

# General Specifications

EJX210B  
Flange Mounted  
Differential Pressure Transmitter



GS 01C27C01-01EN

The high performance flange mounted differential pressure transmitter EJX210B features single crystal silicon resonant sensor and is suitable to measure levels of densities of solidifying or precipitating liquids. EJX210B transmits not only process variables but also the setting parameters using wireless signal. In case of the battery powered type, the transmitter runs on internal batteries, and the installation cost can be decreased since hard-wiring is not required. The communication protocol is compliant with ISA100.11a protocol specifications.



## ■ FEATURES

- Long Life Battery Design**  
 Ultra low current consumption design using two high capacity lithium-thionyl chloride batteries provide wireless operation for years.
- Security Assured Wireless Network Joining**  
 Infrared communication between the devices for wireless network configuration and parameter setting.
- Quick Update Time**  
 Selectable from 0.5 second to 60 minutes for measured process value to publish wirelessly.

## ■ STANDARD SPECIFICATIONS

- WIRELESS SPECIFICATIONS**  
 Communication protocol: ISA100.11a protocol  
 Data rate: 250 kbps  
 Frequency: 2400 - 2483.5 MHz license free ISM band  
 Radio security: AES 128 bit codified  
 RF Transmitter power: Max. 11.6 dBm  
 Antenna: +2 dBi Omni directional monopole type  
 Separately sold remote antenna and antenna cables can be used.

## ■ POWER SUPPLY SPECIFICATIONS

Battery:  
 Use the dedicated battery pack.  
 Rated voltage: 7.2 V  
 Rated capacity: 19 Ah  
 External Power Source:  
 Rated voltage: 10.5 to 30 V DC  
 Rated current: 36 mA

## ■ SPAN AND RANGE LIMITS

Measurement Span/Range	kPa	inH <sub>2</sub> O/(D1)	mbar/(D3)	mmH <sub>2</sub> O/(D4)	
M	Span	1 to 100	4 to 400	10 to 1000	100 to 10000
	Range	-100 to 100	-400 to 400	-1000 to 1000	-10000 to 10000
H	Span	5 to 500	20 to 2000	50 to 5000	0.05 to 5 kgf/cm <sup>2</sup>
	Range	-500 to 500	-2000 to 2000	-5000 to 5000	-5 to 5 kgf/cm <sup>2</sup>

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## ■ PERFORMANCE SPECIFICATIONS

Zero-based calibrated span, linear output, wetted parts material code SW for 3-inch flange flush type, fill fluid code B, and in the continuous measurement mode.

### Specification Conformance

EJX series ensures specification conformance to at least  $\pm 3\sigma$ .

### Reference Accuracy of Calibrated Span

(includes terminal-based linearity, hysteresis, and repeatability)

Measurement span		H
Reference accuracy	X ≤ span	±0.075% of Span
	X > span	±(0.025+0.01 URL/span)% of Span
X		100 kPa (400 inH <sub>2</sub> O)
URL (upper range limit)		500 kPa (2000 inH <sub>2</sub> O)

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Measurement span		M
Reference accuracy	X ≤ span	±0.075% of Span
	X > span	±(0.025+0.005 URL/span)% of Span
X		10 kPa (40 inH <sub>2</sub> O)
URL (upper range limit)		100 kPa (400 inH <sub>2</sub> O)

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**Ambient Temperature Effects per 28°C (50°F) Change**

Capsule	Effect
H	±[0.14% Span +0.028% URL]
M	±[0.224% Span +0.056% URL]

**Static Pressure Effects per 0.69 MPa (100 psi) Change**

**Span Effects**

M and H capsules  
±0.028% of span

**Effect on Zero**

M and H capsules  
±0.007% of URL

**Stability**

±0.1 % of URL per 12 months

**Battery Characteristic**

Battery pack with long life lithium-thionyl chloride batteries. With the intrinsically safe type, the battery pack is replaceable in hazardous area.

Typical battery life is 10 years at 60 seconds update time or 4 years at 10 seconds update time in the following conditions.\*

- Ambient temperature: 23±2°C
- Device role: IO mode
- LCD display: off

\* Environmental condition such as vibration may affect the battery life.

**Response Time (Differential pressure)**

M and H capsule: 180 ms (approximate value at normal temperature)

Including dead time of 100 ms (nominal)

**Static Pressure Signal Range and Accuracy**

**(Includes terminal-based linearity, hysteresis, and repeatability)**

**Range**

Upper Range Value and Lower Range Value of the static pressure can be set in the range between 0 and Maximum Working Pressure (MWP\*). The upper range value must be greater than the lower range value. Minimum setting span is 0.5 MPa (73 psi).

\*: Maximum Working Pressure (MWP) is within flange rating pressure.

**Accuracy**

Absolute Pressure

1 MPa or higher: ±0.2% of span

Less than 1 MPa: ±0.2%×(1 MPa/span) of span

Gauge Pressure Reference

Gauge pressure reference is 1013 hPa (1 atm)

Note : Gauge pressure variable is based on the above fixed reference and thus subject to be affected by the change of atmospheric pressure.

**■ FUNCTIONAL SPECIFICATIONS**

**Output**

Wireless (ISA100.11a protocol) 2.4 GHz signal. Output mode, linear or square root, is selectable.

**Update Time**

Measurement mode	Differential pressure	Pressure
Continuous	100 ms	100 ms
Intermittent	0.5 to 3600 s selectable	0.5 to 3600 s selectable

The transmitter shifts to the continuous mode when the update time is set to 0.5 second.

**Zero Adjustment Limits**

Zero can be fully elevated or suppressed, within the lower and upper range limits of the capsule.

**External Zero Adjustment**

External zero is continuously adjustable with 0.01% incremental resolution of span.

**Integral Indicator (LCD display)**

5-digit numerical display, 6-digit unit display and bar graph.

The indicator is configurable to display one or up to three of the following variables periodically.; Differential pressure, static pressure, temperature. See also "Factory Setting."

**Self Diagnostics**

Capsule failure, amplifier failure, configuration error, battery alarm, wireless communication alarm and over-range error for process variables.

**Software Download Function**

Software download function permits to update wireless field device software via ISA100.11a wireless communication.

**Battery Pack**

2x primary lithium-thionyl chloride batteries with battery case (batteries sold separately)

**■ NORMAL OPERATING CONDITION**

**(Optional features or approval codes may affect limits.)**

**Ambient Temperature Limits**

-40 to 85°C (-40 to 185°F)

-30 to 80°C (-22 to 176°F) LCD visible range

(Note: The ambient temperature limits must be within the fill fluid operating temperature range, see table 1.)

**Process Temperature Limits**

High pressure side: See table 1.

Low pressure side: 40 to 120°C (-40 to 248°F)

**Ambient Humidity Limits**

0 to 100% RH

**Working Pressure Limits**

See table 1.

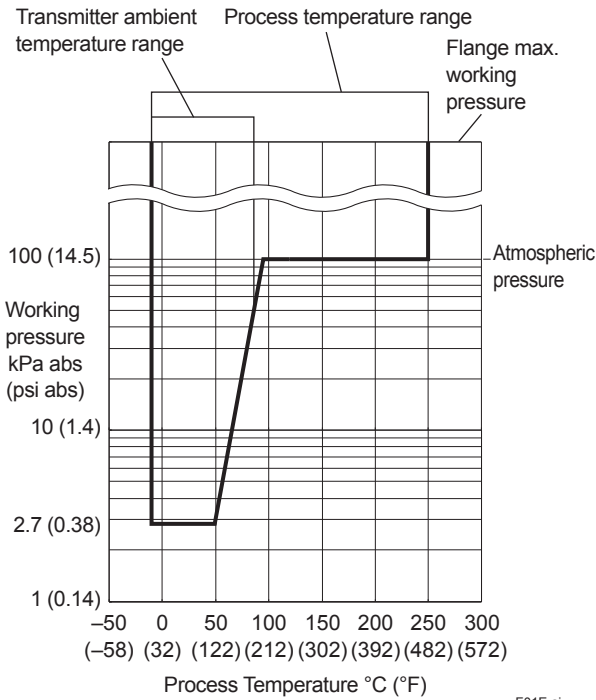
For atmospheric pressure or below, see figure 1.

