

Short-Haul Solution Covers Two Bands

This dual-band smart radio system brings new levels of flexibility to industrial networks, serving as a reliable interface for both wired and wireless voice, data, video, and sensor connections.

INDUSTRIAL NETWORKS must handle more data than ever before: In addition to channeling voice and data signals, they must contend with growing numbers of sensors and video links from security and surveillance cameras. Reaching the Internet to enable remote access with all of that information can overwhelm a single radio band.

For that reason, the WavePro WP201 platform from FreeWave Technologies incorporates two radio bands, at 2.4 and 5 GHz. By combining the two bands in a single rugged chassis—with multiple channels per frequency band—the WP201 provides secure collection, control, and transfer of voice, video, data, and sensor (VVDS) information using the firm's Sensor-2-Server (S2S) wireless access-layer strategy.

The WP201 (*see figure*) supports short-haul links for a wide range of networks, including for power, water, and sewage utilities; factory automation and industrial control; oil and gas plants; and municipalities. It provides an efficient and effective interface between growing numbers of machine-to-machine (M2M) and industrial Internet of things (IIoT) sensors and the Internet.

The WavePro WP201 standards-based dual-band radio system features IEEE 802.11b/g/n capability at 2.4 GHz with 20- and 40-MHz channels having data rates to 450 Mb/s. Also featured is IEEE 802.11a/n/ac capability on 5 GHz with 20-, 40-, and 80-MHz channels and data rates to 1300 Mb/s. It can actually serve as the basis of a local network “cloud,” collecting data signals from wired and wireless connections for short-haul communications and local and remote access. The WavePro WP201 features eight Service Set Identifiers (SSIDs) per radio for ease of network access.



The system is “smart” enough to perform automatic channel switching when data transfer can be optimized by switching frequency bands, such as offloading an overload of data traffic from 2.4 GHz to the typically less-occupied 5-GHz band. Both radio bands support 3 × 3 multiple-input, multiple-output (MIMO) antenna configurations. The 2.4-GHz radio features an omnidirectional antenna with 5-dBi gain, while the 5-GHz radio includes an omnidirectional antenna with 7-dBi gain.

The WavePro WP201 radio system features concurrent wireless operation at 2.4 and 5.0 GHz with data rates as high as 1.3 Gb/s.

The WP201 system can also be used with directional antennas for increased coverage distance. The WavePro WP201 is built to withstand the rigors of an industrial environment, being housed in a rugged aluminum IP67 enclosure and designed to handle operating temperatures from –40 to +60°C. It is suitable for industrial on-site Voice-over-Internet Protocol (VoIP) use as well as for on-site Wi-Fi use. This is a versatile communications system, with numerous wireline interfaces, including two 802.3ab (Gigabit Ethernet) local-area-network (LAN) ports with Power over Ethernet (PoE) capability to power connected devices. The short-haul radio system can handle IIoT, SCADA, and M2M data and provides seamless wireless connectivity with other S2S radio systems.

The WP201 provides secure dual-band wireless communications in a compact enclosure measuring 200 × 239 × 53 mm (without antennas connected) and weighing 3.2 kg (7 lb). It provides 4-kV Ethernet suppression and 4-kV RF suppression, and consumes less than 20 W of power. The RoHS-compliant system has an operating temperature range of –40 to +60°C and is equipped with male Type-N coaxial connectors for RF connections. [www](http://www.freewave.com)

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