

# *Plant Wide Field Wireless*

**Field Wireless**  
Building a wireless future to last



*Toward More Reliability and Larger Scale*



**Field Wireless**  
Building a wireless future to last

Bulletin01W01A11-01EN

[www.field-wireless.com](http://www.field-wireless.com)

**vigilantplant.**<sup>®</sup>  
The clear path to operational excellence

**YOKOGAWA** 

## Yokogawa Plant Wide Field Wireless

= *A new architecture for our "Grow" concept* =

YOKOGAWA Field Wireless system as the mainstay of field digital solutions has been developed helping customers to grow and enabling ourselves to evolve and continue to offer timely solutions. We express it in line with Yokogawa's "Grow" concept.

1. Reliability: reliable high-performance field wireless and redundant technologies
2. Flexibility: flexible architecture that supports the full range, from small to large-scale plants
3. Openness: open ISA100 standard that allows third-party field wireless devices to be connected

YOKOGAWA Plant Wide Field Wireless has been developed based on these three concepts and contributes productivity improvement for customers.

**Small Scale Wireless Solution**

**Large Scale and Reliable Wireless Solution**

**Discover  
Wireless**



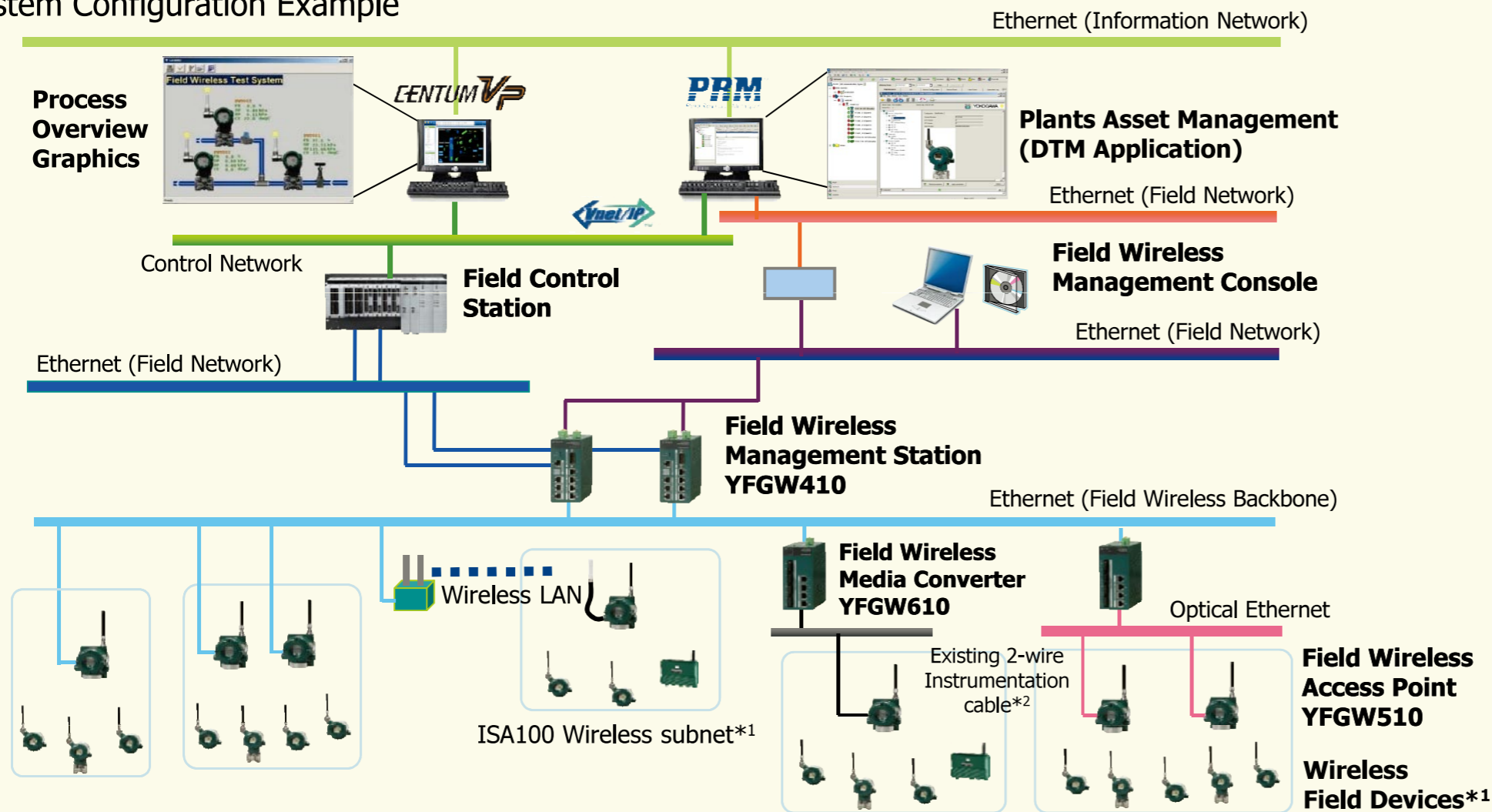
**Plant Wide  
Wireless Solution**



**Openness  
Flexibility  
Reliability**

# Key feature for Plant Wide Field Wireless – Reliable, Flexible, Open-

## System Configuration Example



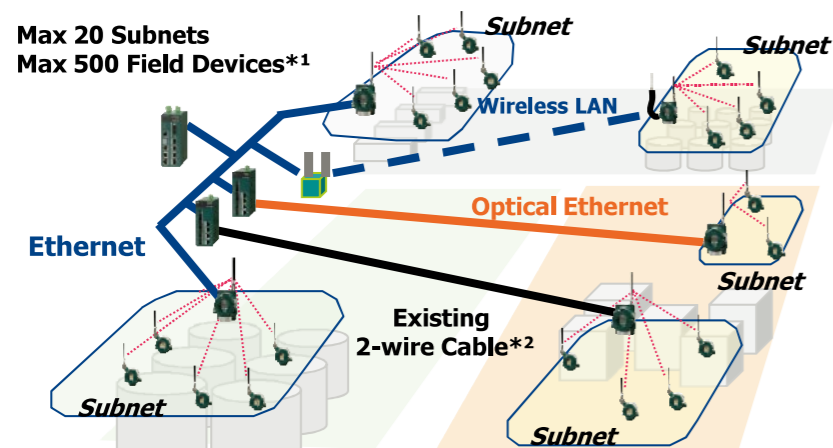
\*1 The number of Wireless subnets and Field Devices which can be handled depends on software version of YFGW410. \*2 Instrumentation cable communication will be available in the next phase.

## Flexible

Flexible architecture copes with various situations in the field.

### Flexibility & Scalability

Various types of interfaces with the Field Wireless Management Station are available for Field Wireless Access Points. For example, they can use Wireless LAN for areas without connection lines. And existing instrumentation cables can be used for digital communication\*2. The small, light interfaces offer excellent installation flexibility. These features offer massive scalability in extensive plants. Up to 20 Access Points and 500 field devices\*1 can be handled with a single Field Wireless Management Station YFGW410.



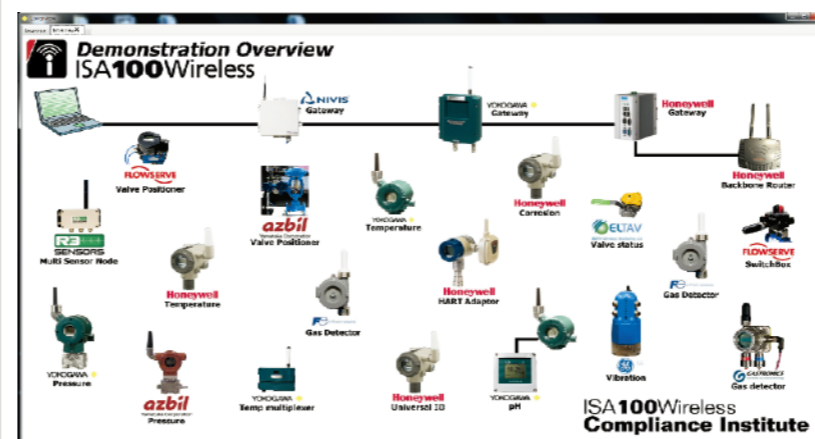
## Open

Many vendors' sensors can join the same Wireless network. Such openness is important for various solutions.