**Table 1. Process temperature, Ambient temperature, and Working pressure**

	Code	Process temperature *1*2	Ambient temperature *3	Working pressure
Silicone oil	A	-10 to 250°C *4 (14 to 482°F)	-10 to 85°C (14 to 185°F)	2.7 kPa abs (0.38 psi abs) to flange rating pressure

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- \*1: See figure 1 'Working Pressure and Process Temperature.'
- \*2: Indicates high pressure side value. The process temperature limit for low pressure side is -40 to 120°C (-40 to 248°F).
- \*3: This ambient temperature is the transmitter ambient temperature.
- \*4: In case of wetted parts material code **TW** (Tantalum), process temperature limit is up to 200°C (392°F).



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**Figure 1. Working Pressure and Process Temperature**

**REGULATORY COMPLIANCE STATEMENTS**

This device contains the wireless module which satisfies the following standards.

- \* Please confirm that an installation region fulfills an applicable standard. If additional regulatory information and approvals are required, contact a Yokogawa representative.

**EMC Conformity Standards**

EN61326-1 Class A, Table 2 (For use in industrial locations), EN61326-2-3

**Radio Equipment Directive (RE)**

ETSI EN 300 328, ETSI EN 301 489-1, ETSI EN 301 489-17, EN61010-1, EN61010-2-030, EN62311

- Indoor/Outdoor use

**European Pressure Equipment Directive 2014/68/EU**

Sound Engineering Practice

**EU RoHS Directive**

EN50581

**Safety Requirement Standards**

- EN61010-1, EN61010-2-030
- Installation category: I (Anticipated transient overvoltage 330 V)
- Pollution degree: 2
- Indoor/Outdoor use

**Regulation Conformity of the Wireless Module**

- FCC Approval
- ISED Approval

**PHYSICAL SPECIFICATIONS**

**Process connections**

**High pressure side:**  
Flange connected  
See the following table.

**Table 2. Flange size and rating**

Process connection style	Size	Flange
Flush type	3-inch	JIS 10K, 20K
	2-inch	ANSI Class 150, 300
	1 1/2-inch*	JPI Class 150, 300 DIN PN10/16, 25/40
Extended type	4-inch	JIS 10K, 20K
	3-inch	ANSI Class 150, 300 JPI Class 150, 300 DIN PN10/16, 25/40

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\*: Flushing connection rings are always attached.

**Low pressure side:**

Threaded  
See "MODEL AND SUFFIX CODES."  
Process connection of cover flange: IEC61518

**Gasket Contact Surface**

See the following table.

**Table 3. Gasket contact surface**

Flange	JIS/JPI/DIN		ANSI	
	SW, SE, WW, WE	HW, TW	SW, SE, WW, WE	HW, TW
Wetted parts material code				
Gasket contact Surface	Serration*1	—	●	—
	Flat (No serration)	●	●	●

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- : Applicable, —: Not applicable
- \*1: ANSI B16.5

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**Wetted Parts Material**

**High pressure side:**

Refer to "MODEL AND SUFFIX CODES"

**Flushing connection ring (optional)**

**Ring and Vent/Drain plugs**

Refer to "MODEL AND SUFFIX CODES"

**(Spiral) gasket for transmitter side**

316 SST (Hoop), PTFE Teflon (Filler)

**Low pressure side:**

**Diaphragm, Cover Flange, Process Connector, Capsule Gasket, and Vent/Drain plug**

Refer to "MODEL AND SUFFIX CODES"

**Process connector gasket**

PTFE Teflon

**Non-wetted Parts Material**

**Process Flange**

Refer to "MODEL AND SUFFIX CODES"

**Bolting**

B7 carbon steel, 316L SST, or 660 SST

**Housing**

Low copper cast aluminum alloy

**Coating of housing**

[for aluminum housing]

Urethane-cured polyester resin powder coating

Mint-green paint (Munsell 5.6BG 3.3/2.9 or its equivalent)

[for option code /P□ or /X2]

Epoxy and polyurethane resin solvent spray coating

**Degrees of Protection**

IP66/IP67, NEMA4X

**Cover O-rings**

Buna-N

**Name plate and tag**

316 SST tag plate wired onto transmitter.

**Fill Fluid**

Silicone oil, Fluorinated oil (optional)

**Weight**

**Flush type**

3-inch ANSI Class150 flange: 11.1 kg (24.2 lbs)\*

**Extended type**

4-inch ANSI Class150 flange, extension length (X<sub>2</sub>)= 100 mm: 15.6 kg (34.4 lbs)\*

- \* The weight does not include that of battery pack, mounting bracket and process connector. Add 0.3 kg for the external powered type.

**< Related Instruments >**

Field Wireless System: Refer to GS 01W01A01-01EN

Field Wireless Management Station YFGW410:

GS 01W02D01-01EN

Field Wireless Access Point YFGW510:

GS 01W02E01-01EN

Field Wireless Access Point YFGW520:

GS 01W02E02-01EN

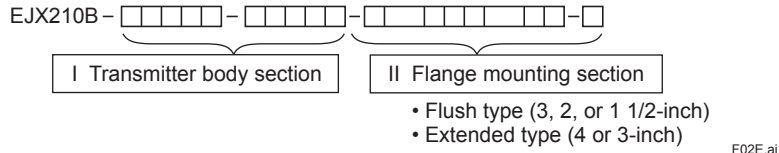
Field Wireless Media Converter YFGW610:

GS 01W02D02-01EN

## MODEL AND SUFFIX CODES

### Instruction

The model and suffix codes for EJX210B consist of two parts; a transmitter body section (I) and a flange mounting section (II). This specification sheet introduces these two parts separately. The transmitter body section is shown in one table, and the flange mounting section specifications are listed according to the flange size and the process connection style. First select the model and suffix codes of transmitter body section and then continue on one of the flange mounting section.



