

# General Specifications

## Model EJA210 and EJA220 Flange Mounted Differential Pressure Transmitter

DPHERP

GS 01C22C01-00E

[Style: S2]

The model EJA210 and EJA220 Flange Mounted Differential Pressure Transmitter can be used to measure levels or densities of solidifying or precipitating liquids. The transmitter outputs a 4 to 20 mA DC signal.

The model EJA210 and EJA220 also features remote setup and monitoring through communications with the model BT200/100 BRAIN TERMINAL, or CENTUM CS/XL system etc.

### STANDARD SPECIFICATIONS

Refer to GS 01C22T02-00E for Fieldbus communication type marked with “◇.”

#### Measurement Ranges:

Capsule	Measurement Span	Measurement Range
M	2.5 to 100 kPa {250 to 10000 mmH <sub>2</sub> O}	-100 to 100 kPa {-10000 to 10000 mmH <sub>2</sub> O}
H	25 to 500 kPa {0.25 to 5 kgf/cm <sup>2</sup> }	-500 to 500 kPa {-5 to 5 kgf/cm <sup>2</sup> }

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#### Output Signal “◇”:

4 to 20 mA DC, 2-wire system with digital communication

#### Failure Alarm:

Output status at CPU failure and hardware error;  
Up-scale: 110%, 21.6 mA DC or more(standard)  
Down-scale: -5%, 3.2 mA DC or less  
Note: Applicable for Output signal code D and E

#### Supply Voltage “◇”:

10.5 to 42 V DC for general use and flameproof type  
10.5 to 32 V DC for lightning protector (Optional code /A)  
10.5 to 30 V DC for intrinsically safe, Type n, nonincendive, or non-sparking type  
10.5 to 28 V DC for JIS intrinsically safe type

#### Conditions of Communication Line “◇”:

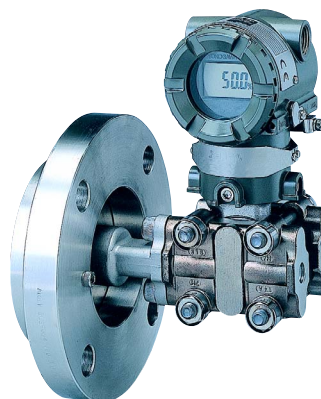
Power supply voltage; 16.4 to 42 V DC  
Load resistance; See Figure 1.  
Note: In case of an intrinsically safe transmitter, external load resistance includes safety barrier resistance.  
Communication distance;  
2 km, when CEV polyethylene-insulated PVC-sheathed control cables are used.  
Note: Communication distance varies depends on kind of cable.  
Load capacitance; 0.22 μF or less.  
Load inductance; 3.3 mH or less.  
Spacing from power line; 15 cm or more.  
Input impedance of receiver connected receiving resistance;  
10 kΩ or more at 2.4 kHz  
(See Optional Specifications for Intrinsically safe type)

#### Accuracy:

See Table 1-1, 1-2 and 1-3 and Figure 3.

#### Ambient Temperature Limits:

-40 to 85 °C (-40 to 185 °F) (general-use type)  
-30 to 80 °C (-22 to 176 °F) (with integral indicator)  
(See ‘Optional Specifications’ for Explosion-protected types)



#### Ambient Temperature Effect:

See Table 1-1, 1-2 and 1-3.

#### Process Temperature Limits:

-40 to 120 °C (-40 to 248 °F) (general use type)  
(See ‘Optional Specifications’ for Explosion-protected types)

#### Ambient Humidity Limits:

5 to 100 % R.H.(at 40 °C)

#### Working Pressure Limits:

2.7 kPa abs {20 mmHg abs} to flange rating pressure  
For atmospheric pressure or below, see Figure 2.

#### Static Pressure Effect:

See Table 1-1, 1-2 and 1-3.

#### Power Supply Effect “◇”:

±0.005 %/V (21.6 to 32 V DC, 350 Ω)

#### Mounting Flange Rating:

See ‘Model and Suffix Codes.’  
Flange conforming to ANSI are serration-worked on the gasket surfaces (ANSI B16.5)  
Note: For model EJA210 wetted parts material code H or T, no serration is worked.

#### Degrees of Protection:

IP67, NEMA4X, JIS C0920 immersion proof

#### Explosion-protected Construction:

See ‘Optional Specification.’

#### Electrical Connection:

See ‘Model and Suffix Codes.’

#### Low Pressure Process Connection:

See ‘Model and Suffix Codes.’

#### Wetted Parts Material:

High pressure side diaphragm;  
See ‘Model and Suffix Codes.’  
Capsule gasket; Teflon-corted JIS SUS316L  
Process connector gasket; PTFE (Teflon)

#### Flange Bolts Material:

See ‘Model and Suffix Codes.’

**Amplifier Housing:**

Cast aluminum alloy or JIS SCS14A stainless steel (optional)

**Painting:**

Polyurethane resin baked finish  
Deep sea moss green (Munsell 0.6GY3.1/2.0)

**Integral Indicator:**

LCD digital indicator (optional)

**Damping Time Constant:**

(Sum of time constants for amplifier assembly and capsule assembly)

Amplifier assembly time constant;

Can be set in 9 increments from 0.2 to 64 sec

Capsule assembly time constant;

Model	EJA210		EJA220	
	M	H	M	H
Capsule	M	H	M	H
Time Constant (sec)	Approx. 0.4	Approx. 0.4	Approx. 0.4	Approx. 0.4

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**External Zero Adjustment “◇”:**

Continuously adjustable Resolution; 0.01 % of span

**Zero Adjustment Limit:**

Zero can be fully elevated or suppressed as long as low and high range value are within the measurement range limits of the capsule.

**Tag Plate:**

JIS SUS304.

**Weight:**

9.4 kg (20.8 lb) Model EJA210 with 80 mm JIS 10K flange, without integral indicator and process connector.

13.9 kg (30.7 lb) Model EJA220 with 100 mm JIS 10K flange, X<sub>2</sub> = 100 mm without integral indicator and process connector.

Add 1.4 kg (3.1 lb) for JIS SCS14A stainless steel amplifier housing.

