

General Specifications

GS 01C33C10-02EN

OpreX™ Pressure Transmitter
 EJX110S
 Differential Pressure Transmitter
 Low Flow measurement type

OVERVIEW

The low flow transmitter EJX110S is a differential pressure transmitter assembled with an integral pressure transmitter. EJX110S features single crystal silicon resonant sensor and excellent for very low flow measurement. EJX110S outputs a 4 to 20 mA DC signal corresponding to the measured flow. Its highly accurate and stable sensor can also measure the static pressure which can be shown on the integral indicator or remotely monitored via HART or PROFINET communications.

Other key features include quick response, backlit Graphic display,

EJX S series are certified as complying with SIL 2 for safety requirement.



STANDARD SPECIFICATIONS

Span and Range Limits

Capsule range code	kPa		inH ₂ O (/D1)		mbar (/D3)		mmH ₂ O (/D4)	
	Range	Span	Range	Span	Range	Span	Range	Span
F	0 to 5	1 to 5	0 to 20	4 to 20	0 to 50	10 to 50	0 to 509	101 to 509
M	0 to 100	2 to 100	0 to 401	8 to 401	0 to 1000	20 to 1000	0 to 10197	203 to 10197
H	0 to 210	20 to 210	0 to 843	80 to 843	0 to 2100	200 to 2100	0 to 2.14 (kgf/cm ²)	0.2 to 2.14 (kgf/cm ²)

Pressure limits

Capsule range code	Maximum Pressure Limits	Burst Pressure Limits
F	16 MPa (2300 psi)	47 MPa (6800 psi)
M		69 MPa (10000 psi)
H		69 MPa (10000 psi)

Performance Specifications

Zero-based calibrated span, linear output, wetted parts material code “S” and silicone oil, unless otherwise mentioned.

Specification Conformance:

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

Reference Accuracy of Calibrated Span

These specifications include terminal-based linearity, hysteresis, and repeatability.

Capsule Range code	Wetted Parts Material code	Reference Accuracy		X	URL (Upper Range Limit)
		Span \geq X	Span<X		
F	S, F	$\pm 0.04\%$	$\pm(0.015+0.01 \text{ URL}/\text{span})\%$	2 kPa (8 inH ₂ O)	5 kPa (20 inH ₂ O)
M	S	$\pm 0.035\%$	$\pm(0.00175 \text{ URL}/\text{span})\%$	5 kPa (20 inH ₂ O)	100 kPa (401 inH ₂ O)
H			$\pm(0.0049 \text{ URL}/\text{span})\%$	70 kPa (280 inH ₂ O)	500 kPa (2009 inH ₂ O)
M	F	$\pm 0.04\%$	$\pm(0.002+0.0019 \text{ URL}/\text{span})\%$	5 kPa (20 inH ₂ O)	100 kPa (401 inH ₂ O)
H			$\pm(0.005+0.0049 \text{ URL}/\text{span})\%$	70 kPa (280 inH ₂ O)	500 kPa (2009 inH ₂ O)

□ [Integral Orifice] Accuracy±5% of span Refer to TI 01C33A02-01EN for conditions.

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	$\frac{\text{Reference accuracy} \times 50}{\text{Square root output (\%)}}$

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

Capsule	Effect
F	±(0.055% Span+0.18% URL)
M	±(0.04% Span+0.009% URL)
H	±(0.04% Span+0.0125% URL)

Static Pressure Effects per 6.9 MPa (1000 psi) Change:

 ±0.075% of span

<Effect on Zero>

Capsule	Effect
F	±0.1% URL
M	±0.02% URL
H	±0.028% URL

<Measurement Range (Approximate Value)>

	Orifice for low flow measurement		Capsule range code		
	Code	Bore (mm)	F	M	H
Water Equivalent Maximum Flow Range l/min	1	0.508	0.016 to 0.035	0.022 to 0.157	0.07 to 0.225
	2	0.864	0.046 to 0.102	0.066 to 0.46	0.21 to 0.67
	3	1.511	0.134 to 0.29	0.19 to 1.35	0.60 to 1.93
	4	2.527	0.36 to 0.80	0.52 to 3.6	1.65 to 5.2
	5	4.039	0.92 to 2.0	1.3 to 9.2	4.1 to 13.0
	6	6.350	2.3 to 5.0	3.3 to 23	10 to 33
Air Equivalent Maximum Flow Range NI/min	1	0.508	0.44 to 0.981	0.63 to 4.4	1.98 to 6.4
	2	0.864	1.30 to 2.88	1.85 to 12.9	5.8 to 18.5
	3	1.511	3.7 to 8.22	5.3 to 37	16.7 to 54
	4	2.527	10.3 to 22	14.6 to 105	47 to 150
	5	4.039	25 to 55	36 to 255	113 to 370
	6	6.350	63 to 140	89 to 630	280 to 910

□ **Overpressure Effects**

Overpressure condition: up to maximum working pressure.
 Capsule range code M, H, ±0.03% of URL
 Expect for gold-plated diaphragm (Wetted parts material code F).

□ **Static Pressure Signal Range and Accuracy**

(For monitoring via communication or on indicator. Includes terminal-based linearity, hysteresis, and repeatability.)

	Configurable span	Available range
Gauge pressure	0.5 to 16 MPa	-0.1 to 16 MPa
Absolute pressure	0.5 to 16 MPa	0 to 16 MPa abs

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.

