

Wireless Field Level Network (WFLN)

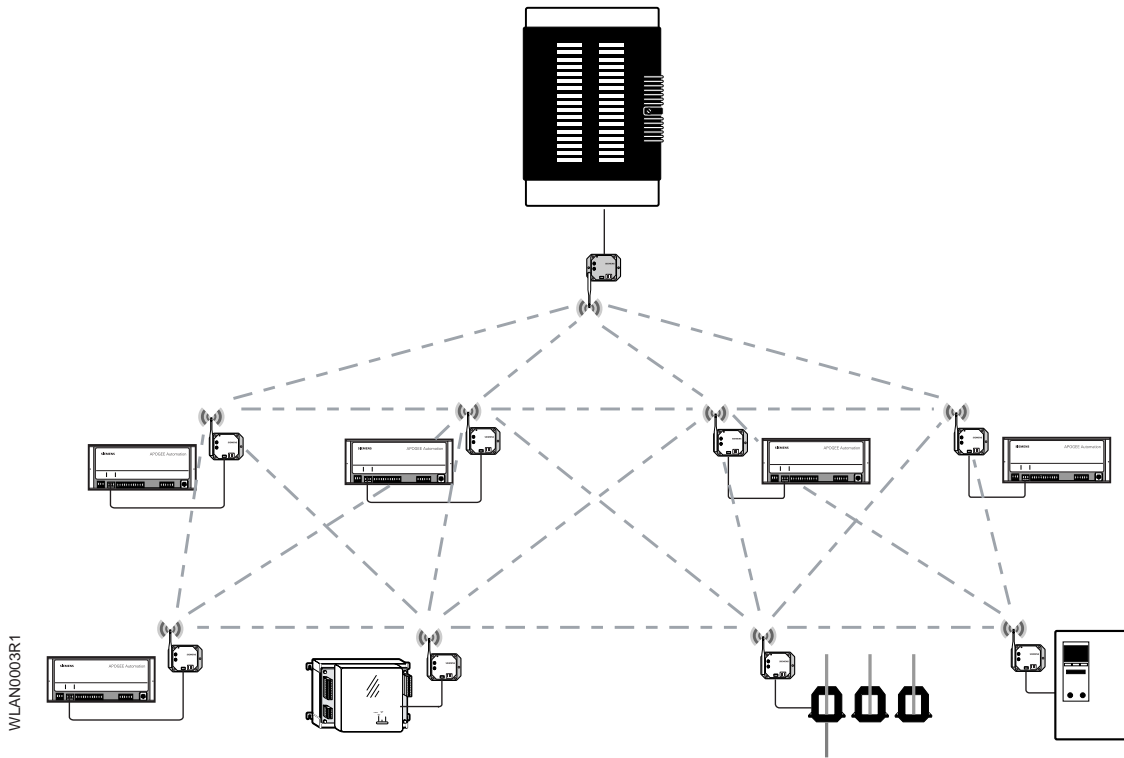


Figure 1. Wireless Field Level Network.

The Wireless Field Level Network (WFLN) is a Field Level Network (FLN) that can communicate via radio frequency links instead of a hard-wired communications network (Figure 1). The WFLN utilizes wireless mesh technology to form a wireless mesh network.

A wireless mesh network consists of a collection of nodes that communicate to each other via wireless links without being routed through a central switch. A grid-like topology enables the signal to hop among different paths in order to circumvent obstructions as it seeks and ultimately finds its target device. These redundant communication paths enable a very high level of reliability. Because multiple signal paths exist, the network can adjust to communication link disruptions due to changes in the building environment.

The self-forming, self-healing nature of the mesh network eliminates the need for maintenance as the environment changes.

To implement the WFLN, a Field Level Network Radio Transceiver (FLNX) (Figure 2) is mounted at the FLN device and a Field Panel Radio Transceiver (FPX) is mounted at the field panel. Both must be powered by 24 Vac. The radio's antenna can either be direct or remote mounted. In cases where the radio transceiver is mounted in a metal enclosure, the remote mount antenna would be used. The transceivers are plenum rated for direct mount without an enclosure.

Once installed and powered, the radios automatically form the mesh network and the WFLN's wireless mesh communication is virtually transparent to the system and end user.

Features

FLNX and FPX

- Field selectable frequency/channel to avoid interference with other 2.4 GHz wireless devices
- Field selectable network identification to allow multiple WFLNs to operate in close proximity at the same frequency/channel
- Direct mount or remote mount antennas
- LED to indicate power and communications

Wireless Mesh Network

- Self-forming for simple deployment
- Self-healing for high reliability
- Bi-directional routing for command and control

Benefits

- Highly reliable even as RF environment changes
- Simpler, faster, and easier installation
- More easily move FLN devices without rerouting cable
- Minimizes impact to facility and occupants during installation in retrofit situations
- Easily add FLN devices to existing WFLN
- Allows staged migration for retrofit situations
- Eliminates reliance on wired infrastructure

Hardware

Specifications

General Radio Specifications (FLNX and FPX)	
Frequency Range	16 selectable channels of operation in the 2.4 GHz international license free ISM band (IEEE 802.15.4 radio channels 11-26) 2405 to 2480 MHz – 5 MHz channel spacing
Modulation	O-QPSK Direct Sequence Spread Spectrum radio in accordance with IEEE 802.15.4 specification. -1dBm output power.
Agency Listings	UL 916 CSA CE Complies with FCC Part 15 Regulations (Low Power Unlicensed Transmitters)
Range	Outdoor line of sight range of 350 feet. Typical Indoor range 25-100 feet. (Actual range varies based on environmental conditions.)
Operating Temperature	32°F to 122°F (0°C to 50°C)
Operating Relative Humidity	20% to 90% Relative Humidity (non-condensing)
Dimensions	L 3.295" x 3.295" x W 1.25" (84 mm x 108 mm x 33 mm)
Antenna	6" beyond radio enclosure
Power	
Voltage Requirement	24 Vac @ 50/60 Hz (19 to 32 Vac)
Power Consumption	1.2 VA (Nominal) at 24 Vac

System Specifications

Maximum number of FLN devices per FLN	32
Compatibility Automation Level	APOGEE® Modular Building Controller (MBC) that uses a Power PC. Series 1000 MECs with FLNs and 32 Megabytes or greater RAM. Requires Firmware Special
Field Level	APOGEE® Terminal Equipment Controllers, Point Expansion Modules, Digital Energy Monitor, Variable Speed Drives and Other Third Party FLN devices (using P1 protocol).

Product Ordering Information

Description	Product Part Numbers
Field Level Network Radio Transceiver (FLNX)	563-004
Field Panel Radio Transceiver (FPX)	563-005
Direct Mount Antenna	563-007
Remote Mount Antenna	563-008
Pre-terminated Cable Kit (optional) 2 cables – One 14" Power and one 14" Comm.	563-027

NOTE: Antennas are not included with transceivers and need to be ordered separately.



Figure 2. Field Level Network Transceiver (FLNX).



Figure 3. Field Panel Transceiver (FPX).

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