

General Specifications

Model EJA110A Differential Pressure Transmitter

DP_{sharp}

GS 1C21B1-E

The high performance differential pressure transmitter model EJA110A can be used to measure liquid, gas, or steam flow as well as liquid level, density and pressure. It outputs a 4 to 20 mA DC signal corresponding to the measured differential pressure. Model EJA110A also features remote setup and monitoring through communications with the BRAIN™ terminal and CENTUM CS™ or μXL™ or HART® 275 host.

STANDARD SPECIFICATIONS

Refer to GS 1C22T2-E for Fieldbus communication type marked with “◇.”

PERFORMANCE SPECIFICATIONS

Zero-based calibrated span, linear output, wetted parts material code 'S' and silicone oil.

Reference Accuracy of Calibrated Span

(including the effects of zero-based linearity, hysteresis, and repeatability)

±0.075 % of Span

For spans below X

$\pm[0.025 + 0.05 \frac{X}{\text{Span}}]$ % of Span

where X equals:

Capsule	X kPa {inH ₂ O}
L	3 {12}
M	10 {40}
H	100 {400}
V	1.4 MPa {200 psi}

Square Root Output Accuracy

The square root accuracy is a percent of flow span.

Output	Accuracy
50 % or Greater	same as reference accuracy
50 % to Dropout point	$\frac{\text{reference accuracy} \times 50}{\text{square root output (\%)}}$

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Ambient Temperature Effects

Total Effects per 28 °C (50 °F) Change

Capsule	Effect
L	±[0.08 % Span + 0.09 % URL]
M	±[0.07 % Span + 0.02 % URL]
H	±[0.07 % Span + 0.015 % URL]
V	±[0.07 % Span + 0.03 % URL]

Static Pressure Effects

Total Effects per Change

L capsule

±[0.07 % Span+0.052 % URL] per 3.4 MPa {500 psi}

M, H and V capsules

±[0.1% Span+0.028 % URL] per 6.9 MPa {1000 psi}



Effect on Zero (can be corrected at line pressure)

L capsule

±[0.02 % Span+0.052 % URL] per 3.4 MPa {500 psi}

M, H and V capsules

±0.028 % of URL per 6.9 MPa {1000 psi}

Overpressure Effects (M, H and V capsules)

±0.03 % of URL per 14 MPa {2000 psi}

Stability (M, H and V capsules)

±0.1 % of URL per 60 months

Power Supply Effects “◇”

±0.005 % per Volt (from 21.6 to 32 V DC, 350 Ω for Output signal code D and E.)

FUNCTIONAL SPECIFICATIONS

Span & Range Limits

Measurement Span/Range	kPa	inH ₂ O/(D1)	mbar/(D3)	mmH ₂ O/(D4)
L	Span 0.5 to 10	2 to 40	5 to 100	50 to 1000
	Range -10 to 10	-40 to 40	-100 to 100	-1000 to 1000
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 ²
	Range -500 to 500	-2000 to 2000	-5000 to 5000	-5 to 5 kgf/cm ²
V*	Span 0.14 to 14 MPa	20 to 2000 psi	1.4 to 140 bar	1.4 to 140 kgf/cm ²
	Range -0.5 to 14 MPa	-71 to 2000 psi	-5 to 140 bar	-5 to 140 kgf/cm ²

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*1: For Wetted parts material code other than S, the ranges are 0 to 14 MPa, 0 to 2000 psi, 0 to 140 bar, and 0 to 140 kgf/cm².

URL is defined as the Upper Range Limit from the table above.

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. Span may be adjusted locally using the digital indicator with range switch.