**EMC Conformity Standards:** CE , N200

EN61326, AS/NZS 2064

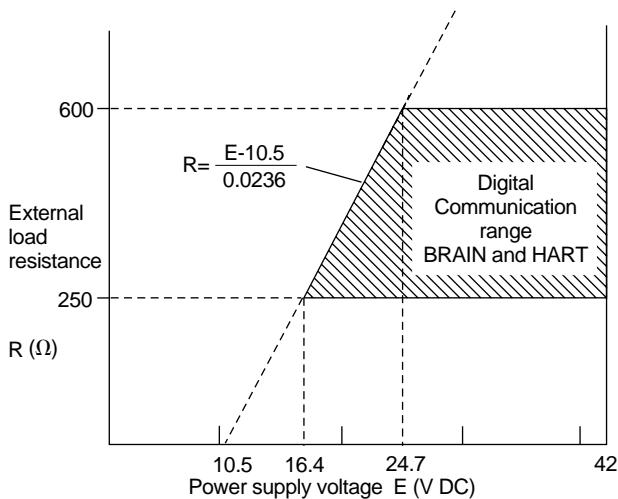
< Settings When Shipped > “◇”

Tag Number	As specified in order *1
Output Mode	‘Linear’
Display Mode	‘Linear’
Operation Mode	‘Normal’ unless otherwise specified in order
Damping Time Constant	‘2 sec.’

Calibration Range Lower Range Value	As specified in order
Calibration Range Higher Range Value	As specified in order
Calibration Range Units	Selected from mmH <sub>2</sub> O, mmAq, mmWG, mmHg, Pa, hPa, kPa, MPa, mbar, bar, gf/cm <sup>2</sup> , kgf/cm <sup>2</sup> , inH <sub>2</sub> O, inHg, ftH <sub>2</sub> O, or psi. (Only one unit can be specified)

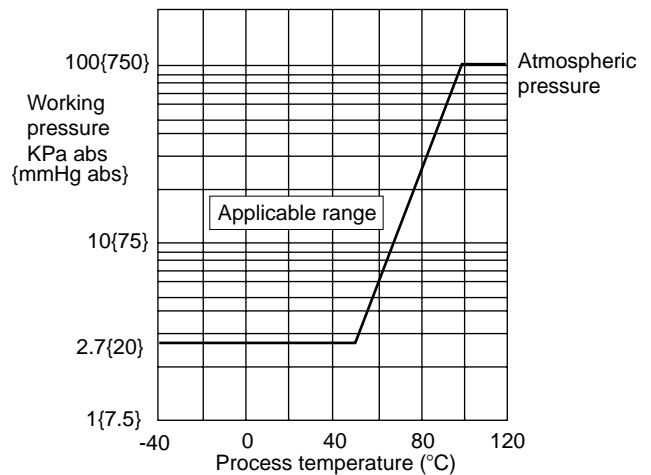
\*1: Up to 16 alphanumeric characters (including - and ·) will be entered in the amplifier memory.

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Figure 1. Relationship Between Power Supply Voltage and External Load Resistance



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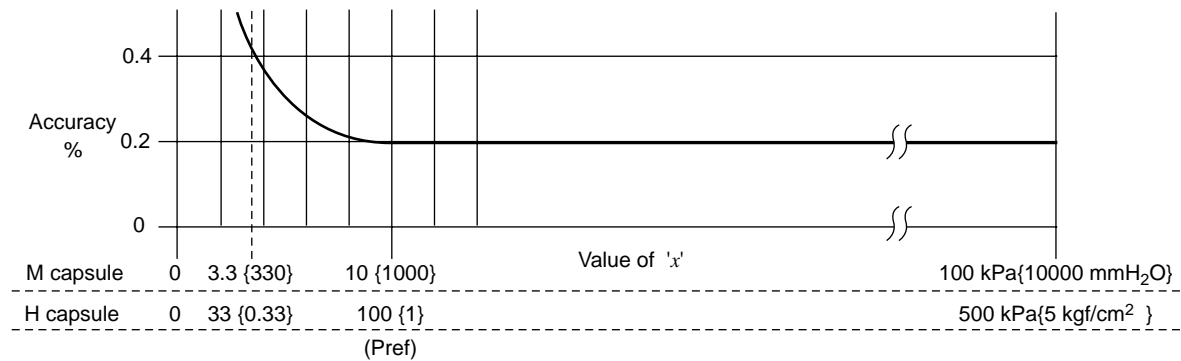
Figure 2. Working Pressure and Process Temperature

**Table 1-1 . Accuracy, Ambient Temperature Effect and Static Pressure Effect (As Percent of 'x') \*1**  
 [For model EJA210 3-inch (80 mm) flange and model EJA220 4-inch (100 mm) flange  
 (wetted parts material code S )]

Capsule		M, H	
Accuracy		$\pm 0.2\%$	For $x \geq \text{Pref}$
		$\pm (0.1 + 0.1 \times \frac{\text{Pref}}{x})\%$	For $x < \text{Pref}$
Ambient temperature effect	Zero shift	$\pm (0.3 + 0.35 \times \frac{2\text{Pref}}{x})\% / 50\text{ }^\circ\text{C}$	
	Total shift *3	$\pm 1.0\% / 50\text{ }^\circ\text{C}$ $\pm (0.5 + 0.5 \times \frac{2\text{Pref}}{x})\% / 50\text{ }^\circ\text{C}$	For $x \geq \text{Pref}$ For $x < \text{Pref}$
Static pressure effect	Zero shift	$\pm 0.1\% / 0.98\text{ MPa}\{10\text{ kgf/cm}^2\}$ $\pm (0.1 \times \frac{\text{Pref}}{x})\% / 0.98\text{ MPa}\{10\text{ kgf/cm}^2\}$	For $x \geq \text{Pref}$ For $x < \text{Pref}$
	Total shift *2 *3	$\pm 0.14\% / 0.98\text{ MPa}\{10\text{ kgf/cm}^2\}$ $\pm (0.04 + 0.1 \times \frac{\text{Pref}}{x})\% / 0.98\text{ MPa}\{10\text{ kgf/cm}^2\}$	For $x \geq \text{Pref}$ For $x < \text{Pref}$

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- \*1: 'x' is the highest value among the absolute values of lower range value (LRV) and higher range value (HRV), and the span value in calibration range.
- \*2: Values for measurement span 4.9 kPa {500 mmH<sub>2</sub>O} or below are estimated values.
- \*3: Combined zero and span shift



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**Figure 3. Accuracy**

**Table 2. Value of 'Pref'**

Capsule	Pref
M	10 kPa {1000 mmH <sub>2</sub> O}
H	100 kPa {1 kgf/cm <sup>2</sup> }

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**Table 1-2 . Accuracy, Ambient Temperature Effect and Static Pressure Effect (As Percent of 'x') \*1**  
**[For model EJA210 2-inch (50 mm) flange and model EJA220 3-inch (80 mm) flange]**