Stability (All normal operating condition, including overpressure effects):

±0.1% of URL per 20 years: For Capsule range code M, H and Wetted material code S
 ±0.1% of URL per 1 years: For Capsule range code F

Power Supply Effects: For HART Communication

±0.005 % per Volt (from 21.6 to 32 V DC, 350Ω)

Vibration Effects:

Less than 0.1% of URL (10-60 Hz, 0.21 mm displacement/60-2000 Hz 3 G)

Mounting Position Effects:

Rotation in diaphragm plane has no effect. Tilting up to 90 degrees will cause zero shift up to 0.4 kPa (1.6 inH₂O) which can be corrected by the zero adjustment.

Working Pressure Limits (Silicone oil):

- Maximum Pressure Limits: Refer to "Pressure Limits".
- Minimum Pressure Limit: See graph below Figure 1

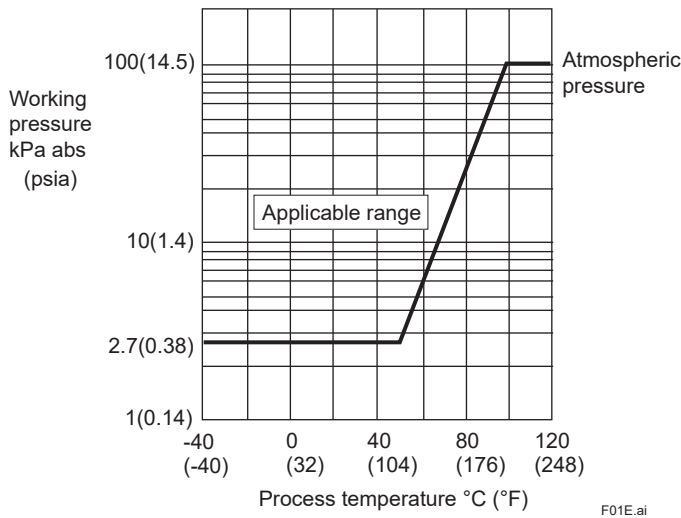


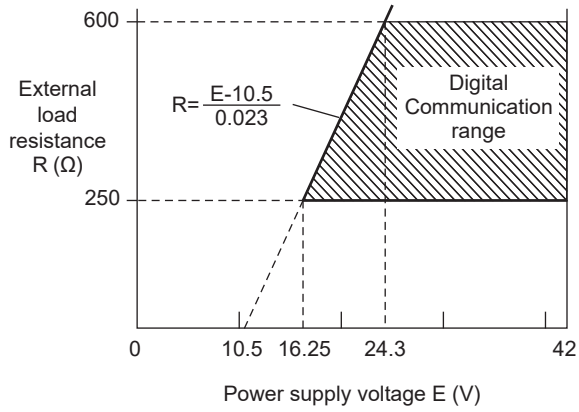
Figure 1. Working Pressure and Process Temperature

□ **Communication Specifications**

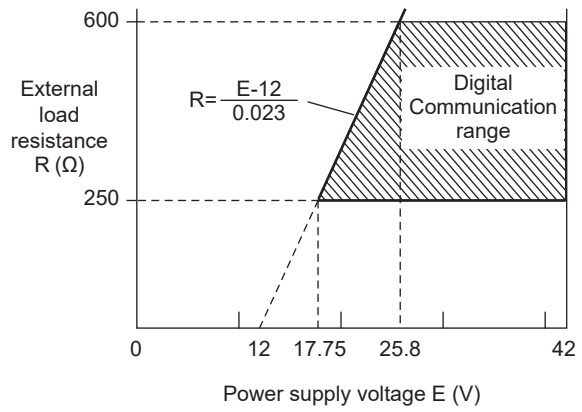
HART Communication:

Item		Description
Communication protocol		Two wire 4 to 20 mA DC output with digital communications HART
Output signal		Digital communication signal based on HART. 3.6 to 21.6 mA (-2.5 to 110%) Output signal limits: 3.6 mA to 21.6 mA Output status Burnout Up-scale: 115% (22.4 mA DC) or more Factory default setting Down-scale: -5% (3.2 mA DC) or less With option code /C2 Output signal limits: 3.8 mA to 20.5 mA Output status Burnout Up-scale: 115% (22.4 mA DC) or more Factory default setting Down-scale: -5% (3.2 mA DC) or less
Output mode		LINEAR/Signal Characterizer (Max 30-segment)
Communication Requirements	Supply Voltage	For LCD Display and without display (Display and interface code: E, N) 10.5 to 42 V DC for general use and flameproof type. 10.5 to 30 V DC for intrinsically safe type. Minimum voltage limited at 16.4 V DC for digital communications For Graphic display (Display and interface code: F) 12 to 42 V DC for general use and flameproof type. Minimum voltage limited at 17.75 V DC for digital communications.
	Load	250 to 600Ω (including cable resistor) Working Pressure and Process Temperature for Figure 2
Response time (Typical)		Capsule Range code: M, H
		90 ms
		Capsule Range code: F
		150 ms
Measurement period	Differential Pressure	35 ms
	Static pressure	35 ms
	Capsule Temperature	2 s
	Main module Temperature	1 s
Output signal at Failure Alarm		Output current value (Burnout), Communication, Indicator (Support for NAMUR NE107)
External Zero Adjustment		External zero is continuously adjustable with 0.01% incremental resolution of span.
Zero Adjustment Limits		Zero can be fully elevated or suppressed, within the lower and upper range limits of the capsule.
Display	LCD Display	Process value (5-digit, up to 4 different process values) Unit display (6-digit), Bar graph, Alarm message, NE107 status is displayed
	Graphic Display	Graphical LCD display (128×80 pixels display) with a color backlight, Process value (5-digit, up to 4 different process values), Unit display (6-digit), Bar graph, Alarm message, NE107 status is displayed, Display rotation selection Display language: English, French, German, Italian, Spanish, Portuguese, Russian, Chinese, Japanese
Local Parameter Setting	LCD Display	Loop test (test output), Tag number setting, Measurement range unit setting, Lower limit (LRV) and Upper limit (URV) of measurement range, Damping time constant setting, Output mode (proportional/square root) setting, Display content selection, Range resetting using actual pressure (LRV/URV), Burnout direction setting, setting of write-protect, Display of device information.
	Graphic Display	Loop test (test output), Tag number setting, Measurement range unit setting, Lower limit (LRV) and Upper limit (URV) of measurement range, Damping time constant setting, Output mode (proportional/square root) setting, Display content selection, Range resetting using actual pressure (LRV/URV), Burnout direction setting, setting of write-protect, Display of device information, Multiple display selection, Backlight color selection, Display rotation selection, language selection, LCD contrast selection
Diagnostics function		The following items are detected and output current value, communication, and indicator. Sensor error, Module error, Process error (out of equipment specification range, out of measurement range), Parameter setting value error, High/Low alarm for measured pressure.
Advanced functions		Heat trace monitoring: The change of the process connection temperature calculated by using the two temperature sensors built enables to detect the heat trace breakage or the abnormal temperature due to the failure.
		Impulse line blockage detection The impulse line condition can be calculated and detected by extracting the fluctuation component from the differential pressure and static pressure signals. The EJX S detects the impulse line abnormality particularly which side of impulse line is plugged.