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MODEL AND SUFFIX CODES

Model	Suffix Codes	Description
EJA110A	Differential pressure transmitter
Output Signal	-D	4 to 20 mA DC with digital communication (BRAIN protocol)
	-E	4 to 20 mA DC with digital communication (HART protocol, refer to GS 1C22T1-E)
	-F	Digital communication (FOUNDATION Fieldbus protocol, refer to GS 1C22T2-E)
Measurement span(capsule)	L	0.5 to 10 kPa {50 to 1000 mmH ₂ O}
	M	1 to 100 kPa {100 to 10000 mmH ₂ O}
	H	5 to 500 kPa { 0.05 to 5 kgf/cm ² }
	V	0.14 to 14 MPa { 1.4 to 140 kgf/cm ² } ^{*1}
Wetted parts material	S	[Body] ^{*2} SCS14A [Capsule] SUS316L ^{*5} [Vent plug] SUS316
	H	SCS14A Hastelloy C-276 ^{*6} SUS316
	M	SCS14A Monel ^{*6} SUS316
	T	SCS14A Tantalum ^{*6} SUS316
	A	Hastelloy C-276 equivalent ^{*3} Hastelloy C-276 ^{*6} Hastelloy C-276
	D	Hastelloy C-276 equivalent ^{*3} Tantalum ^{*6} Hastelloy C-276
	B	Monel equivalent ^{*4} Monel ^{*6} Monel
Process connections	0	without process connector (Rc1/4 female on the cover flanges)
	1	with Rc1/4 female process connector
	2	with Rc1/2 female process connector
	3	with 1/4 NPT female process connector
	4	with 1/2 NPT female process connector
	5	without process connector (1/4 NPT female on the cover flanges)
Bolts and nuts material	☆ A	[Maximum working pressure] (L capsule) (M, H, and V capsule) SCM435 3.5 MPa {35 kgf/cm ² } 14 MPa {140 kgf/cm ² }
	B	SUS630 3.5 MPa {35 kgf/cm ² } 14 MPa {140 kgf/cm ² }
Installation	-2	Vertical impulse piping type, right side high pressure, process connector upside ^{*7}
	-3	Vertical impulse piping type, right side high pressure, process connector downside ^{*7}
	-6	Vertical impulse piping type, left side high pressure, process connector upside ^{*7}
	-7	Vertical impulse piping type, left side high pressure, process connector downside ^{*7}
	☆ -8	Horizontal impulse piping type, right side high pressure ^{*8}
	-9	Horizontal impulse piping type, left side high pressure ^{*8}
Electrical connection	☆ 0	G1/2 female, one electrical connection
	2	1/2 NPT female, two electrical connections without blind plug
	3	Pg 13.5 female, two electrical connections without blind plug
	4	M20 female, two electrical connections without blind plug
	5	G1/2 female, two electrical connections and a blind plug
	7	1/2 NPT female, two electrical connections and a blind plug
	8	Pg 13.5 female, two electrical connections and a blind plug
	9	M20 female, two electrical connections and a blind plug
	Integral indicator	D
☆ E		Digital indicator with the range setting switch
N		(None)
Mounting bracket	☆ A	SECC Carbon steel 2-inch pipe mounting (flat type)
	B	SUS304 2-inch pipe mounting (flat type)
	C	SECC Carbon steel 2-inch pipe mounting (L type)
	D	SUS304 2-inch pipe mounting (L type)
	N	(None)
Optional codes		/□ Optional specification

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The '☆' marks indicate the most typical selection for each specification. Example: EJA110A-DMS5A-92NA/□

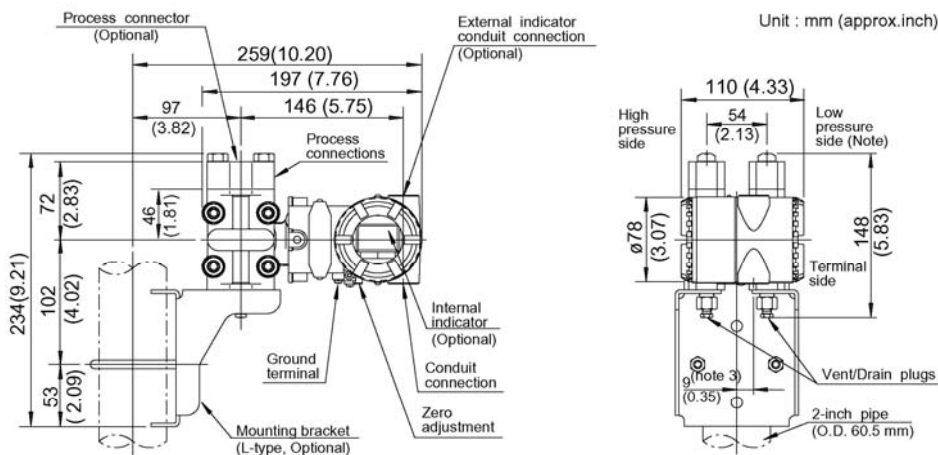
- *1: For Wetted parts material code H, M, T, A, and D, the range limits are 0 to 14 MPa{0 to 140 kgf/cm²}.
- *2: Indicates material of cover flanges and process connectors.
- *3: Indicated material is equivalent to ASTM CW-12MW.
- *4: Indicated material is equivalent to ASTM M35-2.
- *5: Diaphragm material is Hastelloy C-276. Indicated is other wetted parts materials.
- *6: Indicates diaphragm and other wetted parts material.
- *7: If necessary, specify Mounting bracket code C or D.
- *8: If necessary, specify Mounting bracket code A or B.