Capsule		M, H	
Accuracy		$\pm 0.2\%$ $\pm(0.1 + 0.1 \times \frac{\text{Pref}}{x})\%$	For $x \geq \text{Pref}$ For $x < \text{Pref}$
Ambient temperature effect *2	Zero shift	$\pm(0.3 + 0.45 \times \frac{2\text{Pref}}{x})\% / 50\text{ }^\circ\text{C}$	
	Total shift *4	$\pm 1.2\% / 50\text{ }^\circ\text{C}$ $\pm(0.5 + 0.5 \times \frac{2\text{Pref}}{x})\% / 50\text{ }^\circ\text{C}$	For $x \geq \text{Pref}$ For $x < \text{Pref}$
Static pressure effect	Zero shift	$\pm 0.1\% / 0.98\text{ MPa}\{10\text{ kgf/cm}^2\}$ $\pm(0.1 \times \frac{\text{Pref}}{x})\% / 0.98\text{ MPa}\{10\text{ kgf/cm}^2\}$	For $x \geq \text{Pref}$ For $x < \text{Pref}$
	Total shift *3*4	$\pm 0.14\% / 0.98\text{ MPa}\{10\text{ kgf/cm}^2\}$ $\pm(0.04 + 0.1 \times \frac{\text{Pref}}{x})\% / 0.98\text{ MPa}\{10\text{ kgf/cm}^2\}$	For $x \geq \text{Pref}$ For $x < \text{Pref}$

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- \*1: 'x' is the highest value among the absolute values of lower range value (LRV) and higher range value (HRV), and the span value in calibration range.
- \*2: Below -10 °C (14 °F), value is twice that given in the table.
- \*3: Values for measurement span 4.9 kPa {500 mmH<sub>2</sub>O} or below are estimated values.
- \*4: Combined zero and span shift

**Table 1-3. Accuracy, Ambient Temperature Effect and Static Pressure Effect (As Percent of 'x') \*1**  
**[For wetted parts material code H(Hastelloy C) and T(Tantalum) : Model EJA210]**

Capsule		M, H	
Accuracy		$\pm 0.2\%$ $\pm(0.1 + 0.1 \times \frac{\text{Pref}}{x})\%$	For $x \geq \text{Pref}$ For $x < \text{Pref}$
Ambient temperature effect	Zero shift	$\pm(0.5 + 0.5 \times \frac{2\text{Pref}}{x})\% / 50\text{ }^\circ\text{C}$	
	Total shift *3	$\pm 1.3\% / 50\text{ }^\circ\text{C}$ $\pm(0.8 + 0.5 \times \frac{2\text{Pref}}{x})\% / 50\text{ }^\circ\text{C}$	For $x \geq \text{Pref}$ For $x < \text{Pref}$
Static pressure effect	Zero shift	$\pm 0.3\% / 0.98\text{ MPa}\{10\text{ kgf/cm}^2\}$ $\pm(0.3 \times \frac{\text{Pref}}{x})\% / 0.98\text{ MPa}\{10\text{ kgf/cm}^2\}$	For $x \geq \text{Pref}$ For $x < \text{Pref}$
	Total shift *2*3	$\pm 0.4\% / 0.98\text{ MPa}\{10\text{ kgf/cm}^2\}$ $\pm(0.1 + 0.3 \times \frac{\text{Pref}}{x})\% / 0.98\text{ MPa}\{10\text{ kgf/cm}^2\}$	For $x \geq \text{Pref}$ For $x < \text{Pref}$

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- \*1: 'x' is the highest value among the absolute values of lower range value (LRV) and higher range value (HRV), and the span value in calibration range.
- \*2: Values for measurement span 4.9 kPa {500 mmH<sub>2</sub>O} or below are estimated values.
- \*3: Combined zero and span shift

**MODEL AND SUFFIX CODES**

● **Model EJA210 [ Process Flange size : 3-inch (80 mm)]**

Model	Suffix Codes	Description
<b>EJA210</b>	.....	Flange-mounted differential pressure transmitter (Flush diaphragm type)
Output Signal	<b>-D</b> ..... <b>-E</b> ..... <b>-F</b> .....	4 to 20 mA DC with digital communication (BRAIN protocol) *1 4 to 20 mA DC with digital communication (HART protocol) *1 Digital communication (FOUNDATION Fieldbus protocol) *3
Measurement span (capsule)	<b>M</b> ..... <b>H</b> .....	2.5 to 100 kPa {250 to 10000 mmH <sub>2</sub> O} 25 to 500 kPa {0.25 to 5 kgf/cm <sup>2</sup> }
High pressure side (Process flange side) wetted parts material *2	<b>S</b> ..... <b>H</b> ..... <b>T</b> .....	[Diaphragm] [Others] JIS SUS316L JIS SUS316 Hastelloy C-276 Hastelloy C-276 Tantalum Tantalum
Process flange rating	<b>J1</b> ..... <b>J2</b> ..... <b>A1</b> ..... <b>A2</b> ..... <b>P1</b> ..... <b>P2</b> ..... <b>D2</b> ..... <b>D4</b> .....	JIS10K JIS20K ANSI Class 150 ANSI Class 300 JPI Class150 JPI Class 300 DIN PN10/16 DIN PN25/40
Process flange size / material ☆	<b>D</b> ..... <b>E</b> ..... <b>F</b> .....	3-inch (80 mm) / JIS S25C 3-inch (80 mm) / JIS SUS304 3-inch (80 mm) / JIS SUS316
Low pressure side process connection	<b>0</b> ..... <b>1</b> ..... <b>2</b> ..... <b>3</b> ..... <b>4</b> ..... <b>5</b> ..... ☆	without process connector (Rc1/4 female on the cover flange) with Rc1/4 female process connector with Rc1/2 female process connector with 1/4 NPT female process connector with 1/2 NPT female process connector without process connector (1/4 NPT female on the cover flange)
Cover flange bolts material ☆	<b>A</b> ..... <b>B</b> .....	JIS SCM435 JIS SUS630
Installation	<b>-9</b> .....	Horizontal impulse piping type, left side high pressure
Electrical connection ☆	<b>0</b> ..... <b>2</b> ..... <b>3</b> ..... <b>4</b> ..... <b>5</b> ..... <b>7</b> ..... <b>8</b> ..... <b>9</b> .....	G1/2 female, one electrical connection 1/2 NPT female, two electrical connections without blind plug Pg 13.5 female, two electrical connections without blind plug M20 female, two electrical connections without blind plug G1/2 female, two electrical connections and a blind plug 1/2 NPT female, two electrical connections and a blind plug Pg 13.5 female, two electrical connections and a blind plug M20 female, two electrical connections and a blind plug
Integral indicator ☆	<b>D</b> ..... <b>E</b> ..... <b>N</b> .....	Digital indicator Digital indicator with the range setting switch *4 (None)
Optional codes	<b>N</b> .....	Always N
		<input type="checkbox"/> Optional specification

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The '☆' marks indicate the most typical selection for each specification. Example: EJA210-DMSA1D5A-92NN/□

- \*1: Refer to GS 01C22T01-00E for HART Protocol version.
- \*2: Low pressure side wetted parts material: Cover flange; JIS SCS14A, Process connector; SCS14A, Capsule; JIS SUS316L (Diaphragm; Hastelloy C-276), Vent plug; JIS SUS316.
- \*3: Refer to GS 01C22T02-00E for Fieldbus communication.
- \*4: Not applicable for Output signal code F.

