

# General Specifications

YFGW410  
Field Wireless Management Station



GS 01W02D01-01EN

## ■ GENERAL

*This General Specification(GS) describes the hardware specifications for Field Wireless Management Station and specifications of built-in software.*

*This product is based on wireless communications standard ISA100.11a for industrial automation of International Society of Automation (ISA). This product has system manager/security manager/gateway function based on ISA100.11a, and combining this with Field Wireless Access Point(YFGW510) and/or Field Wireless Media Converter(YFGW610) composes the field wireless system.*

*For outline of a field wireless system, and details of each product, see each related products General Specifications.*



## ■ 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

This product supports the access control list (IP filter and port filter), preventing unauthorized access, and role-based password-protected secure user interface. End-to-end communication of ISA100.11a is encrypted with AES 128bit. Robustness of the communication and security is validated as it achieves Achilles Level 1 Certification.

### ● Duocast (ISA100.11a Standard)

This product has a Duocast function of ISA100.11a standard. Reliability of the field wireless communication can be enhanced through receiving data simultaneously with two YFGW510s connected to this product.

### ● Wireless Communication Data Cache

This product can cache the data acquired through communication with the field wireless device in the product's internal memory. The efficient communication to wireless field devices can use a wireless band flexibly.

## ■ HARDWARE SPECIFICATIONS

### ■ Communication Interface

Item		Field Network Specifications		Field Wireless Backbone Specifications	Maintenance/Diagnostic Network Specifications	
Communication Interface	Standard	100BASE-TX <sup>*2</sup>	RS-485	100BASE-TX <sup>*2</sup>	100BASE-TX <sup>*4</sup>	RS-232C <sup>*4*5</sup>
	Transmission Speed	100Mbps	38.4Kbps	100Mbps	100Mbps	115.2kbps
	Connector	RJ-45	Proprietary	RJ-45	RJ-45	RJ-11
	Cable Type	Category 5	AWG24~12	Category 5	Category 5	Proprietary
	Maximum Length	100m	1200m	100m	100m	15m
	Number of Ports	3 ports	1 port	4 ports	1 port	1 port
	Port Name	F1, F2, F3	–	B1, B2, B3, B4	M1	–
Protection	Surge	Isolated, Surge	Surge	–	–	
Communication Protocol	Modbus	Modbus/TCP	Modbus/RTU	–	–	–
	OPC <sup>*1</sup>	Proprietary <sup>*3</sup>	–	–	–	–
	Management, configuration, etc.	HTTP NTP/SNTP Proprietary <sup>*3</sup>	–	HTTP IEEE1588PTP v2 Proprietary <sup>*3</sup>	HTTP Proprietary <sup>*3</sup>	–

- \*1: OPC interface connection is available by Field Wireless Device OPC Server (SSS7100). For details of this product, see related products General Specifications.
- \*2: In outdoor wiring to Field Network or 100BASE-TX of Field Wireless Backbone, use optical fiber cables with a nonmetallic tension member, combining with YFGW610.
- \*3: TCP based custom protocol used for communication between this product, "Field Wireless Device OPC Server", "FieldMate Versatile Device Management Wizard", "Plant Resource Manager (PRM)", and YFGW510. For details of each product, see related products General Specifications.
- \*4: Maintenance/Diagnostic Network (100BASE-TX, RS-232C) are not available for outdoor wiring.
- \*5: These are the serial ports for a maintenance which only our company use.

### ■ Performance

#### Field Wireless Subnet:

Max 20 subnets are connectable  
Max 20 YFGW510 are connectable<sup>\*1</sup>

- \*1: Max 8 YFGW510 are connectable in one field wireless subnet.

