Series 4292 Wireless Sensor System

Description

The Series 4292 Wireless Sensor System utilizes no-maintenance, battery-powered sensors that transmit temperature, humidity, CO_2, and contact status to a gateway at a 916MHz frequency which minimizes interference from WiFi networks and improves transmission through walls, floors, and windows. Each gateway receives data from up to 100 sensors and interfaces the BAS via BACnet® MSTP, BACnet® IP, or Modbus RTU and TCP.

Innovative power management technology enables 25-year battery life (15 years on the CO_2 sensor). Fixed sensor transmission intervals to the gateway which maintains the most recent sensor reading. This ensures constant data availability to the BAS while maximizing battery life.

Sensor data is transmitted up to 300 feet, line-of-sight to a gateway. Repeaters can be used for extended distances, or hops between floors and walls.

Series 4292 wireless sensors can be configured off-site and deployed in minutes at the project site, resulting in reduced installation costs and minimal occupant disruption.

Features

- Lifetime (25-year) battery on Temperature/Humidity sensors and contact closure transmitters
- CO_2 sensors feature 15-year battery life on replaceable AA lithium batteries
- Temperature sensor has inputs for two remote 10k Ω Type 2 thermistor devices.
- Each gateway supports up to 100 devices and 800 points.
- Site Survey Tool helps optimize sensor/repeater placement.
- Compatible with APOGEE®, Desigo®, and many other building automations systems

Gateway

Sensor

Automation System

Applications

HVAC Systems
Sensor input is vital for proper control and operation of HVAC systems. Wireless technology greatly reduces the installation cost for sensors, enables rapid deployment, and overcomes construction obstacles that can make wiring impossible.

Remote Monitoring
Remote monitoring and data logging of environmental conditions and equipment status can lead to operational efficiencies, energy savings, and reduced downtime. Series 4292 wireless sensors, used in conjunction with an appropriate monitoring system, provide an easily deployable solution to remotely monitor sites and equipment.

Industrial Automation
Monitor plant conditions and equipment status with the Series 4292 wireless sensor system. The cost for wiring or battery replacement in facilities with high labor rates or hazardous environments can be very expensive, even cost prohibitive. Wireless technology enables facility and plant monitoring with minimal maintenance. Equipment failure can be better predicted to reduce system or production downtime.

System Architecture

The Series 4292 Wireless Sensor System architecture consists of up to 100 sensors that transmit data to the gateway, which in turn interfaces with a building automation system or other building controller. Gateway options provide a choice of BACnet MS/TP, BACnet IP, Modbus RTU or Modbus TCP protocols for easy connection to any building automation system.

Wireless repeaters may be necessary if the wireless transmission distance exceeds 300' (line-of-sight) from the gateway or when the sensors and gateway are separated by building floors or walls that may diminish signal strength. The sensor transmits data back to the gateway via the mesh style repeater, or series of repeaters, up to 10 total "hops" back to the gateway.