**MODEL AND SUFFIX CODES**

● **Model EJA210 [ Process Flange size : 2-inch (50 mm)]**

Model	Suffix Codes	Description
<b>EJA210</b>	.....	Flange-mounted differential pressure transmitter (Flush diaphragm type)
Output Signal	<b>-D</b> ..... <b>-E</b> ..... <b>-F</b> .....	4 to 20 mA DC with digital communication (BRAIN protocol) *1 4 to 20 mA DC with digital communication (HART protocol) *1 Digital communication (FOUNDATION Fieldbus protocol) *3
Measurement span (capsule)	<b>M</b> ..... <b>H</b> .....	2.5 to 100 kPa {250 to 10000 mmH <sub>2</sub> O} 25 to 500 kPa {0.25 to 5 kgf/cm <sup>2</sup> }
High pressure side (Process flange side) wetted parts material *2	<b>W</b> .....	[Diaphragm] [Others] HastelloyC-276 JIS SUS316
Process flange rating	<b>J1</b> ..... <b>J2</b> ..... <b>A1</b> ..... <b>A2</b> ..... <b>P1</b> ..... <b>P2</b> ..... <b>D2</b> ..... <b>D4</b> .....	JIS10K JIS20K ANSI Class 150 ANSI Class 300 JPI Class150 JPI Class 300 DIN PN10/16 DIN PN25/40
Process flange size / material ☆	<b>A</b> ..... <b>B</b> ..... <b>C</b> .....	2-inch (50 mm) / JIS S25C 2-inch (50 mm) / JIS SUS304 2-inch (50 mm) / JIS SUS316
Low pressure side process connection	<b>0</b> ..... <b>1</b> ..... <b>2</b> ..... <b>3</b> ..... <b>4</b> ..... ☆ <b>5</b> .....	without process connector (Rc1/4 female on the cover flange) with Rc1/4 female process connector with Rc1/2 female process connector with 1/4 NPT female process connector with 1/2 NPT female process connector without process connector (1/4 NPT female on the cover flange)
Cover flange bolts material ☆	<b>A</b> ..... <b>B</b> .....	JIS SCM435 JIS SUS630
Installation	<b>-9</b> .....	Horizontal impulse piping type, left side high pressure
Electrical connection ☆	<b>0</b> ..... <b>2</b> ..... <b>3</b> ..... <b>4</b> ..... <b>5</b> ..... <b>7</b> ..... <b>8</b> ..... <b>9</b> .....	G1/2 female, one electrical connection 1/2 NPT female, two electrical connections without blind plug Pg 13.5 female, two electrical connections without blind plug M20 female, two electrical connections without blind plug G1/2 female, two electrical connections and a blind plug 1/2 NPT female, two electrical connections and a blind plug Pg 13.5 female, two electrical connections and a blind plug M20 female, two electrical connections and a blind plug
Integral indicator ☆	<b>D</b> ..... <b>E</b> ..... <b>N</b> .....	Digital indicator Digital indicator with the range setting switch *4 (None)
—	<b>N</b> .....	Always N
Optional codes	/□ Optional specification	

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The '☆' marks indicate the most typical selection for each specification. Example: EJA210-DMWA1A5A-92NN/□

- \*1: Refer to GS 01C22T01-00E for HART Protocol version.
- \*2: Low pressure side wetted parts material: Cover flange; JIS SCS14A, Process connector; SCS14A, Capsule; JIS SUS316L (Diaphragm; Hastelloy C-276), Vent plug; JIS SUS316.
- \*3: Refer to GS 01C22T02-00E for Fieldbus communication.
- \*4: Not applicable for Output signal code F.

● Model EJA220

Model	Suffix Codes	Description
<b>EJA220</b>	.....	Flange-mounted differential pressure transmitter (Extended diaphragm type)
Output Signal	<b>-D</b> ..... <b>-E</b> ..... <b>-F</b> .....	4 to 20 mA DC with digital communication (BRAIN protocol) 4 to 20 mA DC with digital communication (HART protocol) *1 Digital communication (FOUNDATION Fieldbus protocol) *5
Measurement span (capsule)	<b>M</b> ..... <b>H</b> .....	2.5 to 100 kPa {250 to 10000 mmH <sub>2</sub> O} 25 to 500 kPa {0.25 to 5 kgf/cm <sup>2</sup> }
High pressure side (Process flange side) wetted parts material *2	<b>S</b> *3..... <b>W</b> *4.....	[Diaphragm] [Pipe] [Others] JIS SUS316L JIS SUS316 JIS SUS316 Hastelloy C-276 JIS SUS316 JIS SUS316
Process flange rating	<b>J1</b> ..... <b>J2</b> ..... <b>A1</b> ..... <b>A2</b> ..... <b>P1</b> ..... <b>P2</b> ..... <b>D2</b> ..... <b>D4</b> .....	JIS10K JIS20K ANSI Class 150 ANSI Class 300 JPI Class 150 JPI Class 300 DIN PN10/16 DIN PN25/40
Diaphragm extension length (X <sub>2</sub> )	☆ <b>2</b> ..... <b>4</b> ..... <b>6</b> .....	X <sub>2</sub> =50 mm X <sub>2</sub> =100 mm X <sub>2</sub> =150 mm
Process flange size / material	☆ <b>G</b> ..... <b>H</b> ..... <b>J</b> ..... <b>D</b> ..... <b>E</b> ..... <b>F</b> .....	4-inch (100 mm) / JIS S25C 4-inch (100 mm) / JIS SUS304 4-inch (100 mm) / JIS SUS316 3-inch (80 mm) / JIS S25C 3-inch (80 mm) / JIS SUS304 3-inch (80 mm) / JIS SUS316
Low pressure side process connection	<b>0</b> ..... <b>1</b> ..... <b>2</b> ..... <b>3</b> ..... <b>4</b> ..... ☆ <b>5</b> .....	without process connector (Rc1/4 female on the cover flanges) with Rc1/4 female process connector with Rc1/2 female process connector with 1/4NPT female process connector with 1/2NPT female process connector without process connector (1/4 NPT female on the cover flanges)
Cover flange bolts material	☆ <b>A</b> ..... <b>B</b> .....	JIS SCM435 JIS SUS630
Installation	<b>-9</b> .....	Horizontal impulse piping type, left side high pressure
Electrical connection	☆ <b>0</b> ..... <b>2</b> ..... <b>3</b> ..... <b>4</b> ..... <b>5</b> ..... <b>7</b> ..... <b>8</b> ..... <b>9</b> .....	G1/2 female, one electrical connection 1/2 NPT female, two electrical connections without blind plug Pg 13.5 female, two electrical connections without blind plug M20 female, two electrical connections without blind plug G1/2 female, two electrical connections and a blind plug 1/2 NPT female, two electrical connections and a blind plug Pg 13.5 female, two electrical connections and a blind plug M20 female, two electrical connections and a blind plug
Integral indicator	<b>D</b> ..... <b>E</b> ..... ☆ <b>N</b> .....	Digital indicator Digital indicator with the range setting switch *6 (None)
Optional codes	<b>N</b> .....	Always N
		<input type="checkbox"/> Optional specification