#### Field Wireless Device:

Update rate	Network size
1 second	Max 200 devices <sup>*1</sup>
5 seconds	Max 500 devices <sup>*2</sup>

- \*1: Max 20 devices in one field wireless subnet
- \*2: Max 100 devices in one field wireless subnet

#### Upper Communication Interface:

Communication Protocol	Maximum connection
Modbus/TCP <sup>*1</sup>	8 clients
Modbus/RTU <sup>*1</sup>	1 client
OPC <sup>*2</sup>	1 system

- \*1: The amount of data that can be accessed at one time depends on the modbus client.
- \*2: OPC interface connection is available by Field Wireless Device OPC Server (SSS7100).

#### Access Requests of Upper Communication Interface:

100BASE-TX : Max 240 times per second <sup>\*1</sup>  
RS-485 : Max 10 times per second

- \*1: Sum of access requests of field network interface.

#### Redundancy Architecture:

Hot standby redundancy system

#### Switching Time for Redundancy:

1 second (After detection of failure or receiving of switching request)

#### Update Rate of Field Wireless Device:

User Selectable 0.5 to 3600 seconds.

#### Diagnosis Functions:

CPU failures, communication interface malfunctions, out of range, abnormal settings.

#### Software Download Function:

The product's internal software, and YFGW510's internal software, and software within the field wireless device (communication firmware and sensor firmware) can be updated.

■ Installation Environment

**Temperature Range:**

Operating: -40 to +65°C (altitude : up to 2000m)  
 -40 to +55°C (altitude : more than 2000m, up to 3000m)  
 Storage: -40 to +85°C

**Humidity Range:**

Operating: 5 to 95 %RH (non-condensation)  
 Storage: 5 to 95 %RH (non-condensation)

**Temperature Gradient:**

Operating: ±10°C/h or less  
 Storage: ±20°C/h or less

**Power Supply:**

Voltage Range : 10.8~26.4 V DC  
 Rated Power Supply : 24 V DC  
 Momentary Power Failure : Instant Disconnection  
 DC Power Supply Ripple Ratio : 1%<sub>p-p</sub> or less

**Power Consumption:**

Max. 10 W

**Degrees of Protection:**

IP20

**Vibration Resistance:**

0.15 mm P-P (5~58 Hz) , 1 G (58~150 Hz)

**Shock Resistance:**

15 G 11 ms

**Noise Resistance:**

Electric Field : 3 V/m or less (80MHz~1GHz)  
 Electrostatic Discharges: 4 kV or less (contact discharge), 8 kV or less (aerial discharge)

**Grounding:**

Class-D grounding (no sharing ground with others)

**Cooling:**

Natural Air Cooling

■ Regulatory Compliance Statements

**CE Conformity:**

- EMC: EN61326-1 Class A, Table 2, EN55011 Class A group1, EN61000-6-2

**Safety Requirements:**

CSA C22.2 No. 61010-1 (Indoor use only)

■ Physical Specifications

**Housing Material:**

Aluminum alloy plate with polyester, mint-green paint (Munsell 5.6BG 3.3/2.9 or its equivalent)

**External Dimension:**

150 x 60 x 140 mm (not include projection)

**Weight:**

Approx. 1.0 kg

**Mounting:**

DIN RAIL Mounting

■ SOFTWARE SPECIFICATIONS

■ Field Wireless Management Console

This software is used loading into PC connected to this product. Installing this software into PC is not available.

**Configurator:**

The software deals with a field wireless network configuration and support.

**Monitor:**

The software can perform the management and the operation status check in field wireless network and a field wireless device.

■ Specifications and System Requirements

**Software License:**

Field Wireless Management Console: 1 license  
 Configurator: 1 client  
 Monitor: 3 clients

**Language:**

Software (GUI): English  
 Manual: Japanese or English

**Hardware Operating Environment\*1:**

Item	Recommended System Requirements
Processor	Intel Core i5-2520M or equivalent, or higher
Memory	2GB or more
Hard Disk	40GB or more (Minimum free space 15GB or more)
Display	Color: True Color (32 bits or more) Resolution: 1280 x 800 or higher
Communication Device	Ethernet Network Card

\*1: Field Wireless Configurator and Management Tool attached with Field Wireless Integrated gateway(YFGW710) can be used in one PC. For details of this product, see related products General Specifications.