• Display and interface code: E or N



• Display and interface code: F



F02E.ai

Figure 2. Relationship Between Power Supply Voltage and External Load Resistance

PROFINET Communication

Item		Description
Communication protocol		Ethernet-APL Port Profile Specification Ver 1.1 (IEEE 802.3cg-2019) PROFINET Ver 2.45 (IEC 61158 Type 10, IEC 61784-2 CPF3) PA Profile 4.0
Output signal		Digital communication signal based on PROFINET
Output mode		Linear/Signal Characterizer (Max 30-segment)
Communication Requirements	Supply Voltage	9 to 15 V DC for intrinsically safe type.
	Load	N/A
Response time (Typical)		Capsule Range code: M, H
		150 ms
		Capsule Range code: F
		210 ms
Measurement period	Differential Pressure	35 ms
	Static pressure	35 ms
	Capsule Temperature	2 s
	Main module Temperature	1 s
Function Block		AI × 3, Totalizer × 1
Output signal at Failure Alarm		Communication, Indicator (Support for NAMUR NE107)
External Zero Adjustment		External zero is continuously adjustable with 0.01% incremental resolution of span.
Zero Adjustment Limits		Zero can be fully elevated or suppressed, within the lower and upper range limits of the capsule.
Display	LCD Display	Process value (5-digit, up to 4 different process values) Unit display (6-digit), Bar graph, Alarm message, NE107 status is displayed
	Graphic Display	Graphical LCD display (128×80 pixels display) with a color backlight, Process value (5-digit, up to 4 different process values), Unit display (6-digit), Bar graph, Alarm message, NE107 status is displayed, Display rotation selection Display language: English, French, German, Italian, Spanish, Portuguese, Russian, Chinese, Japanese
Local Parameter Setting	LCD Display	Display of device information (VendorID, DeviceID, Station name, IP address)
	Graphic Display	Display of device information (VendorID, DeviceID, Station name, IP address) Setting can be changed. Multiple display selection, Backlight color selection, Display rotation selection, language selection, LCD contrast selection
Diagnostics function		The following items are detected and communication, and indicator. Sensor error, Module error, Process error (out of equipment specification range, out of measurement range), Parameter setting value error.
Advanced functions		Heat trace monitoring: The change of the process connection temperature calculated by using the two temperature sensors built enables to detect the heat trace breakage or the abnormal temperature due to the failure.
		Impulse line blockage detection The impulse line condition can be calculated and detected by extracting the fluctuation component from the differential pressure and static pressure signals. The EJX S detects the impulse line abnormality particularly which side of impulse line is plugged.

□ **Conformity Standards**

Degrees of protection:

IP66/IP67/IP68 (maximum depth of 20 meters up to 168 hours),
Type 4X

Explosion Protected type:

Canada, US, ATEX, IECEx
Refer to “EXPLOSION PROTECTED TYPE” for details.

EMC Conformity Standards:

EN 61326-1: Class A, Table 2(*1)
EN 61326-2-3
*1: Tested in accordance with IEC 61000-4 series, as specified in EN 61326-1

Environmental regulations:

- EU RoHS Directive: EN IEC 63000
- REACH Statement: Regulation EC 1907/2006
- China RoHS: GB 26572
- Toxic Substances Control Act: TSCA: US Toxic Substances Control Act (TSCA) Section 6(h)

Safety Requirement Standards:

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

SIL Certification:

Compliant with conformity standard IEC 61508 (Functional Safety of Electrical/Electronic/Programmable Electronic Safety-related Systems).
Compliant with SIL 2. Compliant with SIL 3 if two instruments are used in a redundant configuration. The safety data varies depending on the hardware/software revision.
Read the Safety Manual for details. (Document No.: TI 01C33A01-01ZN) The Functional Safety Manual can be downloaded from our website.
URL: <https://www.yokogawa.com/solutions/products-platforms/field-instruments/>

Marking:

- CE marking
- RCM marking
- Morocco conformity marking
- cFMUS marking

Approval code	CE	RCM	Morocco conformity	cFMUS
-C□□, -F□□		✓	✓	✓
-KF1, -KS1, -KU1, -KNN	✓	✓	✓	
-SF1, -SS1, -SU1		✓	✓	
-VU1	✓	✓	✓	✓
-NNN		✓	✓	

□ **Normal Operating Condition**

Supply Voltage:

Refer to "Communication Specifications."

