GENERAL
This General Specification (GS) describes the hardware specifications for Field Wireless Access Point and specifications of attached software. This product is based on the industrial automation wireless communication standard ISA100.11a of the International Society of Automation (ISA). ISA100.11a is approved as an International Standards (IEC 62734) by International Electrotechnical Commission (IEC). This product has backbone router function based on ISA100.11a, and combining this with Field Wireless Management Station (YFGW410) and/or Field Wireless Media Converter (YFGW610) composes the field wireless system. YFGW520 is a successor to YFGW510, enabling robust and longer distance backbone network construction. For outline of a field wireless system, and details of each product, see related product General Specifications.

FEATURES
● High-performance, compact industrial wireless access point
This product is an industrial wireless access point, compact and lightweight and supporting industrial automation wireless communication standard ISA100.11a. Enabling you to build a robust field wireless network, the access point provides reliable communication.
● Duocast (ISA100.11a Standard)
This product supports the "Duocast" function of ISA100.11a standard. Enabling simultaneous communication with two YFGW520s, thereby creating a redundant communication path, increasing the reliability of the field wireless network.
● Robust and plant-wide network
This product supports two types of optical fiber communication option, makes it possible to construct a noise resistant and long distance (max 5 km) backbone network by combining with YFGW610.
# HARDWARE SPECIFICATIONS

## Communication Interface

<table>
<thead>
<tr>
<th>Item</th>
<th>Field Network Specifications</th>
<th>Field Wireless Backbone Specifications *1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication Interface</td>
<td>Standard: IEEE802.15.4</td>
<td>100BASE-TX, 100BASE-FX</td>
</tr>
<tr>
<td>Frequency</td>
<td>2400–2483.5 MHz</td>
<td>–</td>
</tr>
<tr>
<td>Raw data rate</td>
<td>250 kbps</td>
<td>100 Mbps</td>
</tr>
<tr>
<td>Radio Security</td>
<td>AES128 bit</td>
<td>–</td>
</tr>
<tr>
<td>RF Transmitter Power</td>
<td>Max 12 dBm *2</td>
<td>–</td>
</tr>
<tr>
<td>Connector</td>
<td>N type</td>
<td>RJ-45, SC connector {single pole × 2} *3</td>
</tr>
<tr>
<td>Cable Type</td>
<td>coaxial</td>
<td>Category 5, Multimode Fiber *4, Single mode Fiber *5</td>
</tr>
<tr>
<td>Antenna</td>
<td>+2 dBi</td>
<td>–</td>
</tr>
<tr>
<td>Remote Antenna</td>
<td>+2 dBi, +6 dBi, +9 dBi</td>
<td>–</td>
</tr>
<tr>
<td>Maximum length</td>
<td>500 m *6</td>
<td>100 m, 2000 m, 5000 m</td>
</tr>
<tr>
<td>Port</td>
<td>1 port</td>
<td>1 port, 1 port</td>
</tr>
<tr>
<td>Protection</td>
<td>–</td>
<td>Surge</td>
</tr>
<tr>
<td>Communication Protocol</td>
<td>Field Wireless: ISA100.11a</td>
<td>–</td>
</tr>
<tr>
<td>Management, configuration, etc.</td>
<td>–</td>
<td>IEEE1588PTP v2 *7, Proprietary *8</td>
</tr>
</tbody>
</table>

*1: In outdoor wiring of Field Wireless Backbone, it is recommended to use optical fiber cables with a nonmetallic tension member, combining with YFGW610.

*2: This is the maximum radio output at N-type connector for antenna connection. Radio output power depends on the region and the antenna type.

*3: 2-pole SC connector cannot be used due to the conduit hole size limitation. SC connector should use Short Boot type.

*4: Core diameter / cladding diameter 50/125 μm core or 62.5 / 125 μm can be used.

*5: ITU-T G.652 compliant products can be used.

*6: The maximum length needs perfect conditions without an obstruction for radio wave transmission, using a standard antenna (2 dB). The maximum length changes with the environmental conditions and installation situations of a site.

*7: Installation of these multiple product and YFGW410 in one field wireless subnet requires direct connection or the connection via IEEE1588PTP basis products.

*8: TCP based custom protocol used for communication between this product and YFGW410.

## Performance

**Network Size:**
Max 100 field wireless devices are connectable.

**Display:**
LED displays the operating state of this product, and the operating state of wireless communications and cable communications.

**Diagnosis Functions:**
CPU failures, communication interface malfunctions, outside the range, abnormal settings.

**Software Download Function:**
The software inside this product and the software (communication firmware, sensor firmware) inside wireless field device can update via YFGW410.