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The '☆' marks indicates the most typical selection for each specification. Example: EJA220-DMSA12G5A-92NN/□

- \*1: Refer to GS 01C22T01-00E for HART Protocol version.
- \*2: Low pressure side wetted parts material: Cover flange; JIS SCS14A, Process connector; SCS14A, Capsule; JIS SUS316L (Diaphragm, Hastelloy C-276), Vent plug; JIS SUS316
- \*3: Applicable for 4-inch (100 mm) flange size (Process flange size/material G and H).
- \*4: Applicable for 3-inch (80 mm) flange size (Process flange size/material D and E).
- \*5: Refer to GS 01C22T02-00E for Fieldbus communication.
- \*6: Not applicable for Output signal code F.



**OPTIONAL SPECIFICATIONS (For Explosion Protected types “◇”)**

For FOUNDATION Fieldbus explosion protected type, see GS 01C22T02-00E.

Item	Description	Code
Factory Mutual (FM)	FM Explosion proof Approval *1 *3 Explosion proof for Class I, Division 1, Groups B, C and D Dust-ignitionproof for Class II/III, Division 1, Groups E, F and G Hazardous (classified) locations, indoors and outdoors (NEMA 4X) Division 2, 'SEALS NOT REQUIRED', Temp. Class: T6 Amb. Temp.: -40 to 60°C (-40 to 140°F)	FF1
	FM Intrinsically safe Approval *1 *3 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 Hazardous Locations. Nonincendive for Class I, Division 2, Groups A, B, C & D, Class II, Division. 2, Groups E, F & G, and Class III, Division 1 Hazardous Locations. Enclosure: "NEMA 4X", Temp. Class: T4, Amb. Temp.: -40 to 60°C (-40 to 140°F) Intrinsically Safe Apparatus Parameters [Groups A, B, C, D, E, F and G] Vmax=30 V, Imax=165 mA, Pmax=0.9 W, Ci=22.5 nF, Li=730 μH [Groups C, D, E, F and G] Vmax=30 V, Imax=225 mA, Pmax=0.9 W, Ci=22.5 nF, Li=730 μH	FS1
	Combined FF1 and FS1 *1 *3	FU1
CENELEC ATEX	CENELEC ATEX (KEMA) Flameproof Approval *2 *3 II 2G EExd IIC T4, T5, T6 Amb. Temp.: T5; -40 to 80°C (-40 to 176°F), T4 and T6; -40 to 75°C (-40 to 167°F) Max. process Temp.: T4; 120°C (248°F), T5; 100°C (212°F), T6; 85°C (185°F)	KF2
	CENELEC ATEX (KEMA) Intrinsically safe Approval *2 *3 II 1G EEx ia IIC T4, Amb. Temp.: -40 to 60°C (-40 to 140°F) Ui=30 V, Ii=165 mA, Pi=0.9 W, Ci=22.5 nF, Li=730 μH	KS2
	Combined KF2, KS2 and Type n Approval *2 *3 Type n Approval: II 3G Ex nL IIC T4 Amb. Temp.: -40 to 60°C (-40 to 140°F) Ui=30 V CD, Ci=22.5 nF, Li=730 μH Dust: II 1D maximum surface temperature T65°C (149°F){Tamb.: 40°C (104°F)}, T85°C (185°F) {Tamb.:60°C (140°F)}, T105°C (221°F){Tamb.:80°C (176°F)}	KU2
Canadian Standards Association (CSA)	CSA Explosion proof Approval *1 *3 Explosion proof for Class I, Division 1, Groups B, C and D Dustignitionproof for Class II/III, Division 1, Groups E, F and G Division2 'SEALS NOT REQUIRED', Temp. Class: T4, T5, T6 Encl Type 4x Max. Process Temp.: T4; 120°C (248°F), T5; 100°C (212°F), T6; 85°C (185°F) Amb. Temp.: -40 to 80°C (-40 to 176°F)	CF1
	CSA Intrinsically safe Approval *1 *3 Class I, Groups A, B, C and D Class II and III, Groups E, F and G Encl Type 4x, Temp. Class: T4, Amb. Temp.: -40 to 60°C (-40 to 140°F) Vmax=30 V, Imax=165 mA, Pmax=0.9 W, Ci=22.5 nF, Li=730 μH	CS1
	Combined CF1 and CS1 *1 *3	CU1
Standards Association of Australia (SAA)	SAA Flameproof, Intrinsically safe and Non-sparking Approval *3 *4 Ex d IIC T4/T5/T6, IP67, Amb. Temp.: -40 to 80°C (-40 to 176°F) Max. Process Temp.: T4; 120°C (248°F), T5; 100°C (212°F), T6; 85°C (185°F) Ex ia IIC T4, IP67 Ex n IIC T4, IP67 Ui=30 V DC, Ii=165 mA DC, Wi=0.9 W, Amb. Temp.: -40 to 60°C (-40 to 140°F)	SU1
Japanese Industrial Standards (JIS)	JIS Flameproof Approval, Ex do IIC T4X *3 *5 *7 Amb. Temp.: -20 to 60°C, Process Temp.: -20 to 120°C	JF3
	JIS Intrinsically safe Approval, Ex ia IIC T4 *6 Amb. Temp.: -20 to 60°C, Process Temp.: -20 to 120°C	JS3
Attached flameproof packing adapter *5	Electrical connection: G1/2 female	1 pc.
	Applicable cable: O. D. 8 to 12 mm	2 pcs.