Ambient Temperature Limits:

-40 to 85°C (-40 to 185°F)

-30 to 80°C (-22 to 176°F) with Display

In case of explosion protected types, refer to "EXPLOSION PROTECTED TYPE."

Process Temperature Limits:

-40 to 120°C (-40 to 248°F)

In case of explosion protected types, refer to "EXPLOSION PROTECTED TYPE."

Ambient Humidity Limits:

0 to 100% RH

Vibration Resistance:

0.21 mm (10-60 Hz), 3 G (60-2000 Hz)

Shock Resistance:

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

Noise Resistance:

EN61326, NAMUR NE21

Grounding:

Class-C grounding (Ground resistance 10Ω or less)

□ **Physical Specifications**

Electrical connection:

Refer to "MODEL AND SUFFIX CODES."

Process connections:

Refer to "MODEL AND SUFFIX CODES."

Material:

- Wetted Parts Materials: Refer to "MODEL AND SUFFIX CODES."
- Bolting: B7 carbon steel, 316L SST or 660 SST
- Housing: Low copper cast aluminum alloy
- Name plate and tag: 316 SST
- Cover O-rings: Buna-N,
- Fill fluid: Silicone, Fluorinated oil
- Process connector gasket: PTFE Teflon
- Orifice gasket: PTFE Teflon

Coating of housing:

[for aluminum housing]

Polyester resin powder coating Mint-green paint (RAL190 30 15)

[for option code /P□ or /X2]

Epoxy and polyurethane resin solvent coating

Mounting:

2 inch pipe mounting

Weight:

4.7 kg (10.4 lb)* for Capsule range code M, H

5.6 kg (12.3 lb)* for Capsule range code F

* Without Display, mounting bracket, and process connector.

■ MODEL AND SUFFIX CODES

● EJX110S for Low Flow measurement

Model	Suffix Code	Description
EJX110S		Differential Pressure Transmitter
Approval	-CF1	Canada explosion-proof(*1)(*2)
	-CS1	Canada intrinsically safe(*1)(*2)
	-CU1	Canada explosion-proof and intrinsically safe(*1)(*2)
	-CNN	Canada safety requirement(*1)(*2)
	-FF1	USA explosion-proof(*1)(*2)
	-FS1	USA intrinsically safe(*2)
	-FU1	USA explosion-proof and intrinsically safe(*1)(*2)
	-FNN	USA safety requirement(*1)(*2)
	-KF1	ATEX flameproof(*1)(*2)
	-KS1	ATEX intrinsically safe(*2)
	-KU1	ATEX flameproof and intrinsically safe(*1)(*2)
	-KNN	CE marking(*1)
	-SF1	IECEX flameproof approval(*1)(*2)
	-SS1	IECEX intrinsically safe(*2)
	-SU1	IECEX flameproof and intrinsically safe(*1)(*2)
	-VU1	IECEX, ATEX, USA and Canada explosion-proof, intrinsically safe combination(*1)(*2)
-NNN	None(*1)	
Output signal	-J	4 to 20 mA DC with digital communication (HART protocol)
	-T	PROFINET over Ethernet-APL(*3)
Housing	1	Material: Cast-aluminum alloy
Electrical Connection	0	G1/2 female, one electrical connection without blind plugs
	2	1/2NPT female, two electrical connections without blind plugs
	4	M20 female, two electrical connections without blind plugs
	5	G1/2 female, two electrical connections with a blind plug
	7	1/2NPT female, two electrical connections with a blind plug
	9	M20 female, two electrical connections with a blind plug
	A	G1/2 female, two electrical connections with a 316 SST blind plug
	C	1/2NPT female, two electrical connections with a 316 SST blind plug
	D	M20 female, two electrical connections with a 316 SST blind plug
	F	G1/2 female, two electrical connections without blind plugs
P	M20 female and 1/2NPT female dual connection without blind plugs	
Display and interface	E	LCD display
	F	Graphic display(*7)
	N	Without display
Capsule range	-F	5 kPa / 20 inH ₂ O / 50 mbar / 500 mmH ₂ O
	-M	100 kPa / 400 inH ₂ O / 1000 mbar / 10000 mmH ₂ O
	-H	500 kPa / 2000 inH ₂ O / 5000 mbar / 5 kgf/cm ²
Wetted Parts Material(*4)	<input type="checkbox"/>	Refer to "Wetted Parts Material" table below
Fill fluid	S	Silicone oil
	D	Fluorinated oil(*5) Operating temperature -20 to 80°C (-4 to 176°F)
Process Connection	2	With Rc1/2 female process connector
	4	With 1/2NPT female process connector
Bolts and Nuts material	G	316L SST
	J	ASTM-B7 carbon steel

Model	Suffix Code	Description
Installation	2	Vertical impulse piping type, right side high pressure, process connectors upside
	3	Vertical impulse piping type, right side high pressure, process connector downside
	6	Vertical impulse piping type, left side high pressure, process connectors upside
	7	Vertical impulse piping type, left side high pressure, process connectors downside
	8	Horizontal impulse piping type, right side high pressure
	9	Horizontal impulse piping type, left side high pressure
Mounting Bracket	-B	304 SST 2-inch pipe mounting (flat type)
	-D	304 SST 2-inch pipe mounting (L type)
	-J	316 SST 2-inch pipe mounting (flat type)
	-K	316 SST 2-inch pipe mounting (L type)
	-P	316 SST 2-inch pipe mounting, position adjustable L type (for vertical piping)(*6)
	-N	None
Orifice for low flow measurement	1	Orifice Bore 0.508 mm
	2	Orifice Bore 0.864 mm
	3	Orifice Bore 1.511 mm
	4	Orifice Bore 2.527 mm
	5	Orifice Bore 4.039 mm
	6	Orifice Bore 6.350 mm
Optional codes		/□ Optional specifications


- *1: Not applicable for output signal code T.
- *2: Not applicable for electrical connection code 0, 5, 9, A and F.
- *3: Not applicable for display and interface code F and N.
The approval code -FS1, -KS1 or -SS1 must be selected.
- *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: Oil-prohibited use (degreasing cleaning) or dehydrating treatment, select the additional specification code for oil-prohibited use (/K01, /K41) or oil-prohibited use with dehydrating treatment (/K05, /K45).
- *6: For position adjustable bracket, refer to SD 01C33B10-01EN.
- *7: Not applicable for approval code -CS1, -CU1, -FS1, -FU1, -KS1, -KU1, -SS1, -SU1 and -VU1.