### I. Transmitter body section



Model	Suffix codes	Description
<b>EJX210B</b>	.....	Flange mounted differential pressure transmitter
Output signal	<b>-L</b> .....	Wireless communication (ISA100.11a protocol)
	<b>-1</b> .....	Wireless communication (ISA100.11a protocol); successor of code -L
Measurement span (Capsule)	<b>M</b> .....	1 to 100 kPa (4 to 400 inH <sub>2</sub> O)
	<b>H</b> .....	5 to 500 kPa (20 to 2000 inH <sub>2</sub> O)
Low pressure side wetted parts material	<b>S</b> .....	Refer to "Low Pressure Side Wetted Parts Materials" Table below.
Low pressure side Process connections	<b>0</b> .....	without process connector (Rc 1/4 female on the cover flange)
	<b>1</b> .....	with Rc 1/4 female process connector
	<b>2</b> .....	with Rc 1/2 female process connector
	<b>3</b> .....	with 1/4 NPT female process connector
	<b>4</b> .....	with 1/2 NPT female process connector
	<b>▶ 5</b> .....	without process connector (1/4 NPT female on the cover flange)
Coverflange bolts and nuts material	<b>J</b> .....	B7 carbon steel
	<b>G</b> .....	316L SST
	<b>C</b> .....	660 SST
Installation	<b>-9</b> .....	Horizontal piping type and left side high pressure
Amplifier housing	<b>8</b> .....	Cast aluminum alloy with detachable antenna (2 dBi) <sup>*2</sup>
	<b>9</b> .....	Cast aluminum alloy without antenna (N connector) <sup>*1*2</sup>
Electrical connection	<b>J</b> .....	No electrical connection, battery powered type (battery case only; battery cells not included)
	<b>0</b> .....	G1/2 female, one electrical connection without blind plugs, external powered type
	<b>2</b> .....	1/2 NPT female, two electrical connections without blind plugs, external powered type
	<b>5</b> .....	G1/2 female, two electrical connections and a blind plug, external powered type
	<b>7</b> .....	1/2 NPT female, two electrical connections and a blind plug, external powered type
	<b>A</b> .....	G1/2 female, two electrical connections and a 316 SST blind plug, external powered type
	<b>C</b> .....	1/2 NPT female, two electrical connections and a 316 SST blind plug, external powered type
Integral Indicator	<b>D</b> .....	Digital indicator
—	<b>N</b> .....	Always N
Flange mounting section	- <span style="border: 1px solid black; padding: 2px;">  </span> - <span style="border: 1px solid black; padding: 2px;">  </span> - <span style="border: 1px solid black; padding: 2px;">  </span> - <span style="border: 1px solid black; padding: 2px;">  </span>	Continued on flange mounting section (II)

The '▶' marks indicate the most typical selection for each specification.

\*1: Order the antenna separately from accessory option.

\*2: Remote antenna cables can be attached. Order separately from accessory option.

**Table. Low Pressure Side Wetted Parts Materials**

Low pressure side wetted parts material code	Cover flange and process connector	Capsule	Capsule gasket	Vent/Drain plug
S #	ASTM CF-8M <sup>*1</sup>	Hastelloy C-276 <sup>*2</sup> (Diaphragm) F316L SST, 316L SST (Others)	Teflon-coated 316L SST	316 SST

\*1: Cast version of 316 SST. Equivalent to SCS14A.

\*2: Hastelloy C-276 or ASTM N10276

The '#' marks indicate the construction materials conform to NACE material recommendations per MR01-75 (2003). For the use of 316 SST material, there may be certain limitations for pressure and temperature. Please refer to NACE standards for details.

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**II. Flange mounting section (Flush type)**

- **Precess flange size: 3-inch (80 mm)**

EJX210B -     -     - W  3     -

Model	Suffix codes	Description
<b>EJX210B</b>	- <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> - W <input type="text"/> 3 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> - <input type="text"/>	Transmitter body section (I)
Process connection style	<b>-W</b> .....	Flush type
Flange rating	<b>J1</b> ..... JIS 10K <b>J2</b> ..... JIS 20K <b>A1</b> ..... ANSI class 150 <b>A2</b> ..... ANSI class 300 <b>P1</b> ..... JPI class 150 <b>P2</b> ..... JPI class 300 <b>D2</b> ..... DIN PN10/16 <b>D4</b> ..... DIN PN25/40	
Flange size	<b>3</b> .....	3-inch (80 mm)
Flange material	<b>A</b> ..... JIS S25C ▶ <b>B</b> ..... 304 SST*9 <b>C</b> ..... 316 SST*9	
Gasket contact surface *1	<b>1</b> ..... Serration (for ANSI flange with wetted parts material SW only) <b>2</b> ..... Flat (no serration)	
Wetted parts material (high pressure side) *8	<b>SW</b> ..... [Diaphragm] 316L SST # <b>HW</b> ..... Hastelloy C-276*6 # <b>TW</b> ..... Tantalum*7	[Others] 316 SST # Hastelloy C-276*6 # Tantalum*7
Flushing connection ring *2	▶ <b>0</b> ..... None <b>A</b> ..... Straight type <b>B</b> ..... Straight type	[Ring] [Vent/Drain plugs] [Material] None — — Straight type R 1/4 connections*5 316 SST # Straight type 1/4 NPT connections 316 SST #
Extension	<b>0</b> .....	None
Fill fluid	<b>-A</b> ...	[Process temperature] *3 [Ambient temperature] Silicone oil -10 to 250°C*4 -10 to 85°C
Option codes		/ <input type="checkbox"/> Optional specification

The '▶' marks indicate the most typical selection for each specification. Example: EJX210B-LMS5G-98JDN-WA13B1SW00-A/□

\*1: See Table 3 'Gasket contact surface.'

\*2: When specified flushing connection ring code **A** or **B**, exclusive gasket is provided for transmitter side.

\*3: Indicates the process temperature limit of high pressure side.

The process temperature limit for low pressure side is -40 to 120°C.

\*4: In case of wetted parts material code **TW** (Tantalum), the process temperature limit is -10 to 200°C.

\*5: Not applicable for gasket contact surface code **1**.

\*6: Hastelloy C-276 or ASTM N10276

\*7: Not applicable for flushing connection ring code **A** and **B**.

\*8: ⚠Users must consider the characteristics of selected wetted parts material and the influence of process fluids. The use of inappropriate materials can result in the leakage of corrosive process fluids and cause injury to personnel and/or damage to plant facilities. It is also possible that the diaphragm itself can be damaged and that material from the broken diaphragm and the fill fluid can contaminate the user's process fluids.

Be very careful with highly corrosive process fluids such as hydrochloric acid, sulfuric acid, hydrogen sulfide, sodium hypochlorite, and high-temperature steam (150°C [302°F] or above). Contact Yokogawa for detailed information of the wetted parts material.

\*9: Forged version of the material may be used.

The '#' marks indicate the construction materials conform to NACE material recommendations per MR01-75 (2003).

Please refer to NACE standards for details.

**II. Flange mounting section (Flush type)**

- **Precess flange size: 2-inch (50 mm)**

EJX210B - □□□□ - □□□□ - W□□ 2 □□□□□□ - □□

Model	Suffix codes	Description
<b>EJX210B</b>	- □□□□ - □□□□	Transmitter body section (I)
Process connection style	<b>-W</b> .....	Flush type
Flange rating	<b>J1</b> ..... JIS 10K <b>J2</b> ..... JIS 20K <b>A1</b> ..... ANSI class 150 <b>A2</b> ..... ANSI class 300 <b>P1</b> ..... JPI class 150 <b>P2</b> ..... JPI class 300 <b>D2</b> ..... DIN PN10/16 <b>D4</b> ..... DIN PN25/40	
Flange size	<b>2</b> .....	2-inch (50 mm)
Flange material	<b>A</b> ..... JIS S25C ▶ <b>B</b> ..... 304 SST* <sup>9</sup> <b>C</b> ..... 316 SST* <sup>9</sup>	
Gasket contact surface * <sup>1</sup>	<b>1</b> ..... Serration (for ANSI flange with wetted parts material WW only) <b>2</b> ..... Flat (no serration)	
Wetted parts material (high pressure side) * <sup>8</sup>	<b>WW</b> ..... [Diaphragm] [Others] <b>HW</b> ..... Hastelloy C-276* <sup>6</sup> # 316 SST # <b>TW</b> ..... Hastelloy C-276* <sup>6</sup> # Hastelloy C-276* <sup>6</sup> # Tantalum* <sup>7</sup> Tantalum* <sup>7</sup>	
Flushing connection ring * <sup>2</sup>	▶ <b>0</b> ..... [Ring] [Vent/Drain plugs] [Material] None — — <b>A</b> ..... Straight type R 1/4 connections* <sup>5</sup> 316 SST # <b>B</b> ..... Straight type 1/4 NPT connections 316 SST #	
Extension	<b>0</b> .....	None
Fill fluid	<b>-A</b> .....	[Process temperature] * <sup>3</sup> [Ambient temperature] Silicone oil -10 to 250°C* <sup>4</sup> -10 to 85°C
Option codes		/□ Optional specification

The '▶' marks indicate the most typical selection for each specification. Example: EJX210B-LMS5G-98JDN-WA12B1WW00-A/□

\*1: See Table 3 'Gasket contact surface.'