## Installation Environment

**Temperature Range:**
Operating:
-40 to +70°C (altitude: up to 3000 m)
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:**
Rated Voltage: 24 V DC
Voltage Range*1 : 10.0-26.4 V DC
Momentary Power Failure: Instant Disconnection
DC Power Supply Ripple Ratio: 1% p-p or less

*1: The equipment shall not be operated outside the range.
### Power Consumption
- Max. 3.5 W

### Degrees of Protection
- IP66/IP67, Type 4X

### Vibration Resistance
- 0.21 mm P-P (10-60 Hz), 3 G (60-2000 Hz)

### Shock Resistance
- 50 G 11 ms (de-energized, with half-sine wave pulse in three directions)

### Noise Resistance
- Electric Field: 3 V/m or less (80 MHz-1 GHz)
- Electrostatic Discharges: 4 kV or less (contact discharge), 8 kV or less (air discharge)

### Grounding
- Class D grounding with the grounding resistance of 100 Ω or less is necessary. (no sharing ground with others)

### Cooling
- Natural Air Cooling

### Regulatory Compliance Statements
This device satisfies the following standards.
- Please confirm that this product fulfills an applicable standard in the installation region. If additional regulatory information and approvals are required, contact a Yokogawa representative.

### Telecommunication Compliance
- MIC Identification (Japan), FCC Approval (United States), ISED Approval (Canada), RE Directive (EU Countries)

### CE Conformity
- RoHs Directive: EN 50581
- ATEX Directive: See "OPTIONAL SPECIFICATION (For Explosion Protected type)"
- RE Directive:
  - Safety: EN 61010-1, EN 62479, EN 60825-1 *1
  - EMC: EN301 489-1, EN 301 489-17, EN 61326-1, EN 55011 Class A Group 1, EN 61000-6-2
  - Radio Spectrum: EN 300 328

### EMC Requirement
- NAMUR NE21 Compliance

### Safety Requirements
- CAN/CSA-C22.2 No.61010-1
- CSA-C22.2 No.94.2
- IEC 60529

### Physical Specifications

#### Connections
Refer to "MODEL AND SUFFIX CODES."

#### Housing
- Low copper cast aluminum alloy

#### Coating of housing
- Urethane curing type polyester resin powder coating
- Mint-green paint (Munsell 5.6BG 3.3/2.9 or its equivalent)
- [for option code /X2]
- Epoxy and polyurethane resin solvent coating

#### Name Plate and Tag
- 316 SST

#### Weight
- 3.0 kg (without mounting bracket, and process connector.)

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## SOFTWARE SPECIFICATIONS

### Field Wireless Access Point Setting Tool
This software is used for a setup and maintenance of this product. PC on which this software program installed is connected with this product via infrared communication.

### Specifications and System Requirements

#### Software License
- 1 license

#### Language
- Software (GUI): English
- Manual: Japanese or English

#### Hardware Operating Environment

<table>
<thead>
<tr>
<th>Item</th>
<th>Recommended System Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Intel Core i5-2520 M or equivalent, or higher</td>
</tr>
<tr>
<td>Memory</td>
<td>2 GB or more</td>
</tr>
<tr>
<td>Hard Disk</td>
<td>8 GB or more</td>
</tr>
<tr>
<td>Display</td>
<td>Color: High Color (16bits or more)</td>
</tr>
<tr>
<td></td>
<td>Resolution: 1024 x 768 or higher</td>
</tr>
<tr>
<td>Communication</td>
<td>Ethernet Network Card</td>
</tr>
<tr>
<td>Device</td>
<td>USB 2.0 port</td>
</tr>
</tbody>
</table>

#### Software Operating Environment *1:*2:

<table>
<thead>
<tr>
<th>OS</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Windows 10 Pro / Home</td>
<td>32/64 bit</td>
</tr>
<tr>
<td>Windows 7 Professional / Home Premium SP1</td>
<td>32/64 bit</td>
</tr>
</tbody>
</table>

*1: Japanese version and English version are supported.

*2: Microsoft .NET Framework 4.6.1 is required.
## MODEL AND SUFFIX CODES

<table>
<thead>
<tr>
<th>Model</th>
<th>Suffix Codes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>YFGW520</td>
<td>-A</td>
<td>Field Wireless Access Point</td>
</tr>
<tr>
<td>Output</td>
<td></td>
<td>ISA100.11a</td>
</tr>
<tr>
<td>signal</td>
<td>-A</td>
<td>100 BASE-TX</td>
</tr>
<tr>
<td></td>
<td>-2</td>
<td>100 BASE-FX (Multimode Fiber)</td>
</tr>
<tr>
<td></td>
<td>-6</td>
<td>100 BASE-FX (Single mode Fiber)</td>
</tr>
<tr>
<td>Housing</td>
<td>1</td>
<td>Low copper cast aluminum alloy</td>
</tr>
<tr>
<td>Electrical Connection</td>
<td>0</td>
<td>G1/2 female, two electrical connections, without blind plugs</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1/2 NPT female, two electrical connections, without blind plugs</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>M20 female, two electrical connections, without blind plugs</td>
</tr>
<tr>
<td>License</td>
<td>-S</td>
<td>Software license</td>
</tr>
<tr>
<td>Manual language</td>
<td>0</td>
<td>Japanese</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>English</td>
</tr>
<tr>
<td>Software media</td>
<td>0</td>
<td>Provided with DVD-ROM</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>None</td>
</tr>
<tr>
<td>Mounting bracket</td>
<td>B</td>
<td>304 SST 2-inch pipe mounting (for horizontal piping) *1</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>304 SST 2-inch pipe mounting (for vertical piping) *1</td>
</tr>
<tr>
<td></td>
<td>J</td>
<td>316 SST 2-inch pipe mounting (for horizontal piping) *1</td>
</tr>
<tr>
<td></td>
<td>K</td>
<td>316 SST 2-inch pipe mounting (for vertical piping) *1</td>
</tr>
<tr>
<td>ISA100.11a antenna</td>
<td>1</td>
<td>Detachable antenna 2 dBi (2.4 GHz)</td>
</tr>
<tr>
<td></td>
<td>A</td>
<td>Antenna adaptor: N-type connector *2 *3</td>
</tr>
<tr>
<td>License</td>
<td>-S</td>
<td>Software license</td>
</tr>
<tr>
<td>Manual language</td>
<td>-N</td>
<td>Always N</td>
</tr>
<tr>
<td>Software media</td>
<td>-N</td>
<td>Always N</td>
</tr>
<tr>
<td>Option codes</td>
<td>-A</td>
<td>Always A</td>
</tr>
</tbody>
</table>

