

Applying FieldServers in Building Automation Applications.

Interoperability is a popular topic in the Building Automation marketplace today. Enabling different automatic control devices from different manufacturers to work together in a building or campus saves time, money and provides a better solution to the end-user.

FieldServer Technologies has been particularly successful with Building Automation applications. This Marketing Application Note describes how the FieldServer is used, so that representatives, resellers, distributors or end users, who may not be completely familiar with all the technologies involved, can get up to speed quickly.

What is a FieldServer?

It can be called a communications bridge, protocol converter, or communications gateway. It is user configured to enable devices that use different communications protocols to communicate with one another. The picture below shows the LONWORKS®/Serial/Ethernet FieldServer. More information can be found at www.fieldserver.com concerning FieldServers that support different protocol combinations, including simple Serial to Ethernet combinations.



LONWORKS® FieldServer

Examples of Typical Applications

- **Connecting buildings on a campus together over Ethernet**

A campus will likely include buildings that have, for example, a boiler room, a chilling plant, libraries, security offices, facilities manager's offices, conference rooms, lecture halls etc. Each area typically uses different types of devices to control the equipment or environment. For example, the boiler room may have a Cleaver-Brooks or Honeywell boiler controller and flame guard system. The chilling plant could be controlled using Trane, Carrier or York equipment. The library and lecture halls might have LONWORKS® compatible thermostat and lighting controllers. And each building will have its own fire and security systems. If the desire is to allow the security office and facilities manager to monitor all these areas using a package such as Trane Tracer Summit, Wonderware, Intellution Fix, Citect etc., a FieldServer can link all these different types of equipment together. If the desire is to link the boiler control system to the chiller system, this too can be easily achieved.

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Also, if the campus has a campus wide Ethernet connection, FieldServers can make all data available to any standard Internet Browser such as Microsoft Internet Explorer.

- **Connecting a Fume Hood to a HVAC (Heating Ventilation Air Conditioning) system**

Using a FieldServer with TekAir and BACnet drivers allows a Trane Summit system to control and monitor the condition of all the fume hoods in a laboratory.

- **Connecting computer room UPS systems to HVAC system**

Computer room UPS systems manufactured by Liebert, Caterpillar etc. can be monitored by the same system that monitors the air conditioning plant by using FieldServers to do the protocol translation.

- **Connecting Gas Monitoring system to security HMI (e.g. Wonderware)**

Third party gas monitoring systems can be interfaced to the workstation used by the security office monitor the security and safety of the whole site.

Relevant technologies (Communication Protocols)

- **LONWORKS®**

Echelon's LONWORKS® is used by millions of systems around the world to link lighting systems, thermostats, fans, and water heaters etc. together. The LONWORKS® FieldServer can link a network of thousands of these devices to another network.

- **BACnet**

BACnet, or Building Automation and Control net, is an Ethernet based, ASHRAE (American Society for Heating, Refrigeration and Air-Conditioning Engineers) standard for interoperability. It is a modern, complex and powerful communications protocol that is fully supported by FieldServers. Implementations of BACnet over RSS232, Arcnet, Ethernet TCP/IP or raw Ethernet are all supported.

- **Metasys N2® by JCI**

This is Johnson Controls' RS485 based communications network that allows Johnson NCMs to control various building automation elements. FieldServers can act as NCM replacements, slave nodes on a Metasys network, or as intermediaries, where the FieldServer allows 3rd party control systems to simultaneously control the Metasys devices with the NCM.

- **Embedded Web Server**

FieldServers allow any authorized user to browse to them using a standard, unmodified Internet browser, such as Microsoft Internet Explorer. Once connected, the user can view and modify data, set points and configuration information.

- **MMIs**

FieldServers are often used as "communications front ends", "zero slot adapters" or scanners, to allow MMI, HMI, DCS or SCADA packages to interface to unusual devices.

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Examples of Equipment that already use FieldServers to Interconnect

- **Fire Alarm Panels**

Notifier AM200,300,400,600

Notifier 1010/2020

Simplex 4100

Siemens Cerberus MXL

Grinnell

Fike Cheetah

Vesda

- **HVAC systems**

Trane BCUs and Summit workstations

Alerton, Delta Controls, Andover Controls, Siemens, Honeywell and Automation Logic building control systems

DataAire

TeKAir

York Chillers

For a complete list of Building Automation drivers browse to www.fieldserver.com