### Interoperability

The ISA100.11a standard reflects the opinions of device vendors as well as many customers and public institutions. More and more wireless products compliant with the ISA100 standards are being released, and Yokogawa's systems accept such products flexibly.

\*The lower illustration shows the members of WCI (ISA100 Wireless Compliance Institute) Please contact us about Interoperability.

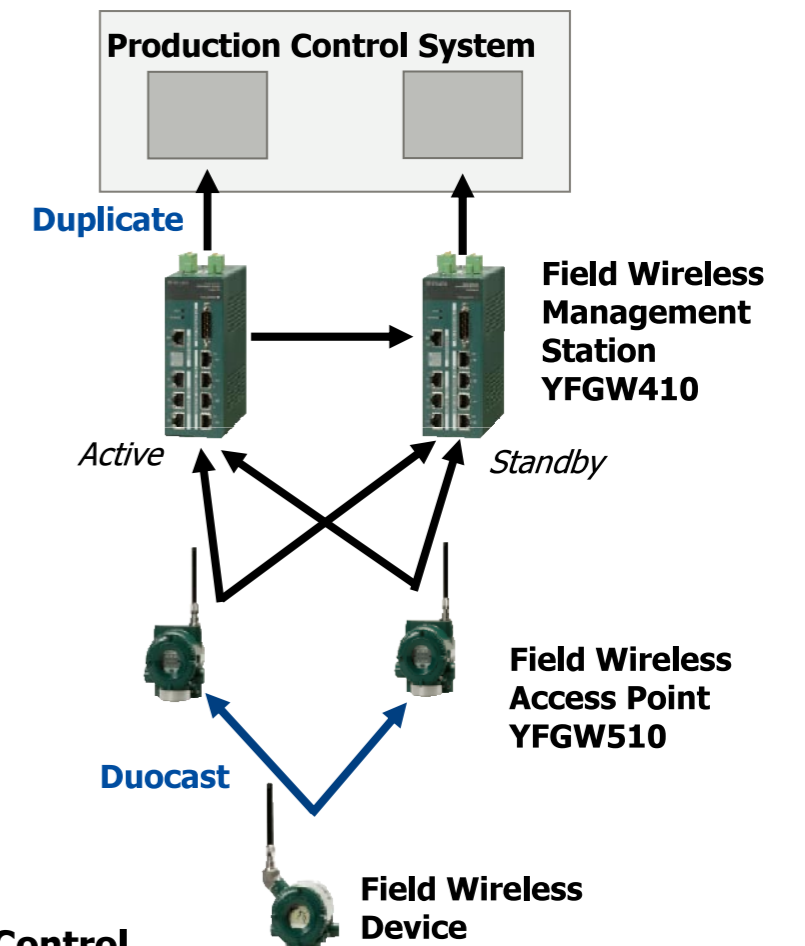


## Reliable

In order to use wireless for measurement and control, reliability is a main concern.

### Full Redundancy

In addition to our reliability of wireless physical layers (Reliable Radio), system redundancy technologies further improve the reliability. In Duocast, one field device performs simultaneous wireless communication with two designated access points, so it can seamlessly continue communication even if a problem occurs in either point. Combined with the duplication of gateways as well as systems, the reliability of wireless systems is further strengthened.



### Control

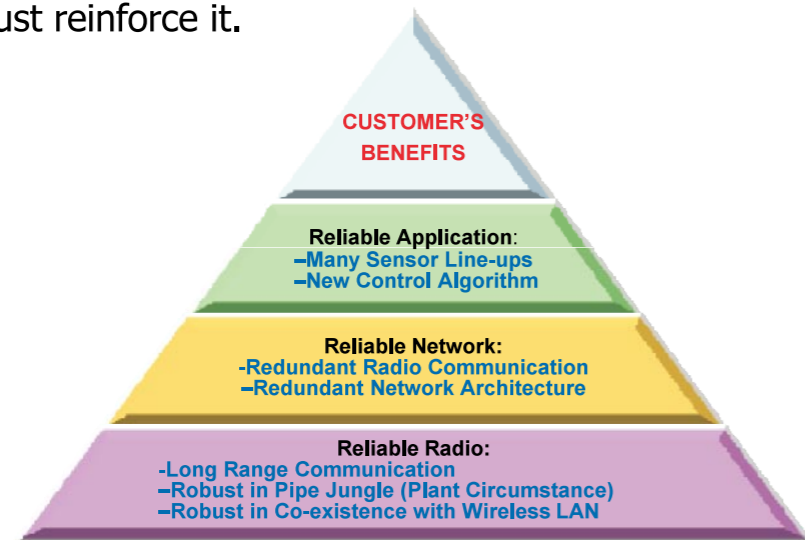
The enhanced reliability of Field Wireless system expands the applications of wireless systems not only to monitoring but also to control.