\*2: When specified flushing connection ring code **A** or **B**, exclusive gasket is provided for transmitter side.

\*3: Indicates the process temperature limit of high pressure side.

The process temperature limit for low pressure side is -40 to 120°C.

\*4: In case of wetted parts material code **TW** (Tantalum), the process temperature limit is -10 to 200°C.

\*5: Not applicable for gasket contact surface code **1**.

\*6: Hastelloy C-276 or ASTM N10276

\*7: Not Applicable for flushing connection ring code **A** and **B**.

\*8: ⚠ Users must consider the characteristics of selected wetted parts material and the influence of process fluids. The use of inappropriate materials can result in the leakage of corrosive process fluids and cause injury to personnel and/or damage to plant facilities. It is also possible that the diaphragm itself can be damaged and that material from the broken diaphragm and the fill fluid can contaminate the user's process fluids.

Be very careful with highly corrosive process fluids such as hydrochloric acid, sulfuric acid, hydrogen sulfide, sodium hypochlorite, and high-temperature steam (150°C [302°F] or above). Contact Yokogawa for detailed information of the wetted parts material.

\*9: Forged version of the material may be used.

The '#' marks indicate the construction materials conform to NACE material recommendations per MR01-75 (2003).

Please refer to NACE standards for details.

**II. Flange mounting section (flush type)**

- **Process flange size: 1 1/2-inch (40 mm)**

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Model	Suffix codes	Description
<b>EJX210B</b>	- <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> - W <input type="text"/> 8 <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> - <input type="text"/>	Transmitter body section (I)
Process connection style	<b>-W</b> .....	Flush type
Flange rating	<b>J1</b> ..... <b>J2</b> ..... <b>A1</b> ..... <b>A2</b> ..... <b>P1</b> ..... <b>P2</b> .....	JIS 10K JIS 20K ANSI class 150 ANSI class 300 JPI class 150 JPI class 300
Flange size	<b>8</b> .....	1 1/2-inch (40 mm)
Flange material	<b>A</b> ..... ▶ <b>B</b> ..... <b>C</b> .....	JIS S25C 304 SST*7 316 SST*7
Gasket contact surface *1	<b>1</b> ..... <b>2</b> .....	Serration (for ANSI flange only) Flat (no serration)
Wetted parts material (high pressure side) *6	<b>WW</b> .....	[Diaphragm] [Others] Hastelloy C-276*5 # 316 SST #
Flushing connection ring *2	▶ <b>C</b> ..... <b>D</b> .....	[Ring] [Vent/Drain plugs] [Material] Reducer type R 1/4 connections*4 316 SST # Reducer type 1/4 NPT connections 316 SST #
Extension	<b>0</b> .....	None
Fill fluid	<b>-A</b> ...	[Process temperature] *3 [Ambient temperature] Silicone oil -10 to 250°C -10 to 85°C
Option codes		/ <input type="checkbox"/> Optional specification

The '▶' marks indicate the most typical selection for each specification. Example: EJX210B-LMS5G-98JDN-WA18B1WWC0-A/

- \*1: See Table 3 'Gasket contact surface.'
  - \*2: When specified flushing connection ring code **C** or **D**, exclusive gasket is provided for transmitter side.
  - \*3: Indicates the process temperature limit of high pressure side.  
The process temperature limit for low pressure side is -40 to 120°C.
  - \*4: Not applicable for gasket contact surface code **1**.
  - \*5: Hastelloy C-276 or ASTM N10276
  - \*6: ⚠ Users must consider the characteristics of selected wetted parts material and the influence of process fluids. The use of inappropriate materials can result in the leakage of corrosive process fluids and cause injury to personnel and/or damage to plant facilities. It is also possible that the diaphragm itself can be damaged and that material from the broken diaphragm and the fill fluid can contaminate the user's process fluids.  
Be very careful with highly corrosive process fluids such as hydrochloric acid, sulfuric acid, hydrogen sulfide, sodium hypochlorite, and high-temperature steam (150°C [302°F] or above). Contact Yokogawa for detailed information of the wetted parts material.
  - \*7: Forged version of the material may be used.
- The '#' marks indicate the construction materials conform to NACE material recommendations per MR01-75 (2003). Please refer to NACE standards for details.

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**II. Flange mounting section (Extended type)**

- **Process flange size: 3-inch (80 mm)**

EJX210B -  -  - E  3  -

Model	Suffix codes	Description
<b>EJX210B</b>	- <input type="text"/> - <input type="text"/> .....	Transmitter body section (I)
Process connection style	<b>-E</b> .....	Extended type
Flange rating	<b>J1</b> ..... JIS 10K <b>J2</b> ..... JIS 20K <b>A1</b> ..... ANSI class 150 <b>A2</b> ..... ANSI class 300 <b>P1</b> ..... JPI class 150 <b>P2</b> ..... JPI class 300 <b>D2</b> ..... DIN PN10/16 <b>D4</b> ..... DIN PN25/40	
Flange size	<b>3</b> .....	3-inch (80 mm)
Flange material	<b>A</b> ..... JIS S25C <b>B</b> ..... 304 SST*5 <b>C</b> ..... 316 SST*5	
Gasket contact surface *1	<b>1</b> ..... Serration (for ANSI flange only) <b>2</b> ..... Flat (no serration)	
Wetted parts material (high pressure side) *4	<b>WE</b> .....	[Diaphragm] [Others] [Pipe] Hastelloy C-276*3# 316 SST # 316 SST #
Flushing connection ring	<b>0</b> .....	None
Extension	<b>1</b> ..... Length (X <sub>2</sub> ) = 50 mm <b>3</b> ..... Length (X <sub>2</sub> ) = 100 mm <b>5</b> ..... Length (X <sub>2</sub> ) = 150 mm	
Fill fluid	<b>-A</b> ...	[Process temperature] *2 [Ambient temperature] Silicone oil -10 to 250°C -10 to 85°C
Option codes		/□ Optional specification

The '▶' marks indicate the most typical selection for each specification. Example: EJX210B-LMS5G-98JDN-EA13B1WE01-A/□

\*1: See Table 3 'Gasket contact surface.'

\*2: Indicates the process temperature limit of high pressure side.  
The process temperature limit for low pressure side is -40 to 120°C.

\*3: Hastelloy C-276 or N10276

\*4: ⚠ Users must consider the characteristics of selected wetted parts material and the influence of process fluids. The use of inappropriate materials can result in the leakage of corrosive process fluids and cause injury to personnel and/or damage to plant facilities. It is also possible that the diaphragm itself can be damaged and that material from the broken diaphragm and the fill fluid can contaminate the user's process fluids.  
Be very careful with highly corrosive process fluids such as hydrochloric acid, sulfuric acid, hydrogen sulfide, sodium hypochlorite, and high-temperature steam (150°C [302°F] or above). Contact Yokogawa for detailed information of the wetted parts material.

\*5: Forged version of the material may be used.

The '#' marks indicate the construction materials conform to NACE material recommendations per MR01-75 (2003). Please refer to NACE standards for details.