**Software Operating Environment \*1,\*2:**

OS	Type
Windows 10 Pro <sup>3</sup>	32/64 bit
Windows 8.1 Pro Update <sup>4</sup>	32/64 bit
Windows 7 Professional Service Pack 1 <sup>4</sup>	32/64 bit
Windows Server 2012 R2 Standard Update <sup>4</sup>	64 bit
Windows Server 2008 R2 Enterprise Service Pack 1 <sup>4</sup>	64 bit
Windows Server 2008 Enterprise Service Pack 2 <sup>4</sup>	32 bit

- \*1: Japanese version and English version are supported.
- \*2: For 64bit OS, WOW64 (Windows 32-bit On Windows 64-bit) can be performed.
- \*3: Microsoft .NET Framework 4.6 is required.
- \*4: Microsoft .NET Framework 4.5.2 is required.

■ Configuration Tool for Field Wireless Devices

FieldMate is required to configure the wireless field device parameters. Use R2.05.00 or later version for configuration via ISA100.11a wireless communication, or R2.03.00 or later version for configuration via infrared communication. For details, see FieldMate Versatile Device Management Wizard.

## ■ MODEL AND SUFFIX CODES

Model	Suffix Code		Descriptions
<b>YFGW410</b>	.....		Field Wireless Management Station
General Specifications	Output signal	<b>-A</b> .....	Always A
	License	<b>-B</b> .....	Single License (10 Field wireless devices connectable) <sup>*1</sup>
		<b>-C</b> .....	Single License (100 Field wireless devices connectable) <sup>*2</sup>
		<b>-S</b> .....	Single License (500 Field wireless devices connectable)
		<b>-R</b> .....	Redundant License (500 Field wireless devices connectable)
	Manual Language	<b>0</b> .....	Japanese
		<b>1</b> .....	English
	Software Media	<b>0</b> .....	Provided with DVD-ROM
		<b>1</b> .....	None
	Mounting Bracket	<b>D</b> .....	DIN RAIL Mounting
	Sync Connector Termination	<b>0</b> .....	With Terminator <sup>*3</sup>
		<b>1</b> .....	With Cable for Redundancy <sup>*4</sup>
	---	<b>A</b> .....	Always A
---	<b>A</b> .....	Always A	
Option Codes		<input type="checkbox"/> Optional Specifications	

- \*1: One YFGW510 and one field wireless subnet are connectable.
- \*2: Two YFGW510s and one field wireless subnet are connectable.
- \*3: In case of single behavior, terminate the Sync Connector by the terminator.
- \*4: In case of redundant behavior, connect the cable for Redundancy between two YFGW410s.

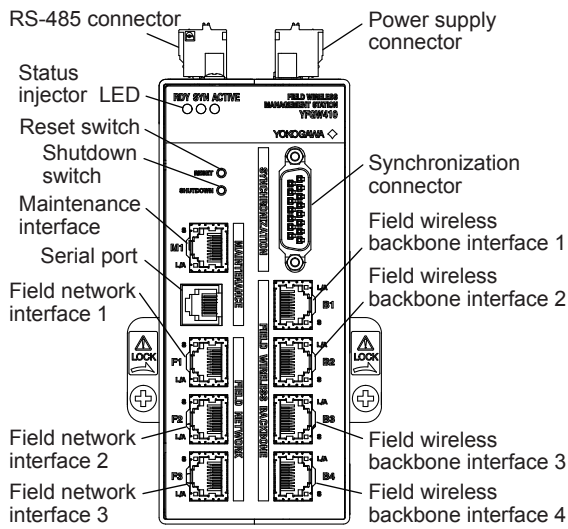
## ■ OPTIONAL SPECIFICATIONS (For Explosion Protected Types)