■ DIMENSIONS

● **Model EJA110A**

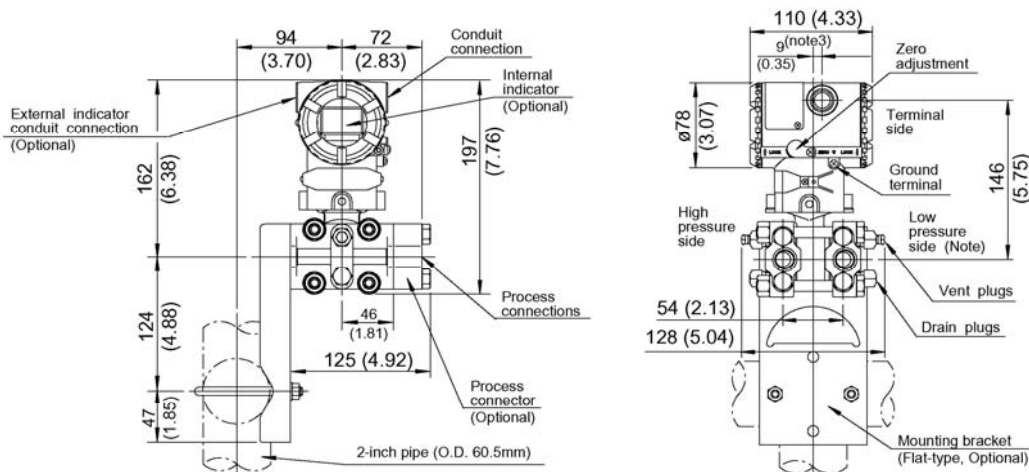
Vertical Impulse Piping Type

Process connector upside (INSTALLATION CODE '6') (For CODE '2','3' or '7', refer to the notes below.)



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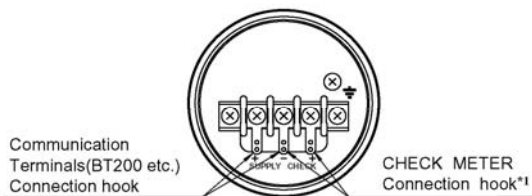
Horizontal Impulse Piping Type (INSTALLATION CODE '9') (For CODE '8', refer to the notes below.)



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- * 1: When Installation code 2, 3, or 8 is selected, high and low pressure side on above figure are reversed. (i.e. High pressure side is on the right side.)
- * 2: When Installation code 3 or 7 is selected, process connection mounting bracket on above figure are reversed.
- * 3: 15 mm(0.59 inch) for right side high pressure.(for code 2, 3 or 8)

● **Terminal Configuration**



● **Terminal Wiring**

SUPPLY \pm	Power supply and output terminal
CHECK \pm	External indicator(ammeter) terminal*1
\equiv	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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型號說明：

Item Explanation:

VM2 - FW **R** - **XX** **A** **C** **V**



記號	輸入選項	記號	輸出接點(R)	類比輸出(A)	通訊介面(C)	輔助電源(V)
Index	Input Option	Index	Output Contact[R]	Analog Output[A]	Comm. Interface[C]	Aux Power[V]
00	4.000~20.000mA	0	-	-	-	-
01	1.000~5.000V	1	1 Relay(a, b)	1 ~ 5 V	RS-232	DC 10V
02	0.05Hz~5000Hz	2	2 Relay(a, b)	4 ~ 20 mA	RS-422	DC 12V
		3	3 Relay(a, b)	0 ~ 10 V	RS-485	DC 24V
		4	4 Relay(a)	X	X	X

主要規格：

Major Specification:

	類比輸入型	脈波輸入型(NPN)
	Analog Input Mode	Pulse Input Mode(NPN)
準確度	0.1% F.S.	0.03% F.S.
Accuracy	0.1% F.S.	0.03% F.S.
取樣速度	28~56次/秒	50~999ms
Sampling Time	28~56 preset/second	50~999ms
顯示器規格	0.36" 紅色(累積量)・0.3" 綠色(瞬間量)	
Display Specification	0.36" Red(total)・0.3" Green(rate)	
顯示範圍	0~99999999(累積量)・0~99999瞬間量	
Display Range	0~99999999(total)・0~99999(rate)	
電源電壓	AC/DC 90~260 50/60Hz	
Supply Voltage	AC/DC 90~260 50/60Hz	
消耗電力	15VA以下	
Power Consumption	Max.15VA	
絕緣阻抗	100M ohm (DC 500V)	
Insulation Impedance	100M ohm (DC 500V)	
耐高壓	2000V, 1 min 外部端子和外殼、輸入和輸出	
Hi-pot Test	2000V, 1 min, between terminals and case, output and input	
耐雜訊	2KV 5KHZ	
Noise Susceptibility	2KV 5KHZ	
環境溫度	0~50°C(不結冰)	
Ambient Temperature	0~50°C(with no icing)	
環境溼度	25~85% RH(不結露)	
Ambient Humidity	25~85% RH(with no fog)	
類比輸出解析度	12 bit DAC	
Analog output resolution	12 bit DAC	