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## ■ OPTIONAL SPECIFICATIONS (For Explosion Protected type)

Item	Description	Code
Factory Mutual (FM)	FM Intrinsically safe Approval Applicable Standard: Class 3600:2011, Class 3610:2015, Class 3611:2016, Class 3810:2005, ANSI/UL-60079-0-2013, ANSI/UL-60079-11-2014, NEMA-250:2003 Intrinsically Safe for Class I, Division 1, Groups A, B, C & D, Class II, Division 1, Groups E, F & G and Class III, Division 1, Class I, Zone 0, in Hazardous Locations, AEx ia IIC Nonincendive for Class I, Division 2, Groups A, B, C & D, Class II, Division 2, Groups F & G and Class III, Division 1, Class I, Zone 2, Group IIC, in Hazardous Locations Enclosure: Type 4X, Temp. Class: T4, Amb. Temp.: -50 to 70°C (-58 to 158°F)	FS17*1
ATEX	ATEX Intrinsically safe Approval Applicable Standard: EN 60079-0: 2012+A11:2013, EN 60079-11: 2012, EN60079-28: 2015 Certificate: KEMA 10ATEX0164 X II 1 G Ex ia op is IIC T4 Ga Degree of protection: IP66/IP67 Maximum Process Temp.(Tp): 120°C (248°F) Amb. Temp.(Tamb): -50 to 70°C (-58 to 158°F)	KS27*1
Canadian Standards Association (CSA)	CSA Intrinsically safe Approval No. CSA10CA2325443X Applicable standard: CAN/CSA-C22.2 No.94, C22.2 No.213, CAN/CSA-C22.2 No.61010-1, CAN/CSA-C22.2 No.60079-0, CAN/CSA-C22.2 No.60079-11, CAN/CSA-C22.2 No.60529 Ex ia IIC T4 Ga Intrinsically Safe for Class I, Division 1, Groups A, B, C & D, Class II, Division 1, Groups E, F & G, Class III, Division 1. Nonincendive for Class I, Division 2, Groups A, B, C & D, Class II, Division 2, Groups F & G, Class III, Division 1 Enclosure: IP66/IP67 and Type 4X Temperature Code: T4 Maximum Process Temp.(Tp): 120°C (248°F) Amb. Temp.(Tamb): -0 to 70°C (-8 to 158°F)	CS17*1
IECEX	IECEX Intrinsically safe Approval Applicable Standard: IEC60079-0:2011, IEC60079-11:2011, IEC 60079-28:2015 Certificate: IECEX KEM 10.0074 X Ex ia op is IIC T4 Ga *2 Enclosure: IP66/IP67 Maximum Process Temp.(Tp): 120°C (248°F) Amb. Temp.(Tamb): -50 to 70°C (-58 to 158°F)	SS27*1

\*1: Only applicable for selecting Electrical connection code J.

\*2: For Output signal -L, the Type of Protection and Marking code is Ex ia IIC T4 Ga.

## ■ OPTIONAL SPECIFICATIONS

Item		Description	Code
Painting	Color change	Amplifier cover only	P□
	Coating change	Anti-corrosion coating *1	X2
Oil-prohibited use		Degrease cleansing treatment	K1
Oil-prohibited use with dehydrating treatment		Degrease cleansing and dehydrating treatment	K5
Calibration units*2	P calibration (psi unit)	(See Table for Span and Range Limits.)	D1
	bar calibration (bar unit)		D3
	M calibration (kgf/cm <sup>2</sup> unit)		D4
Teflon film*3 *4		Diaphragm protection from sticky process fluid by FEP Teflon film attached with fluorinated oil. Operation range: 20 to 150°C, 0 to 2 MPa (Not applicable for vacuum service).	TF1
Gold-plated diaphragm*5		Inside of isolating diaphragms (fill fluid side) are gold plated, effective for hydrogen permeation.	A1
Material certificate	For Flush type	High Pressure side: Process flange, Block *6 Low Pressure side: Cover flange	M0W
		High Pressure side: Process flange, Block *7 Low Pressure side: Cover flange, Process connector	M1W
		High Pressure side: Process flange, Block, Ring *6 *8 Low Pressure side: Cover flange	M3W
		High Pressure side: Process flange, Block, Ring *7 *8 Low Pressure side: Cover flange, Process connector	M4W
	For Extended type	High Pressure side: Process flange, Block, Pipe, Base *6 Low Pressure side: Cover flange	M0E
		High Pressure side: Process flange, Block, Pipe, Base *7 Low Pressure side: Cover flange, Process connector	M1E
Pressure test/ Leak test certificate*9 *10	(Flange rating)	(Test pressure)	
	JIS 10K	2 MPa (290 psi)	T51
	JIS 20K	5 MPa (720 psi)	T54
	ANSI/JPI Class 150	3 MPa (430 psi)	T52
	ANSI/JPI Class 300	8 MPa (1160 psi)*11	T56
	ANSI/JPI Class 300	7 MPa (1000 psi)*12	T55
		Nitrogen(N <sub>2</sub> ) Gas*13 Retention time: one minute	

\*1: Not applicable with color change option.

\*2: The unit of MWP (Max. working pressure) on the name plate of a housing is the same unit as specified by option code **D1**, **D3**, and **D4**.

\*3: Applicable for flush type (process connection style code **W**.)

\*4: Applicable for flushing connection ring code **0**.

\*5: Applicable for wetted parts material code **SW**, **SE**, **WW**, **WE**, and **HW**. Consult Yokogawa in case gold-plated diaphragm is required for low pressure side.

\*6: Applicable for Low Pressure Side Process connection code **0** and **5**.

\*7: Applicable for Low Pressure Side Process connection code **1**, **2**, **3**, and **4**.

\*8: Applicable for flushing connection ring code **A**, **B**, **C**, and **D**.

\*9: The unit on the certificate is always MPa regardless of selection of option code **D1**, **D3**, or **D4**.

\*10: A flushing connection ring will not be applied when conducting the pressure test or leak test.

\*11: Applicable for flush type (process connection style code **W**.)

\*12: Applicable for extended type (process connection style code **E**.)

\*13: Pure nitrogen gas is used for oil-prohibited use (option code **K1** and **K5**.)

## ■ OPTIONAL ACCESSORIES

Product	Part number	Specification
Battery pack assembly	F9915NQ*1	Battery case, Lithium-thionyl chloride batteries 2 pieces
Batteries*2	F9915NR	Lithium-thionyl chloride batteries, 2 pieces
Battery case	F9915NK*3	Battery case only
Remote antenna cable	F9915KU	3 m with mounting bracket
	F9915KV	13 m (3 m+10 m), with a surge protective device and mounting bracket
Antenna	F9915KW	2 dBi standard antenna
	F9915KY	6 dBi high gain antenna*4 *5

\*1: If you need F9915MA, please purchase F9915NQ. F9915NQ is a set of F9915MA and instruction manual.

\*2: Alternatively, Tadiran SL-2780/S or TL-5930/S batteries can be purchased from your local distributor.