Table. Wetted Parts Materials

Wetted parts material code	S	F
Cover flange	ASTM CF-8M(*1)(*2)	
Process connector	ASTM CF-8M(*1)(*2)	
Capsule	Hastelloy C-276(*3) (Diaphragm) F316L SST, 316L SST (Others)	Hastelloy C-276(*3) / Gold-plated (3 μm) (Diaphragm), (F)316L SST, 316L SST (Others)
Capsule gasket	Teflon-coated 316L SST	
Vent/Drain plug	316 SST	
Orifice	316 SST	
Manifold	F316 SST	
Spacer	316 SST	
Orifice gasket	PTFE	

- *1: ASTM CF-8M or SCS14A. Cast version of 316 SST.
- *2: Intergranular corrosion test passed according to ASTM A262 Practice E.
- *3: Hastelloy C-276 or Hastelloy C276 equivalent.

OPTIONAL SPECIFICATIONS / Approval for Explosion-proof

Item	Description		Code
Flameproof packing adapter(*1)(*2)	Electrical connection: G1/2 female, Applicable cable outline: Ø8 to Ø12	1 pcs	/V11
		2 pcs	/V12

OPTIONAL SPECIFICATIONS / Hardware

Item	Description	Code	
Plug option	Long vent(*3): Total length: 119 mm (standard: 34 mm); Total length when combining with option code K□□: 130 mm. Material: 316 SST	/U1	
	Without vent and drain plugs(*6)	/UN	
Additional blind plug(*5)	Additional blind plug is attached to the conduit connection on both sides for storing transmitter	/PP	
Painting	Color change	Color change, amplifier cover; Black	/P1
		Color change, amplifier cover; Jade green	/P2
		Color change, amplifier cover; Metaric silver	/P7
		Color change, amplifier and terminal covers Munsell code; 7.5 R4/14, Red	/PR
	Coating Change	High anti-corrosion coating: Housing, amplifier and terminal covers(*4)	/X2
Surge protective device	UL1449, UL497B compliant device (SPD). • 3 kA crest (8 x 20 microseconds) • 6 kV crest (1.2 x 50 microseconds) Exchangeable	/A	
Oil-prohibited use	Degrease cleansing treatment	/K01	
	Degrease cleansing treatment with certificates	/K41	
Oil-prohibited use with dehydrating treatment	Degrease cleansing and dehydrating treatment	/K05	
	Degrease cleansing and dehydrating treatment with certificates	/K45	
Wired tag plate	316 SST tag plate wired onto transmitter: up to 22 characters	/N4	
Nameplate Indication	Range field	Blank the calibration range on the nameplate	/N5
	Maximum Pressure Limits (MWP) unit(*16)	psi	/D1
		bar	/D3
		kgf/cm ²	/D4
High-humidity option(*6)	For high-humidity environments	/HE	
Functional safety(*15)	Without functional safety SIL 2	/SLN	

OPTIONAL SPECIFICATIONS / Software

Item	Description	Code	Output signal code		
			J	T	
Failure operation	Analog output levels compliant with NAMUR NE43 (Output signal limits: 3.8 mA to 20.5 mA Output status)	/C2	○		
Date configuration at factory	Parameter Setting	For HART communication type: Software damping, Descriptor and Message	/CA	○	
		For HART communication type: Disabling external zero adjustment, Software damping, Descriptor and Message	/CJ	○	
		For PROFINET communication type: Software damping, Descriptor and Memo	/CB		○
	For PROFINET communication type: Disabling external zero adjustment, Software damping, Descriptor and Memo	/CK		○	
	Display Setting	Two engineering values are alternately displayed on the LCD.(*7)	/CF	○	○

OPTIONAL SPECIFICATIONS / Documents

Item	Description	Code	
Material certificate	Cover flange, Process connector, Manifold, Orifice, and Spacer	/M12	
	Cover flange, Process connector, Manifold, Orifice, Spacer, Bolt and nut for cover flange, Bolt for process connector, Bolt for manifold	/M72	
	Cover flange, Process connector, Manifold, Orifice, Spacer, Bolt and nut for cover flange, Bolt for process connector, Bolt for manifold, Diaphragm, Capsule body, Vent and Drain plug, Vent screw, Capsule gasket	/MJ2	
Material certificate list(*9)	Material certificate list	/YC	
Parameter list(*10)	List of setting and adjustment parameters	/YP	
Pressure test/Leak test certificate(*11)	Test Pressure: 16 MPa (2300 psi)	Nitrogen Gas(*12) Retention time: one minute	/T12
Pressure test/Leak test certificate(*14)	Submit pressure test certificate and leak test certificate separately. Test pressure: According to the test pressure on the Pressure and Leak Test certificate.	Pressure test: Test Fluid: Water(*13) Test time: ten minutes Leakage test: Test Fluid: Nitrogen Gas(*12) Test time: ten minutes	/YT
Calibration certificate	Yokogawa measuring instruments control system		/L4
	Yokogawa measuring instruments control system, and primary standards list		/L5
	Yokogawa measuring instruments control system, primary standards list, and calibration equipments list		/L6
	Yokogawa measuring instruments control system, primary standards list, calibration equipments list and their test cert.		/L9