### Security

Yokogawa secures complete security also in a wireless system. For example, we have prepared more than one network interface and enable separating the network for process data flows and the network for the management information of the devices. Moreover, it makes it possible to open a setup of the firewall in Gateway, and to block unnecessary packet according to a user's network.

## Yokogawa's Experience & Customer's Voices

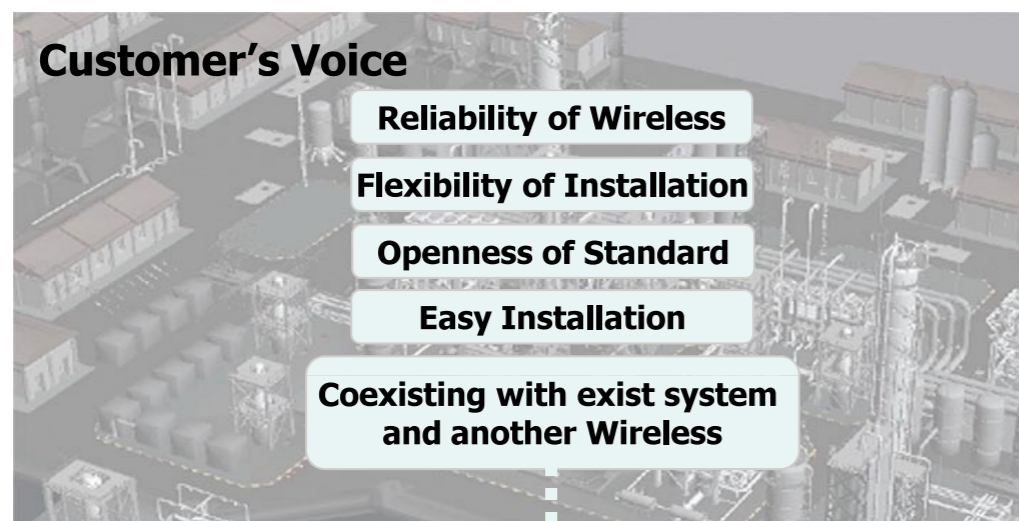
Yokogawa has been researching and developing industrial wireless technologies for ten years and has compared a variety of standards, with the following conclusion: in adopting wireless systems in the fields of industrial measurement and control, wireless physical layers must eliminate instability as far as possible (Reliable Radio) and the system must reinforce it.



Among various industrial wireless communication standards, the ISA100 standards were the most suitable for achieving Yokogawa's policy. Therefore, Yokogawa adopted this standard and released the world's first ISA100-compliant products in the market in 2010.

Yokogawa has since released various wireless applications while its development engineers have visited over 100 sites worldwide for survey.

The accumulation of such experience as well as the information obtained from many customers have been reflected in the development to make full use of the advantages of the ISA100 standards (ISA100 Full Functional), and to make the role of wireless communication clearer and securer toward Total Field Digital Innovation.



**YOKOGAWA**  
**Plant Wide Field Wireless System**  
<http://www.field-wireless.com/>

## Field Wireless System Product

### Field Wireless Management Station YFGW410



Management function of Field Wireless System defined by ISA100.11a is mounted on Field Wireless Management Station YFGW410.

#### ■ FEATURES

##### ● High Reliability and Flexibility

Adoption of a discrete-type architecture enables a redundancy configuration by Connection of these two products. A highly flexible operation is also possible where the field wireless system under operation does not have to be stopped and maintenance can be performed on line.