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- \*1: Applicable for Electrical connection code 2 and 7 (1/2 NPT female).
- \*2: Applicable for Electrical connection code 2, 4, 7 and 9 (1/2 NPT and M20 female).
- \*3: Applicable for Output signal code D and E. For intrinsically safe approval, use the safety barrier certified by the testing laboratories (BARD-400 is not applicable).
- \*4: Applicable for Electrical connection code 2, 3, 4, 7, 8 and 9 (1/2 NPT, M20, and Pg 13.5 female).
- \*5: If cable wiring is to be used to a JIS flameproof type transmitter, add the YOKOGAWA-assured flameproof packing adapter.
- \*6: Applicable for Output signal code D. See <Safety Barrier for JIS Intrinsically Safe Type>.
- \*7: In case that the ambient temperature exceeds 50°C or that the ambient temperature exceeds 45°C with the process temperature of 90°C or above, use heat-resistant cables with maximum allowable temperature of 75°C or above.



**OPTIONAL SPECIFICATIONS**

Item		Description	Code
Painting	Color change	Amplifier cover only	P <input type="checkbox"/>
	Coating change	Epoxy resin-baked coating	X1
Lightning protector	Transmitter power supply voltage : 10.5 to 32 V DC (10.5 to 28 V DC for JIS intrinsically safe type, 10.5 to 30 V DC for intrinsically safe type other than JIS, or 9 to 32 V DC for Fieldbus communication type.) Allowable current : Max. 6000 A (1X40 μs), Repeating 1000 A (1X40 μs) 100 times		A
Oil-prohibited use	Degrease cleansing treatment		K1
	Degrease cleansing treatment and with fluorinated oil filled capsule. Operating temperature -20 to 80°C		K2
Oil-prohibited use with dehydrating treatment	Degrease cleansing treatment and dehydrating treatment		K5
	Degrease cleansing treatment and dehydrating treatment with fluorinated oil filled capsule. Operating temperature -20 to 80°C		K6
No serration *1	No serration work on the flange gasket surface ( for ANSI flange only )		Q
Teflon film *2	Diaphragm protection from sticky process fluid by FEP Teflon film attached with fluorinated oil. Operation range: 20 to 120°C, 0 to 2 MPa(Not applicable for vacuum service).		T
Fast response *11	Update time: 0.125 sec or less Amplifier assembly damping time constant: 0.1 to 64 sec in 9 increments. Response time (with min. damping time constant): max. 0.5 sec (excluding level unit)		F1
Failure alarm down-scale *3	Output status at CPU failure and hardware error is -5%, 3.2 mA or less.		C1
NAMUR NE43 compliant *3 *12	Output signal limits: 3.8 mA to 20.5 mA	Failure alarm down-scale: output status at CPU failure and hardware error is -5%, 3.2 mA or less.	C2
		Failure alarm up-scale: output status at CPU failure and hardware error is 110%, 21.6 mA or more.	C3
Stainless steel amplifier housing *4	Amplifier housing material : JIS SCS14A stainless steel (equivalent to JIS SUS316 cast stainless steel or ASTM CF-8M)		E1
Gold-plate *5	Inside of isolating diaphragms(fill fluid side) are gold plated, effective for hydrogen permeation.		A1
Mill Certificate	High pressure side : Process flange, Block *6 Low pressure side : Cover flange	For model EJA210	M03
	High pressure side : Process flange, Block *7 Low pressure side : Cover flange, Process connector		M13
	High pressure side : Process flange, Block, Pipe, Base *6 Low pressure side : Cover flange	For model EJA220	M04
	High pressure side : Process flange, Block, Pipe, Base *7 Low pressure side : Cover flange, Process connector		M14
Pressure test/ Leak test Certificate	( Flange rating ) ( Test Pressure )	Nitrogen ( N <sub>2</sub> ) Gas *10 Retention time: 10 minutes	
	JIS 10K 2 MPa { 20 kgf/cm <sup>2</sup> }		T31
	JIS 20K 5 MPa { 50 kgf/cm <sup>2</sup> }		T32
	ANSI/JPI Class 150 3 MPa { 29.8 kgf/cm <sup>2</sup> }		T36
	ANSI/JPI Class 300 7.7 MPa { 77 kgf/cm <sup>2</sup> } *8		T37
ANSI/JPI Class 300 7 MPa { 70 kgf/cm <sup>2</sup> } *9	T38		

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- \*1: This item cannot be applied to model EJA210 Wetted parts material code H and T, whose gasket contact surface are not serrated as standard specifications.
- \*2: Teflon film can only be specified for model EJA210.
- \*3: Applicable for Output signal code D and E. The hardware error indicates faulty amplifier or capsule.  
When combining with Optional code F1, output status for down-scale is -2.5%, 3.6 mA DC or less.
- \*4: Applicable for Electrical connection code 2, 3, 4 and 7. Not applicable for Optional code P  and X1.
- \*5: Applicable for Wetted parts material code S, H and W .  
Issue Tokuchu 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 model EJA210.
- \*9: Applicable for model EJA220.
- \*10: Pure nitrogen gas is used for oil-prohibited use (Optional code K1, K2, K5, and K6 ).
- \*11: Applicable for Output signal code D and E. Consult Yokogawa when combining with Optional code for explosion protected type.
- \*12: Not applicable for Optional code C1.

Item	Description	Code
Calibration units *1	P calibration ( psi unit )	( See Table 3. )
	bar calibration ( bar unit )	
	M calibration ( kgf/cm <sup>2</sup> unit )	
Sealing treatment to JIS SUS630 nuts	Sealant(liquid silicone rubber) is coated on JIS SUS630 cover flange mounting nuts against stress corrosion cracking.	Y

\*1: The unit of MWP (Max. working pressure) on name plate of a housing is the same unit as specified by Optional code D1, D3, and D4.