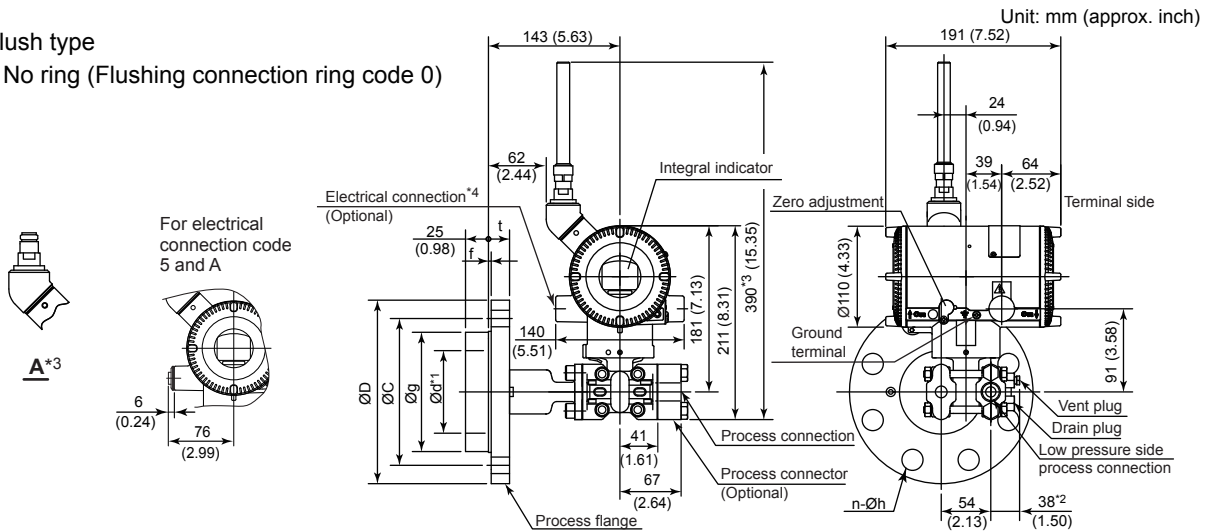
\*3: If you need F9915NS, please purchase F9915NK. F9915NK is a set of F9915NS and instruction manual.

\*4: Use of high gain antenna is limited by local regulation of radio and telecommunication law. Consult Yokogawa for details.

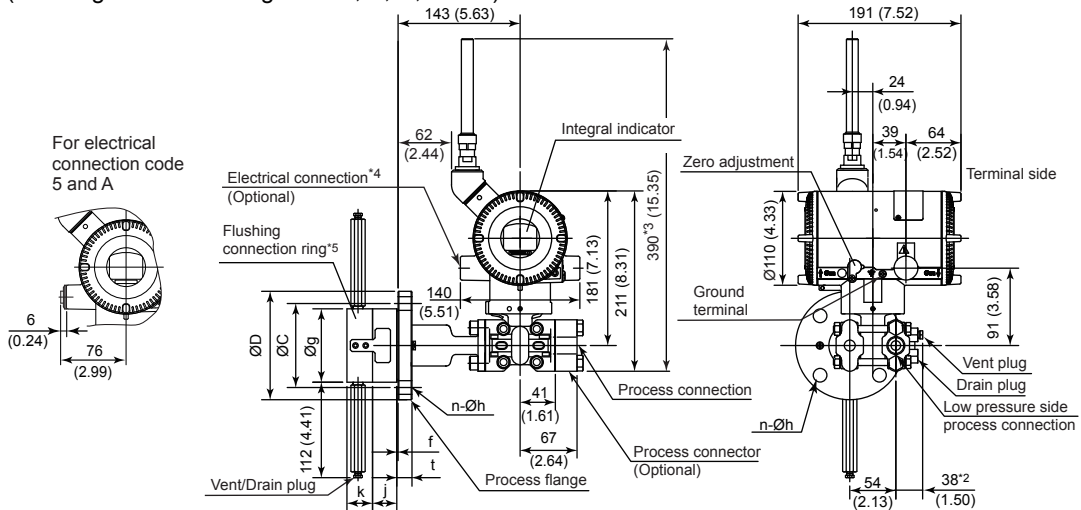
\*5: F9915KY can not connect directly to the transmitter. Remote antenna cable is required to use F9915KY.

**DIMENSIONS**

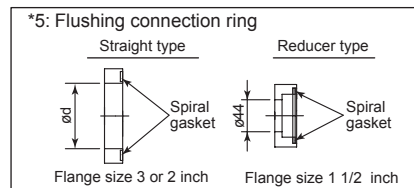
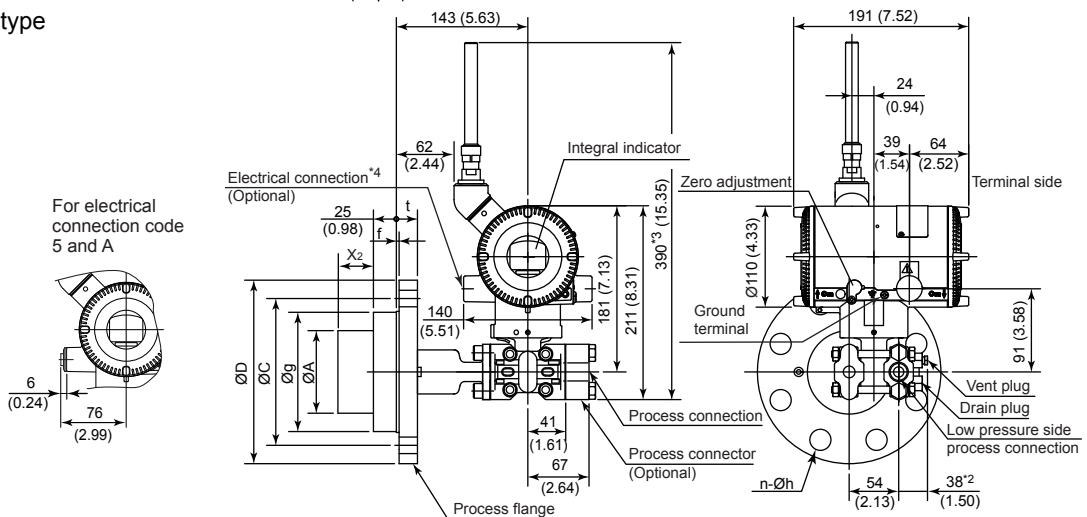
- Flush type
  - ◆ No ring (Flushing connection ring code 0)



- ◆ With ring (Flushing connection ring code A, B, C, and D)



- Extended type



\*1: Indicates inside diameter of gasket contact surface.  
 \*2: When option code K1 or K5 is selected, add 15 mm (0.59 inch) to the value in the flange. Add 11 mm (0.36 inch) for drain/vent plugs of flushing connection ring.  
 \*3: When amplifier housing code 9 is selected, the value is 270 mm (10.63 inch). In this case, the figure is shown as A.  
 \*4: Applicable for the external powered type.

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Unit: mm (Approx.: inch)

**Process flange size: 4 inch (100 mm)**

Code	Flange rating	øD	øC	øg	ød	t	Bolt holes		j	k	øA
							No.(n)	Dia.(øh)			
J1	JIS 10K	210 (8.27)	175 (6.89)	155 (6.10)	—	18 (0.71)	8	19 (0.75)	—	—	96±0.5 (3.78±0.02)
J2	JIS 20K	225 (8.86)	185 (7.28)	155 (6.10)	—	24 (0.94)	8	23 (0.91)	—	—	96±0.5 (3.78±0.02)
A1	ANSI class 150	228.6 (9.00)	190.5 (7.50)	155 (6.10)	—	23.9 (0.94)	8	19.1 (0.75)	—	—	96±0.5 (3.78±0.02)
A2	ANSI class 300	254 (10.00)	200.2 (7.88)	155 (6.10)	—	31.8 (1.25)	8	22.4 (0.88)	—	—	96±0.5 (3.78±0.02)
P1	JPI class 150	229 (9.02)	190.5 (7.50)	155 (6.10)	—	24 (0.94)	8	19 (0.75)	—	—	96±0.5 (3.78±0.02)
P2	JPI class 300	254 (10.0)	200.2 (7.88)	155 (6.10)	—	32 (1.26)	8	22 (0.87)	—	—	96±0.5 (3.78±0.02)
D2	DIN PN10/16	220 (8.66)	180 (7.09)	155 (6.10)	—	20 (0.79)	8	18 (0.71)	—	—	96±0.5 (3.78±0.02)
D4	DIN PN25/40	235 (9.25)	190 (7.48)	155 (6.10)	—	24 (0.94)	8	22 (0.87)	—	—	96±0.5 (3.78±0.02)