Item	Specification	Code
Factory Mutual (FM)	Nonincendive Approval <sup>*1</sup>	-
ATEX	ATEX Type n declaration <sup>*2</sup> Applicable Standard: EN60079-0: 2012+A11:2013, EN 60079-15:2010 II 3 G Ex nA IIC T4 Gc X Amb. Temp.(Tamb): -40 to 65°C (altitude: up to 2000 m), -40 to 55°C (altitude: more than 2000 m, up to 3000 m)	<b>KN27</b>
Canadian Standards Association (CSA)	Nonincendive Approval <sup>*1</sup>	-
IECEX	Type n Approval <sup>*2</sup>	-

- \*1: To be compliant with these standards, the YFGW410 hardware needs to be installed in a lockable metal cabinet.
- \*2: To be compliant with these standards, the YFGW410 hardware needs to be installed in a lockable metal cabinet of IP54 or higher protection rating.

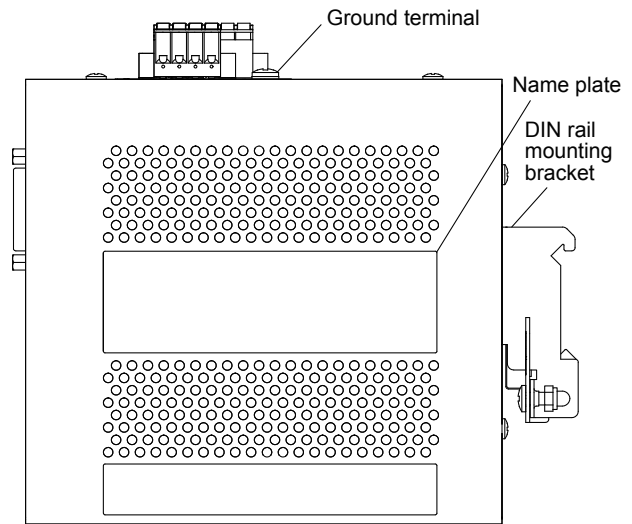
## ■ APPEARANCES

### ■ Front view



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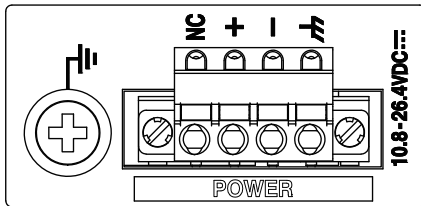
### ■ Right side



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## ■ TERMINAL CONFIGURATIONS

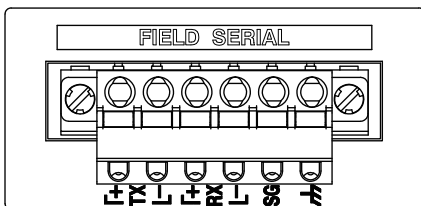
### ■ Power supply



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Terminal	Signal
NC	No Connection
+	24 V DC Hot
-	24 V DC Neutral
⏏	Frame Ground