OPTIONAL SPECIFICATIONS / Warranty

Item	Description	Code
Warranty	3-years warranty	/WP3
	5-years warranty	/WP5

- *1: Applicable for approval code -KNN and -NNN.
- *2: Applicable for electrical connection code 0, 5, A and F.
- *3: Applicable for installation code 2, 3, 6 and 7.
- *4: Not applicable with color change option.
- *5: Applicable for electrical connection code 5, 7, 9, A, C and D. Not applicable for approval code -CF1, -CU1, -FF1, -FU1, -KF1, -KU1, -SF1, -SU1 and -VU1.
- *6: Not applicable with flameproof packing adapter option code /V11 and /V12.
- *7: Not applicable for display and interface code N.
- *8: Not applicable for option code /UN.
- *9: Applicable for material certificate option /M□□.
- *10: Applicable for output signal code J.
- *11: The unit on the certificate is always Pa unit regardless of selection of option code /D1, /D3 or /D4.
- *12: Dry nitrogen gas is used for oil-prohibited use (option codes /K01, /K05, /K41 and /K45).
- *13: Pure water is used for oil-prohibited use (option codes /K01, /K05, /K41 and /K45).
- *14: Applicable for pressure test/leak test certificate code /T□□.
- *15: Required if output signal code T is selected.
- *16: The MWP (maximum working pressure) unit indicated on the housing nameplate is displayed in the unit specified by option codes /D1, /D3 and /D4.

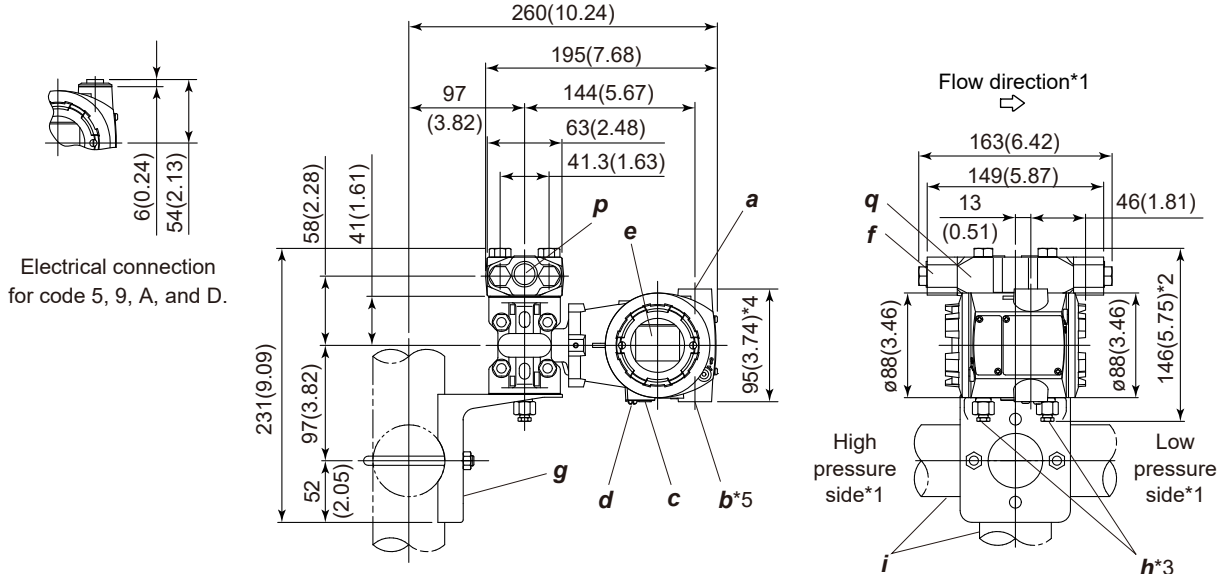
DIMENSIONS

Unit: mm (approx.inch)

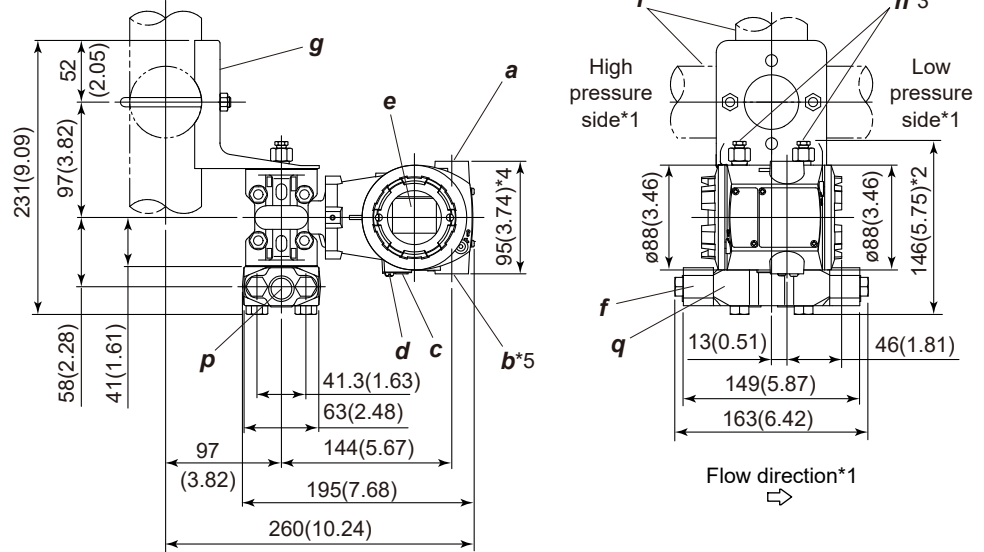
Capsule Range Code: M, H

• Vertical Impulse Piping Type

- Process connector upside (The drawing below is for Installation code 6.)