主要特點：

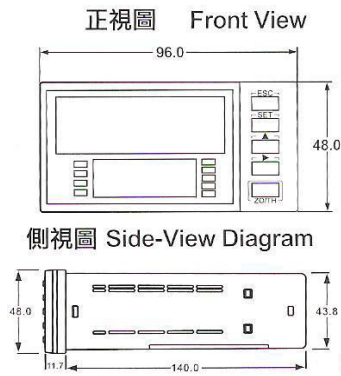
- 一、輸入信號可為電壓、電流、脈波。
- 二、顯示範圍0~99999999，可任意規劃。
- 三、準確度0.1%滿刻度(類比)，0.03%滿刻度(脈波)。
- 四、可同時顯示累積量及瞬間量或瞬間峰值紀錄。
- 五、工作電源90~240V，穩定度高。
- 六、具數位濾波器功能可使顯示數值穩定。
- 七、瞬間量具開根號功能(類比)。
- 八、標準Modbus通訊協定且可選擇RTU或ASCII模式。

Key Features:

- 一、Input signal: Voltage, current and pulse。
- 二、Display range is 0~99999999, and can be adjusted manually。
- 三、Accuracy 0.1% full scale (analogous), 0.03% full scale (pulse)。
- 四、Can to display the total value, rate value and peak value at the same time。
- 五、Power supply: 90~240V, high stability。
- 六、Combine with digital filter function to stabilize the display value。
- 七、Have calculating root symbol function on rate value (analog)。
- 八、Standard Modbus communication protocol, and have RTU or ASCII mode for option。

尺寸圖：

Dimension Diagram:



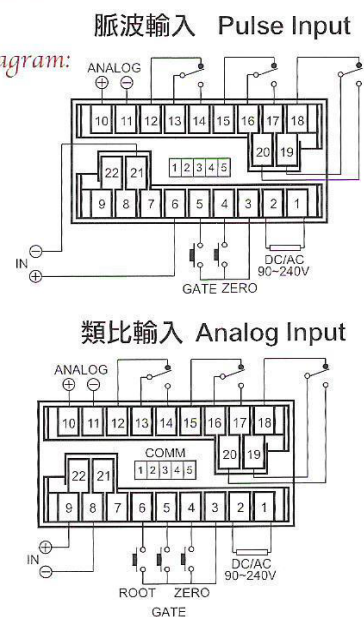
Unit: mm

Comm

	RS-232	RS-422	RS-485
1	NC	RXD+	485+
2	NC	RXD-	485-
3	TXD	TXD+	NC
4	RXD	TXD-	NC
5	SG	NC	NC

接腳圖：

Connection Diagram:



ORIFICE FLANGE ASSEMBLIES

MODEL : FOW

Model FOW Orifice Flange Assemblies are used in conjunction with Orifice Plates (Model FOP) for flow measurement of smaller or medium size pipes at lower or medium pressure ranges. The flange connection is of an RF type and the differential pressure tapping system is with flange taps.

Standard Specifications

Nominal diameters :

20-mm (3/4") to 350-mm (14")

Flange ratings :

JIS 10、20、30 kg/cm² RF

ANSI 150、300、600、1500 lb RF

Working temperature range :

max. 400 °C

Flange material :

SF45、SUSF304、SUSF316

Differential pressure piping connection :

PT1/2 or NPT 1/2 internal thread

Main materials :

Flange :

SF45、SUS304、SUS316

Plate with tab handle :

SUS304、SUS316

Through-bolts : SNB7

Nuts : S45C

Jack bolts and nuts : S25C

Gaskets :

JIS 10、20 kg/cm²、and ANSI 150、300 lb

Material : Asbestos sheet gasket

Thickness : 1.5mm

JIS 30 kg/cm²、and ANSI 600 lb

Material : Vortex gaskets with inside and outside rings

Thickness : 4.5mm



Welded Neck



Orifice Plate

BNC INDUSTRIAL CO., LTD.