### ■ RS-485

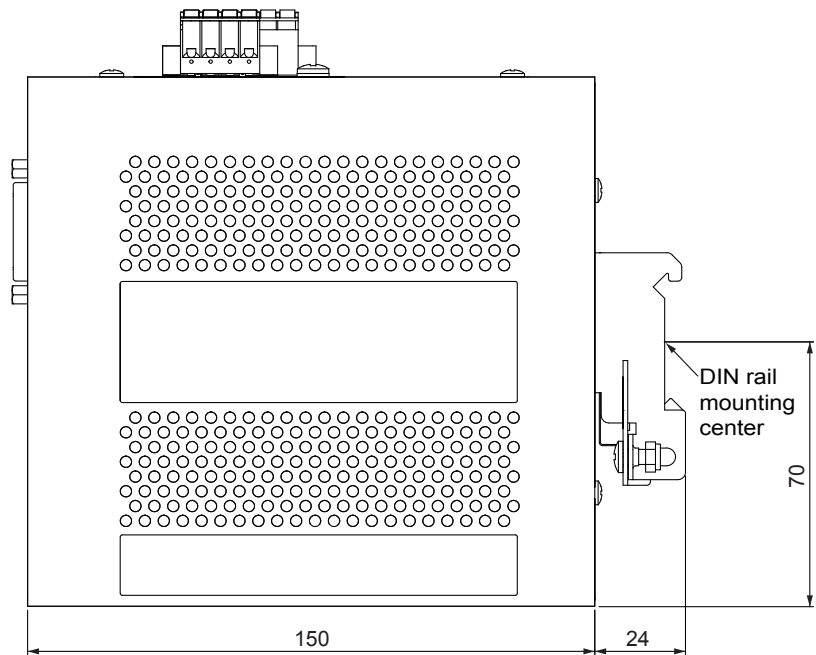
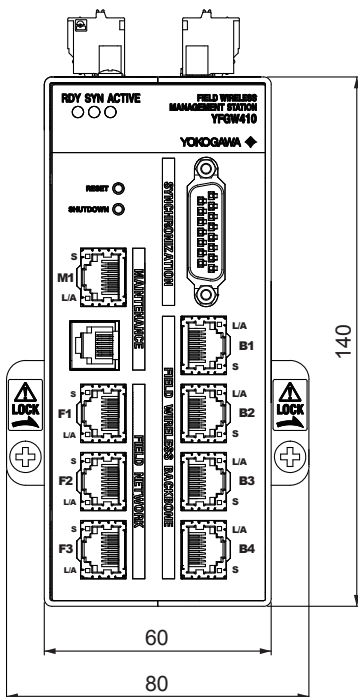
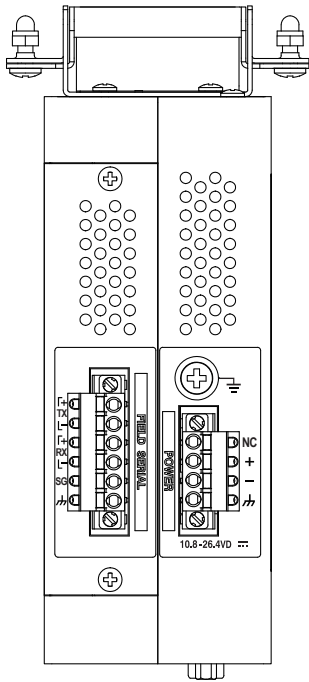


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Terminal	Signal (4-wire)	Signal (2-wire)
TX +	Transmit Data positive	Transmit/Receive Data positive
TX -	Transmit Data negative	Transmit/Receive Data negative
RX +	Receive Data positive	Same as TX +
RX -	Receive Data negative	Same as TX -
SG	Signal Ground	Signal Ground
⏏	Frame Ground	Frame Ground

## EXTERNAL DIMENSIONS

Unit : mm



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## NOTES FOR OPERATION

The check process of wireless communication, the operating environment of the system, deterioration of wireless quality, and communication path error and restoration may cause data loss, retransmission of the same data, or variations in the data update time.

## ■ ORDERING INFORMATION

Specify the following when ordering

1. Model, suffix codes, and option codes
2. Tag Number (if required)

Specify Tag number (up to 16 letters) to be engraved on the name plate.

## ■ RELATED PRODUCTS GENERAL SPECIFICATIONS

Field Wireless System Overview:	Refer to GS 01W01A01-01EN
Field Wireless Access Point YFGW510:	Refer to GS 01W02E01-01EN
Field Wireless Media Converter YFGW610:	Refer to GS 01W02D02-01EN
Field Wireless Integrated Gateway YFGW710:	Refer to GS 01W01F01-01EN
Field Wireless Device OPC server SSS7100:	Refer to GS 33M20S20-40E
FieldMate Versatile Device Management Wizard:	Refer to GS 01R01A01-01E
Plant Resource Manager (PRM) :	Refer to GS 33Y05Q10-32E

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