##### ● High-Security Communication Setting

The access control such as IP filter or the port filter can be configured for the connection with the communication interface. Malicious access is prevented by controlling the connection point.

##### ● Wireless Communication Data Cache

Data caching acquired through communication with the field wireless device in the product's internal memory is possible. The efficient communication to wireless field devices can use a wireless band flexibly.

##### ● Field Wireless Management Console

Field Wireless Management Console is a standard equipment of Field Wireless Management Station YFGW410. The software configures establishment and maintenance of Wireless system devices and Field Wireless network. And it monitors management of field Wireless network and confirmation of operating situation. The software also has a Graphic Editor function that displays the locations of devices on a map, so users can control wireless devices while visually monitoring an image of the field.



Redundancy by multiple



### Field Wireless Access Point YFGW510



Access point function defined by ISA100.11a standard is mounted on Field Wireless Access Point YFGW510. It communicates with Wireless Field Devices based on ISA100 standard and relays the communication to the higher level Field Wireless Management Station YFGW410.

#### ■ Features

##### ● The smallest-in-the-world class

Field Wireless Access Point YFGW510 is an industrial wireless relay device of the smallest-in-the-world class. The highly efficient wireless relay device is easy for installation and expands a field wireless network, and provides reliable communication.

##### ● Duocast (ISA100.11a standard)

Reliability of the field wireless communication can be enhanced through receiving data simultaneously with two YFGW510s by Duocast function based on ISA100 standard.

##### ● Wireless LAN (IEEE802.11a/b/g)

Using a dual band wireless LAN communication Function (2.4 GHz and 5GHz) as backbone communication, flexible design for field wireless network of wide range is enabled.

### Field Wireless Media Converter YFGW610



Field Wireless Media Converter YFGW610 is used for signal conversion between Field Wireless Management Station YFGW410 and Field Wireless Access Point YFGW510.

#### ■ FEATURES

##### ● Signal Conversion

Converse from Optical Cable Ethernet (100base-FX) to Ethernet (100base-TX).  
 Converse from 2-Wire Instrumentation cable\*1 to Ethernet (100base-TX).

##### ● High tolerance to harsh environment

Wide range of operating temperature and surge protection ensures safety and high reliability of Field Wireless System.

##### ● Simple Installation

Installation in outdoor enclosure can be simplified by plug-and-replay function.

\*1 Instrumentation cable communication will be available in the next phase.

## **EJX B Series Wireless Differential Pressure/ Pressure Transmitter**

### ■ Features

- EJX B Series Wireless differential Pressure and Pressure Transmitters transmit the data of level, pressure and temperature using ISA100.11a wireless signal.
- The Single crystal silicon resonant sensor provides high-reliability and multi sensing.
- The antenna can be exchanged for a high-gain antenna\* with an extension cable.
- Two high capacity lithium-thionyl chloride batteries and ultra low current consumption design provide long operating life.



## **YTA Wireless Temperature Transmitter**

### ■ Features

- YTA Wireless Temperature Transmitter accepts thermocouple (8 Types, K, E, J etc. ) of IEC / ASTM / DIN standard or RTD (3 Types, Pt100 etc.) IEC/ JIS standard and transmits temperature data using ISA100.11a wireless signal.
- The antenna can be exchanged for a high-gain antenna\* with an extension cable
- Two high capacity lithium-thionyl chloride batteries and ultra low current consumption design provide long operating life.



## **YTMX580 Multi-Input Temperature Transmitter**

### ■ Features

- 8 ch universal input: Perfect for multipoint measurement applications.
- 8 Types thermocouple, 3 Types RTD and 4~20mADC are accepted.
- The antenna can be exchanged for an extension cable
- Two high capacity lithium-thionyl chloride batteries and ultra low current consumption design provide long operating life.



\*Subject to the Radio law regulation of each country.

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The clear path to operational excellence

SEE  
CLEARLY

KNOW  
IN ADVANCE

ACT  
WITH AGILITY

VigilantPlant is Yokogawa's automation concept for safe, reliable, and profitable plant operations. VigilantPlant aims to enable an ongoing state of Operational Excellence where plant personnel are watchful and attentive, well-informed, and ready to take actions that optimize plant and business performance.

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Represented by:

Printed in Japan, 207(KP) [Ed : 01]

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