**Process flange size: 3 inch (80 mm)**

Code	Flange rating	øD	øC	øg	ød <sup>*1</sup>	t	Bolt holes		j	k	øA
							No.(n)	Dia.(øh)			
J1	JIS 10K	185 (7.28)	150 (5.91)	130 (5.12)	90 (3.54)	18 (0.71)	8	19 (0.75)	25 (0.98)	27 (1.06)	71±0.5 (2.8±0.02)
J2	JIS 20K	200 (7.87)	160 (6.30)	130 (5.12)	90 (3.54)	22 (0.87)	8	23 (0.91)	25 (0.98)	27 (1.06)	71±0.5 (2.8±0.02)
A1	ANSI class 150	190.5 (7.50)	152.4 (6.00)	130 (5.12)	90 (3.54)	23.9 (0.94)	4	19.1 (0.75)	25 (0.98)	27 (1.06)	71±0.5 (2.8±0.02)
A2	ANSI class 300	209.6 (8.25)	168.1 (6.62)	130 (5.12)	90 (3.54)	28.5 (1.12)	8	22.4 (0.88)	25 (0.98)	27 (1.06)	71±0.5 (2.8±0.02)
P1	JPI class 150	190 (7.48)	152.4 (6.00)	130 (5.12)	90 (3.54)	24 (0.94)	4	19 (0.75)	25 (0.98)	27 (1.06)	71±0.5 (2.8±0.02)
P2	JPI class 300	210 (8.27)	168.1 (6.62)	130 (5.12)	90 (3.54)	28.5 (1.12)	8	22 (0.87)	25 (0.98)	27 (1.06)	71±0.5 (2.8±0.02)
D2	DIN PN10/16	200 (7.87)	160 (6.30)	130 (5.12)	90 (3.54)	20 (0.79)	8	18 (0.71)	25 (0.98)	27 (1.06)	71±0.5 (2.8±0.02)
D4	DIN PN25/40	200 (7.87)	160 (6.30)	130 (5.12)	90 (3.54)	24 (0.94)	8	18 (0.71)	25 (0.98)	27 (1.06)	71±0.5 (2.8±0.02)

**Process flange size: 2 inch (50 mm)**

Code	Flange rating	øD	øC	øg	ød <sup>*1</sup>	t	Bolt holes		j	k
							No.(n)	Dia.(øh)		
J1	JIS 10K	155 (6.10)	120 (4.72)	100 (3.94)	61 (2.40)	16 (0.63)	4	19 (0.75)	25 (0.98)	27 (1.06)
J2	JIS 20K	155 (6.10)	120 (4.72)	100 (3.94)	61 (2.40)	18 (0.71)	8	19 (0.75)	25 (0.98)	27 (1.06)
A1	ANSI class 150	152.4 (6.00)	120.7 (4.75)	100 (3.94)	61 (2.40)	19.1 (0.75)	4	19.1 (0.75)	25 (0.98)	27 (1.06)
A2	ANSI class 300	165.1 (6.50)	127.0 (5.00)	100 (3.94)	61 (2.40)	22.4 (0.88)	8	19.1 (0.75)	25 (0.98)	27 (1.06)
P1	JPI class 150	152 (5.98)	120.6 (4.75)	100 (3.94)	61 (2.40)	19.5 (0.77)	4	19 (0.75)	25 (0.98)	27 (1.06)
P2	JPI class 300	165 (6.50)	127.0 (5.00)	100 (3.94)	61 (2.40)	22.5 (0.89)	8	19 (0.75)	25 (0.98)	27 (1.06)
D2	DIN PN10/16	165 (6.50)	125 (4.92)	100 (3.94)	61 (2.40)	18 (0.71)	4	18 (0.71)	25 (0.98)	27 (1.06)
D4	DIN PN25/40	165 (6.50)	125 (4.92)	100 (3.94)	61 (2.40)	20 (0.79)	4	18 (0.71)	25 (0.98)	27 (1.06)

**Process flange size: 1 1/2 inch (40 mm)**

Code	Flange rating	øD	øC	øg	ød <sup>*1</sup>	t	Bolt holes		j	k
							No.(n)	Dia.(øh)		
J1	JIS 10K	140 (5.51)	105 (4.13)	86 (3.39)	44 (1.73)	16 (0.63)	4	19 (0.75)	27 (1.06)	30 (1.18)
J2	JIS 20K	140 (5.51)	105 (4.13)	86 (3.39)	44 (1.73)	18 (0.71)	4	19 (0.75)	27 (1.06)	30 (1.18)
A1	ANSI class 150	127 (5.00)	98.4 (3.87)	86 (3.39)	44 (1.73)	17.5 (0.69)	4	15.9 (0.63)	27 (1.06)	30 (1.18)
A2	ANSI class 300	155.4 (6.12)	114.3 (4.50)	86 (3.39)	44 (1.73)	20.6 (0.81)	4	22.4 (0.88)	27 (1.06)	30 (1.18)
P1	JPI class 150	127 (5.00)	98.6 (3.88)	86 (3.39)	44 (1.73)	17.6 (0.69)	4	16 (0.63)	27 (1.06)	30 (1.18)
P2	JPI class 300	155 (6.10)	114.3 (4.50)	86 (3.39)	44 (1.73)	20.6 (0.81)	4	22 (0.87)	27 (1.06)	30 (1.18)

\*1: Indicates inside diameter of gasket contact surface.

Extension length (X<sub>2</sub>)

Extension code	X <sub>2</sub>
1	50 (1.97)
3	100 (3.94)
5	150 (5.91)

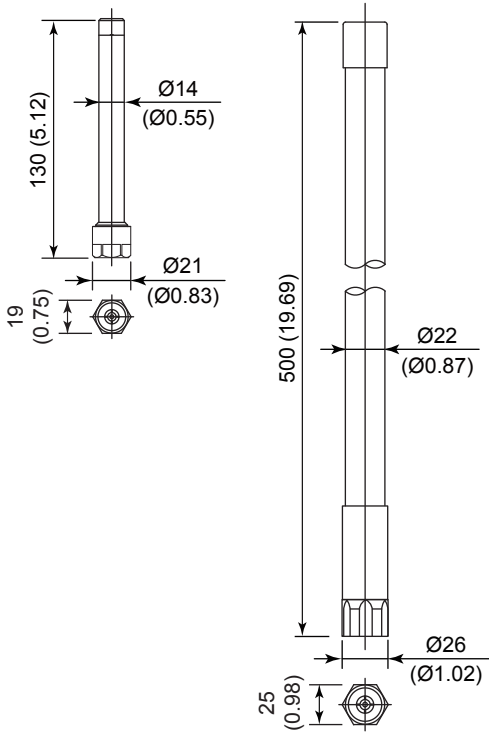
T12E.ai

● Antenna/Cable

Unit: mm (approx. inch)

□ Non-directional antenna

- Gain: 2 dBi      • Gain: 6 dBi
- Part number: F9915KW      Part number: F9915KY