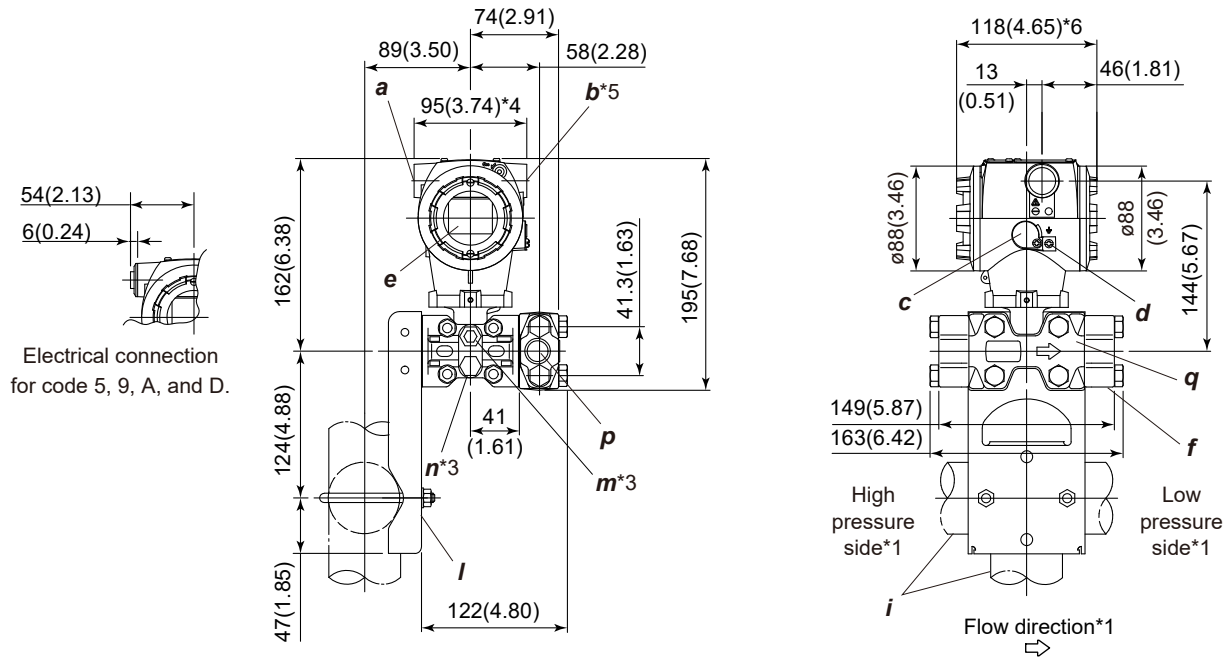
- Process connector downside (The drawing below is for Installation code 7.)



a	External indicator Conduit connection (optional)	e	Display (optional)	i	2-inch pipe (O.D. 60.5 mm)
b	Conduit connection	f	Process connector (optional)	p	Process connection
c	Zero adjustment	g	Mounting bracket (L-type, optional)	q	Manifold
d	Ground terminal	h	Vent/Drain plugs		

Unit: mm (approx.inch)

- Horizontal Impulse Piping Type (The drawing below is for Installation code 9.)



a	External indicator Conduit connection (optional)	e	Display (optional)	m	Vent plug
b	Conduit connection	f	Process connector (optional)	n	Drain plug
c	Zero adjustment	i	2-inch pipe (O.D. 60.5 mm)	p	Process connection
d	Ground terminal	l	Mounting bracket (Flat-type, optional)	q	Manifold

*1: In case of Installation code 2, 3 or 8 is specified, the flow direction on above figure is reversed.

*2: In case of optional codes /K01, /K05, /K41 and /K45 specified, add 15 mm (0.59 inch).

*3: In case of optional code /UN specified, plugs are not attached.

*4: In case of electrical connection code 7 or C is specified, a blind plug is protruded by up to 8 mm (0.31 inch) from conduit connection.

*5: In case of optional code /PP specified, a blind plug is attached to conduit connection on both sides.

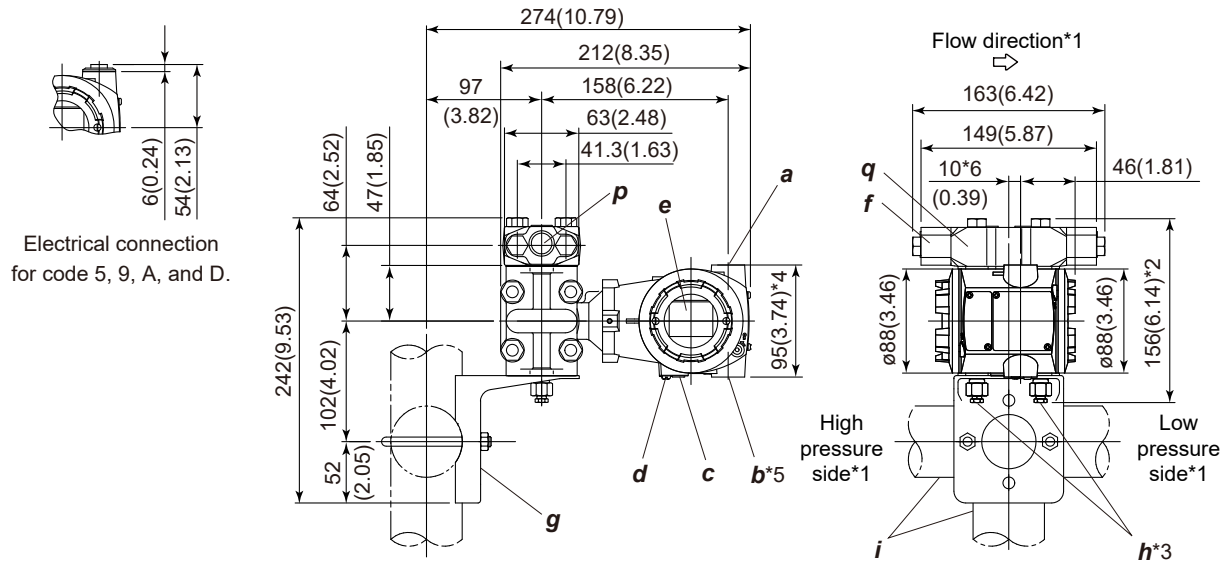
*6: In case of Display and interface code N specified, it is 113 mm (4.45 inch).