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**Table 3. Calibration Units**

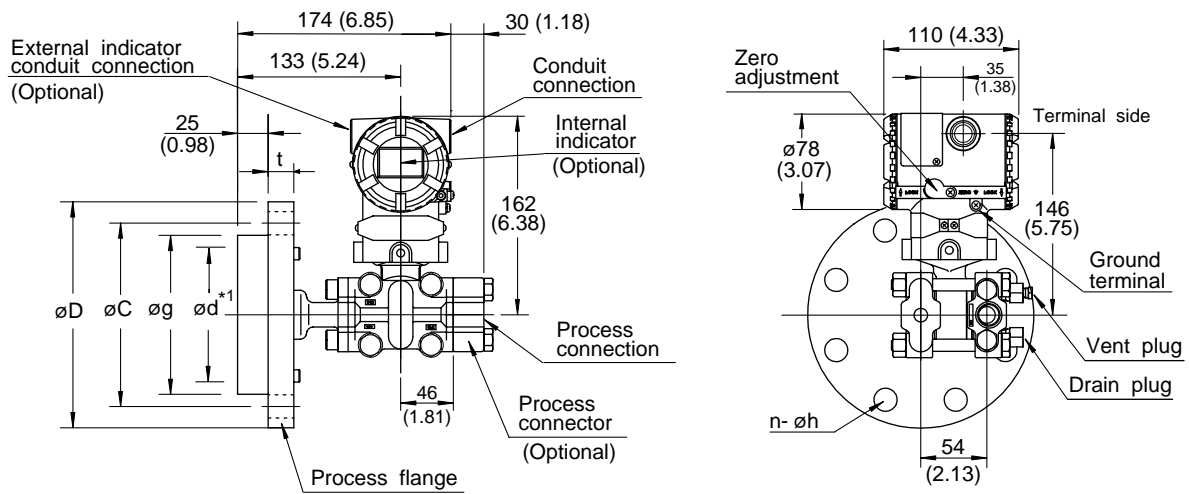
	Measurement Span and Range	Optional Code			
		D1 ( psi Unit )	D3 ( bar Unit )	D4 ( kgf/cm <sup>2</sup> Unit )	
EJA210/220	M	Span	10 to 400 inH <sub>2</sub> O	25 to 1000 mbar	250 to 10000 mmH <sub>2</sub> O
		Range	-400 to 400 inH <sub>2</sub> O	-1000 to 1000 mbar	-10000 to 10000 mmH <sub>2</sub> O
	H	Span	100 to 2000 inH <sub>2</sub> O	250 to 5000 mbar	0.25 to 5 kgf/cm <sup>2</sup>
		Range	-2000 to 2000 inH <sub>2</sub> O	-5000 to 5000 mbar	-5 to 5 kgf/cm <sup>2</sup>

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**DIMENSIONS**

● **Model EJA210**

Unit : mm (approx.inch)



\*1 Indicates inside diameter of gasket contact surface.

**Flange size: 3-inch (80 mm)**

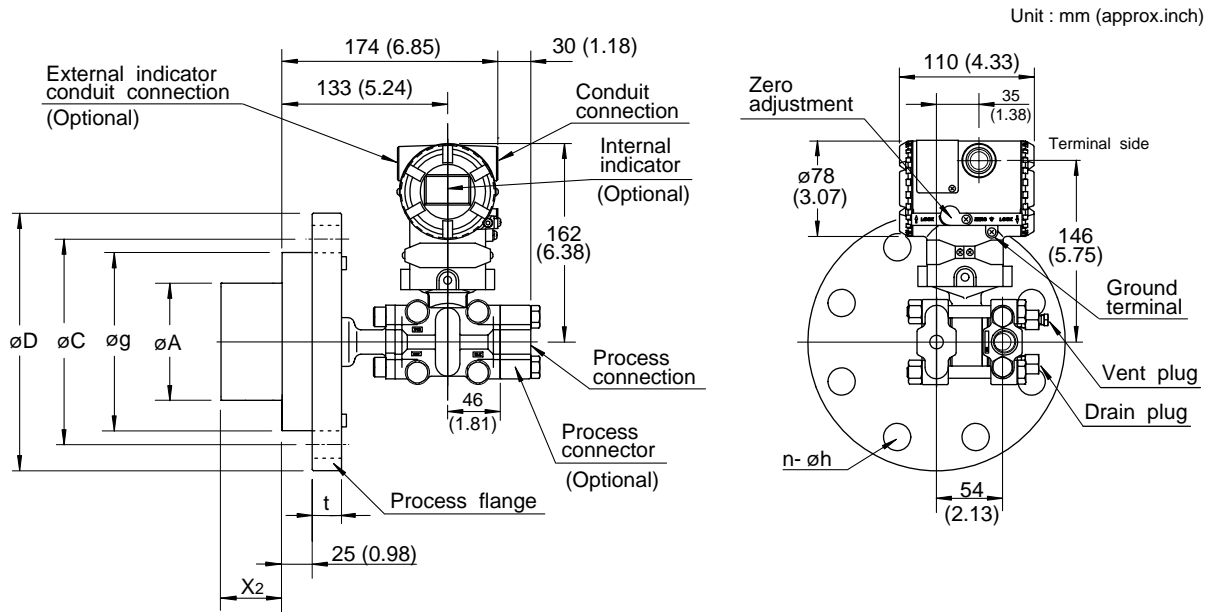
Flange Nominal Diameter and Rating	$\varnothing D$	$\varnothing C$	$\varnothing g$	$\varnothing d$	t	Bolt Holes	
						No.(N)	Dia.( $\varnothing h$ )
JIS 10K	185(7.28)	150(5.91)	130(5.12)	90(3.54)	18(0.71)	8	19(0.75)
JIS 20K	200(7.87)	160(6.30)	130(5.12)	90(3.54)	22(0.87)	8	23(0.91)
ANSI Class150	190.5(7.50)	152.4(6.00)	130(5.12)	90(3.54)	23.9(0.94)	4	19.1(0.75)
ANSI Class300	209.6(8.25)	168.1(6.62)	130(5.12)	90(3.54)	28.5(1.12)	8	22.4(0.88)
JPI Class150	190(7.48)	152.4(6.00)	130(5.12)	90(3.54)	24(0.44)	4	19(0.75)
JPI Class300	210(8.27)	168.1(6.62)	130(5.12)	90(3.54)	28.5(1.12)	8	22(0.87)
DIN PN 10/16	200(7.87)	160(6.30)	130(5.12)	90(3.54)	20(0.79)	8	18(0.71)
DIN PN 25/40	200(7.87)	160(6.30)	130(5.12)	90(3.54)	24(0.44)	8	18(0.71)

**Flange size: 2-inch (50 mm)**

Flange Nominal Diameter and Rating	$\varnothing D$	$\varnothing C$	$\varnothing g$	$\varnothing d$	t	Bolt Holes	
						No.(N)	Dia.( $\varnothing h$ )
JIS 10K	155(6.10)	120(4.72)	100(3.94)	61(2.40)	16(0.63)	4	19(0.75)
JIS 20K	155(6.10)	120(4.72)	100(3.94)	61(2.40)	18(0.71)	8	19(0.75)
ANSI Class150	152.4(6.00)	120.7(4.75)	100(3.94)	61(2.40)	19.1(0.75)	4	19.1(0.75)
ANSI Class300	165.1(6.50)	127(5.00)	100(3.94)	61(2.40)	22.4(0.88)	8	19.1(0.75)
JPI Class150	152(5.98)	120.6(4.75)	100(3.94)	61(2.40)	19.5(0.71)	4	19(0.75)
JPI Class300	165.1(6.50)	127(5.00)	100(3.94)	61(2.40)	22.5(0.89)	8	19(0.75)
DIN PN 10/16	165(6.50)	125(4.92)	100(3.94)	61(2.40)	18(0.71)	4	18(0.71)
DIN PN 25/40	165(6.50)	125(4.92)	100(3.94)	61(2.40)	20(0.79)	4	18(0.71)