Additional analog sensors (NO/NC contacts and 10k Ω Type 2 thermistors may also be tied into the wireless network using the 563-083 contact closure transmitter and the QAA4292.EWSC temperature sensor.
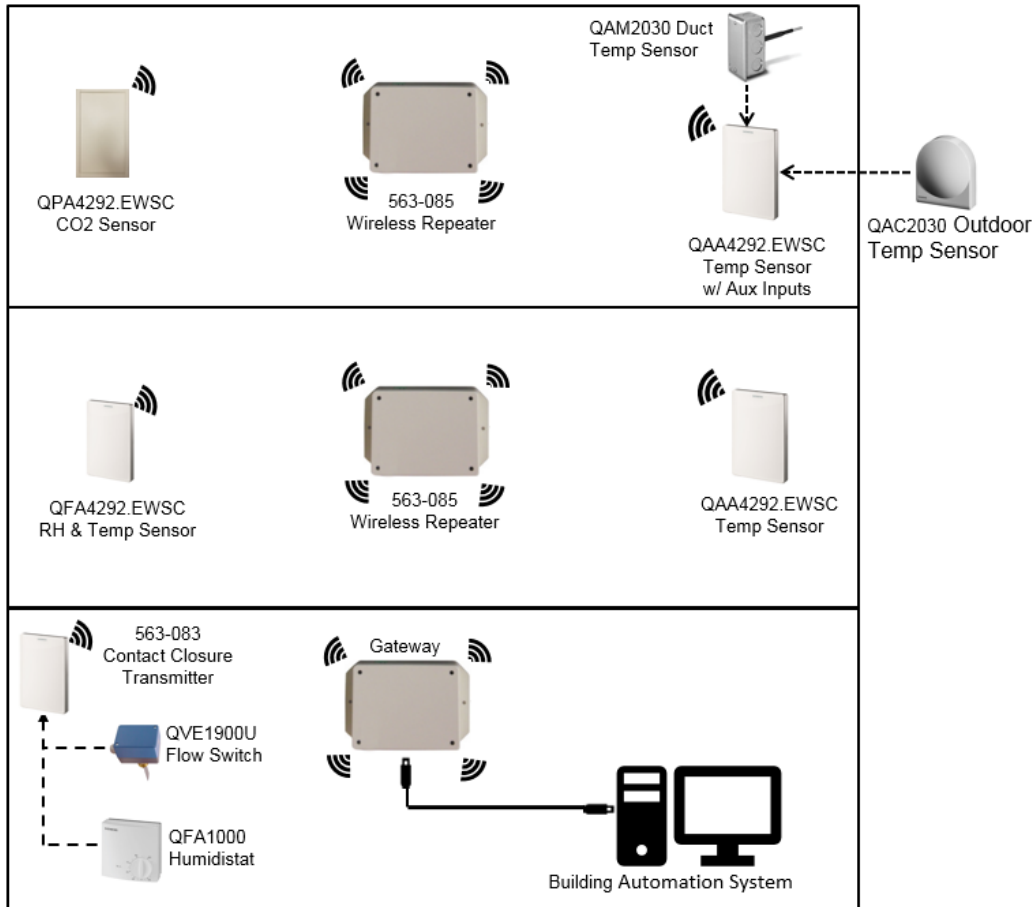
Communication between buildings, less than 250' apart, is also possible with the use of strategically placed repeaters. Use the Site Survey Tool to validate signal strength in these applications and ensure optimum number and location of repeaters.
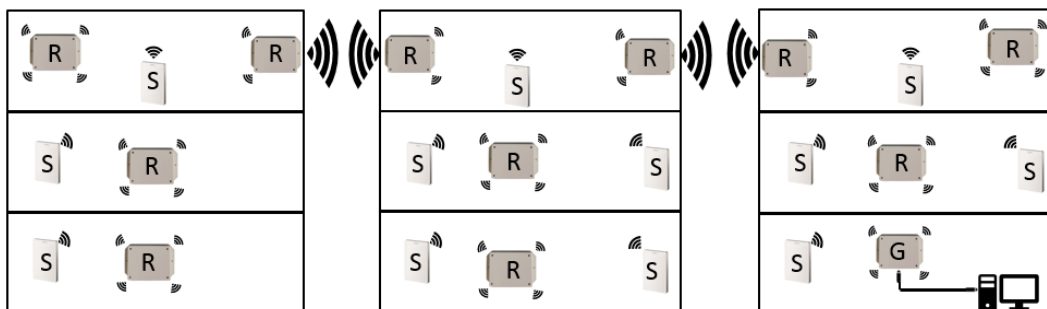
Data Point Table

<table>
<tr><th rowspan="2" colspan="2"></th><th colspan="4">Sensor Type</th></tr>
<tr><th>QAA4292.EWSC</th><th>QFA4292.EWSC</th><th>QPA4292.EWSC</th><th>563-083</th></tr>
<tr><td rowspan="7">Sensing Points</td><td>S1</td><td>Room Temp (°F)</td><td>Temperature (°F)</td><td>Weighted average of 5 prior CO_2 readings (ppm)</td><td>X1 Current State 0=Open, 1=Closed</td></tr>
<tr><td>S2</td><td>Remote Temp 1 (°F) (10k Ω Type II Thermistor)</td><td rowspan="1">Humidity % rh</td><td>Instantaneous CO_2 reading (ppm)</td><td>Count of X1 state changes during last 120s</td></tr>
<tr><td>S3</td><td>Remote Temp 2 (°F) (10k Ω Type II Thermistor)</td><td>Dew Point (°F)</td><td>Not Used</td><td>% of time X1 is closed during last 120s</td></tr>
<tr><td>S4</td><td>Not Used</td><td>Not Used</td><td>Not Used</td><td>Not Used</td></tr>
<tr><td>S5</td><td>Not Used</td><td>Not Used</td><td>Not Used</td><td>X2 Current State 0=Open, 1=Closed</td></tr>
<tr><td>S6</td><td>Not Used</td><td>Not Used</td><td>Not Used</td><td>Count of X2 current state changes during last 120s</td></tr>
<tr><td>S7</td><td>Not Used</td><td>Not Used</td><td>Not Used</td><td>% of time X2 is closed during last 120s</td></tr>
</table>

Product Ordering Information

	Model Number	Description
Sensors	QAA4292.EWSC	Wireless temperature sensor, internal sensor + 2 external 10K RTD ports
	QFA4292.EWSC	Wireless temperature and humidity/dew point sensor
	QPA4292.EWSC	Wireless CO_2 sensor
	563-083	Wireless dry contact closure (2 inputs)
Gateways/ Repeater	563-084	BACnet/IP Gateway
	563-087	BACnet/MSTP Gateway
	563-088	Modbus RTU/TCP Gateway
	563-085	Wireless Repeater
Accessories	563-089	Site Survey Tool
	535-104	24V Power Supply (Required for Gateways and Repeaters)

Related Documentation

- A6V11521281: *Series 4292 Wireless Sensor System Installation Instructions*
- A6V11541947: *Series 4292 Wireless Sensor System Site Survey Tool Operating Instructions*
- A6V11544782: *Series 4292 Wireless Sensor System User Guide*
- *Field Server Protocol Driver Sheet BACnet PIC Statement*