*1: A bolt is required for wall attachment.  
*2: Select an antenna and a remote antenna cable. For details, refer to the accessory.  
*3: In order for the wireless output of an antenna to get the maximum which the area permits, adjustment by service of Yokogawa is required.
### OPTIONAL SPECIFICATIONS (For Explosion Protected Types)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
</table>

*1: G1/2 electrical connection (Electrical connection code: 0) cannot be selected.  
*2: Applies only English manual language (Manual language code: 1).  
*3: CE marking is omitted from the product when this option is selected.

### OTHER OPTIONAL SPECIFICATIONS

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Painting</td>
<td>Coating change</td>
<td>Anti-corrosion coating</td>
</tr>
</tbody>
</table>

### ACCESSORY

<table>
<thead>
<tr>
<th>Item</th>
<th>Parts Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remote antenna cable</td>
<td>F9915KU</td>
<td>3 m with mounting bracket</td>
</tr>
<tr>
<td></td>
<td>F9915KV</td>
<td>13 m (3 m+10 m) with surge protective device and mounting bracket</td>
</tr>
<tr>
<td>Antenna</td>
<td>F9915KW</td>
<td>2 dBi Standard Antenna (2.4 GHz)</td>
</tr>
<tr>
<td></td>
<td>F9915KY</td>
<td>6 dBi High gain antenna (2.4 GHz) *1</td>
</tr>
<tr>
<td></td>
<td>F9195VG</td>
<td>9 dBi High gain antenna (2.4 GHz) *1</td>
</tr>
</tbody>
</table>

*1: High gain antenna cannot perform direct connection to this product.
### EXTERNAL DIMENSIONS

- **2-inch pipe mounting (for horizontal piping)**

  - Status indicator LED
  - Infrared Port
  - 2-inch pipe
  - 2-inch pipe Mounting bracket

  **Dimensions (mm):**
  - 108 (4.25)
  - 134 (5.28)
  - 296 (11.69)
  - 142 (5.59)
  - 104 (4.09)
  - 61 (2.40)
  - 40 (1.57)
  - 31 (1.22)
  - 57.5 (2.26)
  - 75 (2.95)

- **2-inch pipe mounting (for vertical piping)**

  - Status indicator LED
  - Infrared Port
  - 2-inch pipe
  - 2-inch pipe Mounting bracket

  **Dimensions (mm):**
  - 134 (5.28)
  - 108 (4.25)
  - 142 (5.59)
  - 107 (4.21)
  - 104 (4.09)
  - 107 (4.21)
  - 296 (11.69)
  - 70.3 (2.77)
  - 150 (5.91)
  - 57.5 (2.26)
  - 75 (2.95)

**Unit:** mm (approx. inch)
### Antenna

- **Standard Antenna** (F9915KW)
  - Directional: Non-directional
  - Gain: 2 dBi

- **High gain antenna** (F9915KY)
  - Directional: Non-directional
  - Gain: 6 dBi

- **High gain antenna** (F9195VG)
  - Directional: Non-directional
  - Gain: 9 dBi

### Remote antenna cable

- **Cable 3 m**
- **Cable 13 m**

- Antenna extension cable 2
  - Length 10 m
  - Surge protective device

- Antenna extension cable 1
  - Length 3 m
Antenna mounting bracket

INFRARED CONFIGURATION

TERMINAL CONFIGURATIONS

Communication Interface Code: 1

Communication Interface Code: 2, 6
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 tag plate. The characters can be specified using alphanumeric and the symbols, [ - ] and [ _ ].

RELATED PRODUCTS GENERAL SPECIFICATIONS
Field Wireless System Overview :
   Refer to GS 01W01A01-01EN
Field Wireless Management Station YFGW410:
   Refer to GS 01W02D01-01EN
Field Wireless Media Convertor YFGW610:
   Refer to GS 01W02D02-01EN

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