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● Model EJA220



**Flange size: 4-inch (100 mm)**

Flange Nominal Diameter and Rating	øD	øC	øg	øA	t	Bolt Holes	
						No.(N)	Dia.(øh)
JIS 10K	210(8.27)	175(6.89)	155(6.10)	96±0.5(3.78)	18(0.71)	8	19(0.75)
JIS 20K	225(8.86)	185(7.28)	155(6.10)	96±0.5(3.78)	24(0.94)	8	23(0.91)
ANSI Class150	228.6(9.00)	190.5(7.50)	155(6.10)	96±0.5(3.78)	23.9(0.94)	8	19.1(0.75)
ANSI Class300	254(10.00)	200(7.87)	155(6.10)	96±0.5(3.78)	31.8(1.25)	8	22.4(0.88)
JPI Class150	229(9.02)	190.5(7.50)	155(6.10)	96±0.5(3.78)	24(0.94)	8	19(0.75)
JPI Class300	254(10.00)	200.2(7.88)	155(6.10)	96±0.5(3.78)	32(1.26)	8	22(0.87)
DIN PN 10/16	220(8.66)	180(7.09)	155(6.10)	96±0.5(3.78)	20(0.79)	8	18(0.71)
DIN PN 25/40	235(9.25)	190(7.50)	155(6.10)	96±0.5(3.78)	24(0.94)	8	22(0.87)

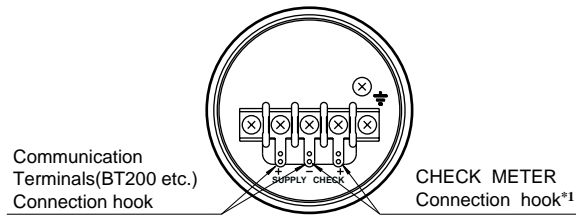
**Flange size: 3-inch (80 mm)**

Flange Nominal Diameter and Rating	øD	øC	øg	øA	t	Bolt Holes	
						No.(N)	Dia.(øh)
JIS 10K	185(7.28)	150(5.91)	130(5.12)	71±0.5(2.80)	18(0.71)	8	19(0.75)
JIS 20K	200(7.87)	160(6.30)	130(5.12)	71±0.5(2.80)	22(0.87)	8	23(0.91)
ANSI Class150	190.5(7.50)	152.4(6.00)	130(5.12)	71±0.5(2.80)	23.9(0.94)	4	19.1(0.75)
ANSI Class300	209.6(8.25)	168.1(6.62)	130(5.12)	71±0.5(2.80)	28.5(1.12)	8	22.4(0.88)
JPI Class150	190(7.48)	152.4(6.00)	130(5.12)	71±0.5(2.80)	24(0.94)	4	19(0.75)
JPI Class300	210(8.27)	168.1(6.62)	130(5.12)	71±0.5(2.80)	28.5(1.12)	8	22(0.87)
DIN PN 10/16	200(7.88)	160(6.30)	130(5.12)	71±0.5(2.80)	20(0.79)	8	18(0.71)
DIN PN 25/40	200(7.87)	160(6.30)	130(5.12)	71±0.5(2.80)	24(0.94)	8	18(0.71)

Diaphragm Extension Length Code	X <sub>2</sub>
2	1.97 inch (50 mm)
4	3.94 inch (100 mm)
6	5.91 inch (150 mm)

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● Terminal Configuration



● Terminal Wiring

SUPPLY + -	Power supply and output terminal
CHECK + -	External indicator(ammeter) terminal*1
⏏	Ground terminal

\*1: When using an external indicator or a check meter, the internal resistance must be 10 Ω or less. Not available for Fieldbus communication(Output signal code F).

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< Ordering Information > “◇”

Specify the following when ordering

1. Model, suffix codes, and optional codes
2. Calibration range and units:
  - 1) Calibration range can be specified with range value specifications up to 5 digits (excluding any decimal point) for low or high range limits within the range of -32000 to 32000.
  - 2) Specify only one unit from the table, ‘Settings when shipped.’
3. Select linear or square root for output mode and display mode.
 

Note: If not specified, the instrument is shipped in normal operation mode.
4. Display scale and units (for transmitters equipped with integral indicator only)
 

Specify either 0 to 100 % or engineering unit scale and ‘Range and Unit’ for engineering units scale:  
Scale range can be specified with range limit specifications up to 5 digits (excluding any decimal point) for low or high range limits within the range of -19999 to 19999.
5. Tag Number (if required)

< Related Instruments > “◇”

Power Distributor: Refer to GS 01B04T01-02E or GS 01B04T02-00E  
BRAIN TERMINAL: Refer to GS 01C00A11-00E

< Safety Barrier for JIS Intrinsically Safe Type >

Supplier	Type	Model
MTL	Isolator	MTL3046B
		MTL4041B
P+F		KFD2-STC3-Ex 1
		KFD2-STV3-Ex 1-1, 2, 3

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Note: Requirements of capacitance and inductance for cable wiring.

$$C_w \leq C_o - 11[\text{nF}]$$

$$L_w \leq L_o - 730[\mu\text{H}]$$

(Co: Max. external capacitance)  
(Lo: Max. external inductance)

< Reference >

1. JIS SUS316L stainless steel; Equivalent to AISI 316L.
2. JIS SUS316 stainless steel; Equivalent to AISI 316.
3. JIS SUS304 stainless steel; Equivalent to AISI 304.
4. JIS S25C carbon steel; Equivalent to AISI 1025.
5. JIS SECC Carbon steel.
6. Teflon; Trademark of E.I. DuPont de Nemours & Co.
7. JIS SUS630 stainless steel; Equivalent to ASTM 630.
8. Hastelloy; Trademark of Haynes International Inc.
9. JIS SCS14A stainless steel; Equivalent to JIS SUS316 cast stainless steel or ASTM CF-8M.
10. HART; Trademark of the HART Communication Foundation.
11. FOUNDATION; Trademark of Fieldbus Foundation.