handle oversized components.

Transportation

Transportation systems demand both long-range and mobile communications. Data-Linc wireless technology is used in a wide range of applications, including highway systems, airports, railroads, and shipping.

A *major railroad* located in the Midwest U.S. uses SRM6000 Wireless Serial Modems for track controls in a large yard.

Over 25 *commercial airports* and *military air bases* use SRM6210E Wireless Serial Modems for their runway light control.

Two *major airports* use SRM6000 Wireless Serial Modems for their people-mover-to-wayside communications.

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