Specifications

General

Radio: 915MHz, internal antenna

Regulatory Approvals: FCC Part 15 and Industry Canada
- Contains FCC ID: OA3MRF89XAM9A
- Contains IC: 7693A-89XAM9A

Transmit Range: 300 ft. indoors to Gateway/Repeater in a typical commercial office building

Mounting: Wall mount, vertical, indoors

Gateway/Repeater

Power: 24 Vac/dc

Configuration Ports:
- USB Type B – PC Interface
- USB Type A – Sensor Interface

Network Port (Gateway): Ethernet, RS-485 or FTT-10

Temperature Sensor

Measuring Range: 50° to 90°F

Accuracy: ± 1°F (50-90°F)

Two Remote Sensor Inputs: 10k Ω Type 2 thermistor

Transmitted Data:
- Node ID
- Sensor readings
- Battery voltage

Transmission Interval: Once per minute (non-configurable)

Expected Battery Life: 25 years

Temperature + RH Sensor

Measuring Range:
- Temperature: 50° to 90°F
- Humidity: 10 to 90%
- Dew Point: 50° to 90°F

Accuracy:
- Temperature: ± 1°F (50 to 90°F)
- Humidity: ± 3% (10 to 90% rh)
- Dew Point: ± 4% (50-90°F, 10-90% rh)

Transmitted Data:
- Node ID
- Sensor readings
- Battery voltage

Transmission Interval: Once per minute (non-configurable)

Expected Battery Life: 25 years

Contact Closure Transmitter

Transmitted Data:
- Contact status (OPEN/CLOSED), Qty:2
- Node ID
- Battery voltage

Transmission Interval: Per contact change, not to exceed once every 5 seconds.

Expected Battery Life: 25 years (Based on 1-minute transmission intervals. Shorter intervals will decrease battery life. (Not for use as pulse counter.)

CO2 Sensor

Measuring Range: 0 to 5000 ppm CO_2

Accuracy: +/- 50ppm +3% of the reading

Transmitted Data:
- Node ID
- Sensor readings
- Battery voltage

Transmission Interval: Selectable, 1-5 minutes (Default = 4)

Expected Battery Life: 15 years (based on 4-minute transmission intervals)
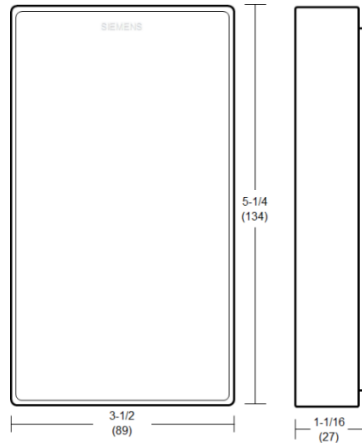

Site Survey Tool

Simplifies process of determining number and location of repeaters
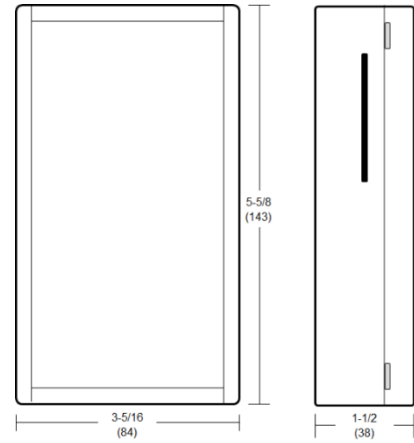
Measuring Range: -49 dB to -108dB
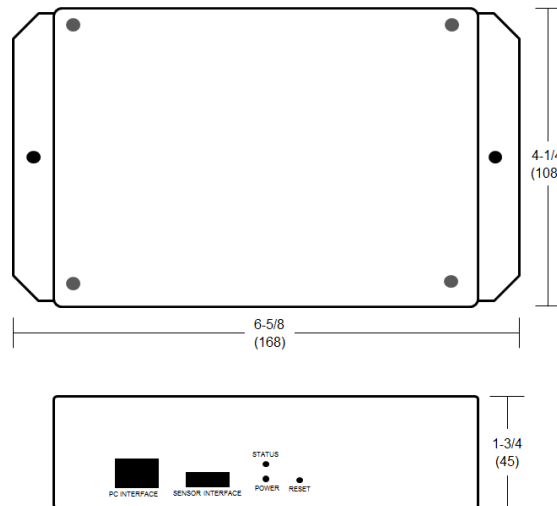
Matched pair of handheld devices

Siemens Industry, Inc.

Product Dimensions

QAA4292.EWSC Temperature Sensor
QFA4292.EWSC RH/Temperature/Dew Point Sensor
563-083 Contact Closure Transmitter

QPA4292.EWSC CO2 Sensor

563-085 Wireless Repeater
563-084 BACnet IP Gateway
563-087 BACnet MS/TP Gateway
563-088 Modbus RTU/TCP Gatewy

Disposal

The devices are considered electrical and electronic equipment for disposal in terms of the applicable European Directive and may not be disposed of as domestic garbage.

- Dispose of the devices through channels provided for this purpose.
- Comply with all local and currently applicable laws and regulations.