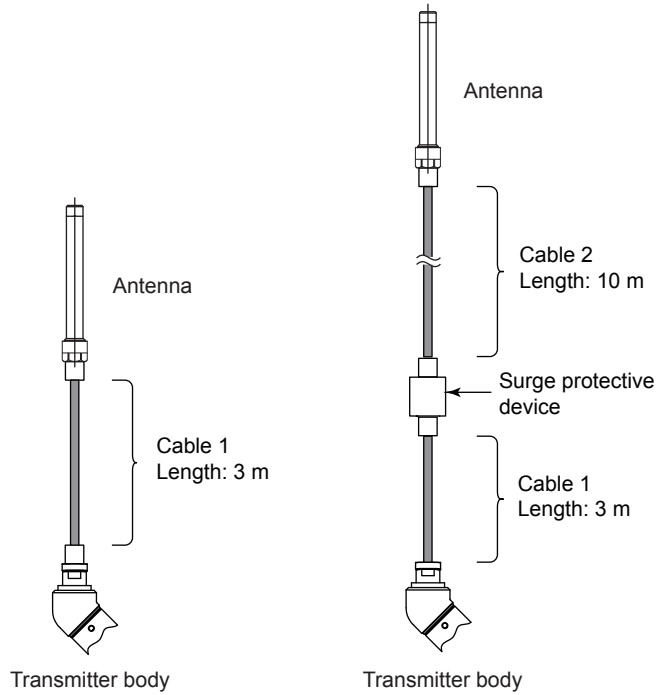
□ Antenna cable

- Sheath diameter: 11.2 mm

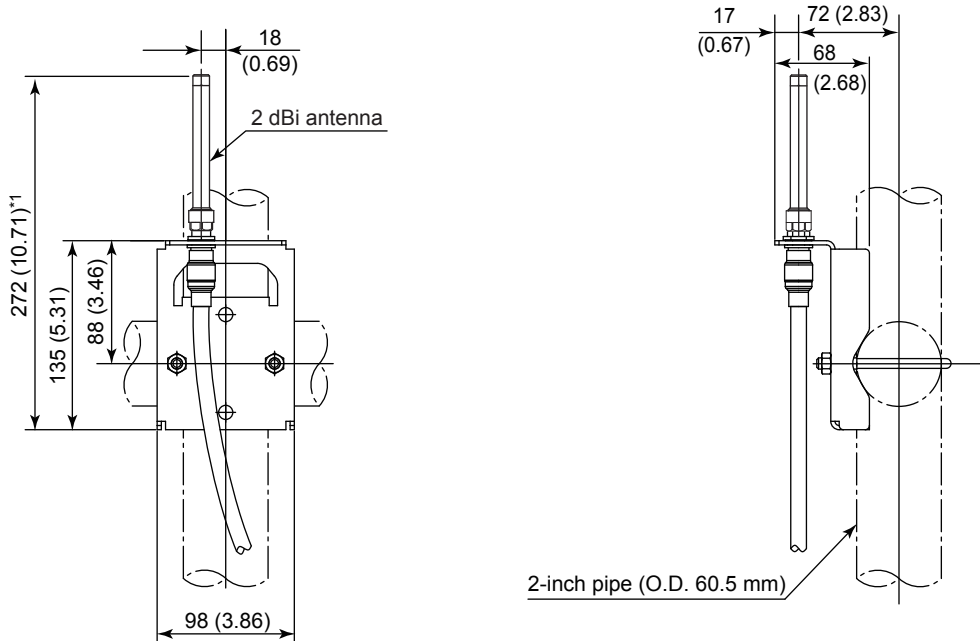
<Without a surge protective device> <With a surge protective device>

Part number: F9915KU

Part number: F9915KV



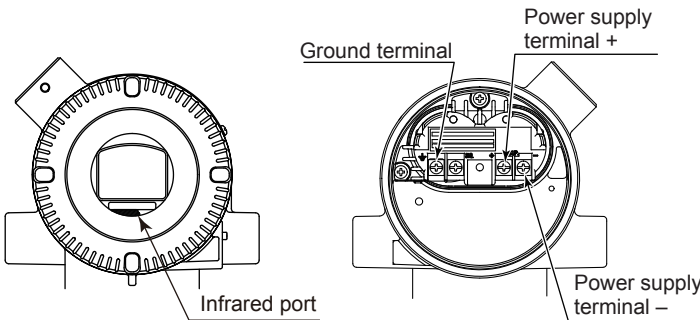
● Antenna mounting bracket



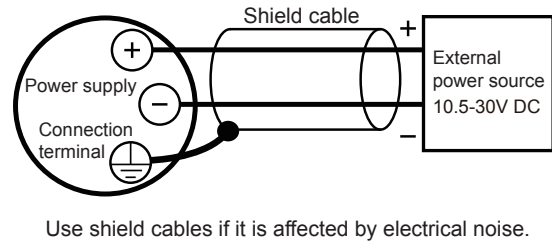
\*1: When 6 dBi antenna is selected, the value is 642 mm (25.28 inch).

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● Infrared Configuration ● Terminal Configuration for the External Powered type



● Terminal Wiring Example for the External Power Source Terminal



Use shield cables if it is affected by electrical noise.

F05E.ai

< Ordering Information >

Specify the following when ordering

1. Model, suffix codes, and option codes
2. Calibration range and unit

1) Range

Calibration range can be specified with range value specifications up to 5 digits for low or high range limits within the range of -32000 to 32000. When reverse range is designated, specify Lower Range Value (LRV) as greater than Upper Range Value (URV).

2) Unit

Specify only one unit from Table A.

Table A. Available Range Unit

<b>EJX210B</b>	mmH <sub>2</sub> O, mmH <sub>2</sub> O (68°F), mmHg, Pa, kPa, MPa, mbar, bar, gf/cm <sup>2</sup> , kgf/cm <sup>2</sup> , inH <sub>2</sub> O, inH <sub>2</sub> O (68°F), inHg, ftH <sub>2</sub> O, ftH <sub>2</sub> O (68°F) or psi
----------------	--

3. Output mode

Select Liner.

4. Display setting (SCALE)

1) Display scale and unit

Specify either "0 to 100 %" or "Desired Range and Unit" for engineering unit scale:

- When "Desired Range and Unit" is specified, scale range can be specified with range limit specifications up to 5 digits for low or high range limits within the range of -32000 to 32000.

Unit display consists of 6-digit, therefore, if the specified scaling unit excluding "/" is longer than 6-characters, the first 6 characters will be displayed on the unit display.

2) Display mode

Select Liner.

5. Tag Number (if required)

Specify Tag number (up to 16 letters, valid characters: alphanumeric, hyphen and underscore) to be engraved on the tag plate. The specified letters are written on TAG\_Name (16 letters) in the amplifier memory.

6. Software tag (if required)

Specify this software tag when tag number which is different from the tag number specified in the "Tag Number" is required. The tag number specified in "Software tag" will be entered on "TAG\_NAME" (up to 16 letters) in the amplifier memory.

7. Network ID (if required)

Specify the number from 2 to 65535. When not specified, it will use 1 as the default.

< Factory Setting >

Tag No.	Blank unless otherwise specified in order
Software tag	Blank unless otherwise specified in order
Network ID	'1' unless otherwise specified in order.
Static pressure display range	'0 to 25 MPa' for M and H capsule, absolute value. Measuring low pressure side.

< Reference >

1. *DPHarp EJX* is a registered trademark of Yokogawa Electric Corporation.
  2. Teflon; Trademark of E.I. DuPont de Nemours & Co.
  3. Hastelloy; Trademark of Haynes International Inc.
- Other company names and product names used in this material are registered trademarks or trademarks of their respective owners.

< Information on EU WEEE Directive >

EU WEEE (Waste Electrical and Electronic Equipment) Directive is only valid in the EU.

This instrument is intended to be sold and used only as a part of equipment which is excluded from WEEE Directive, such as large-scale stationary industrial tools, a large-scale fixed installation and so on, and, therefore, subjected to the exclusion from the scope of the WEEE Directive. The instrument should be disposed of in accordance with local and national legislation/regulations.