Unit: mm (approx.inch)

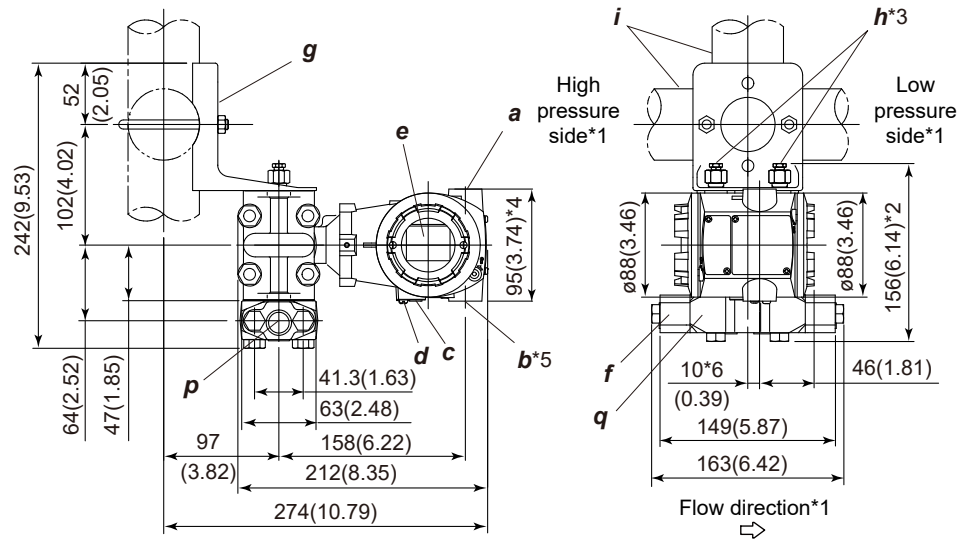
Capsule Range Code: F

• Vertical Impulse Piping Type

- Process connector upside (The drawing below is for Installation code 6.)



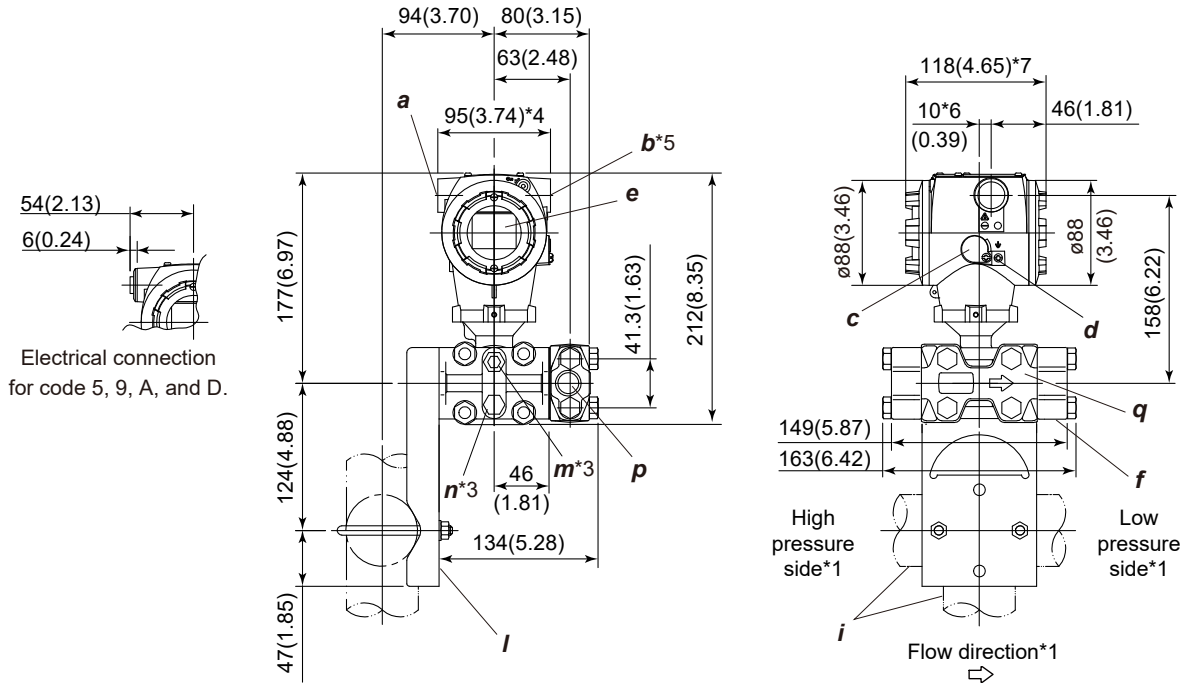
- Process connector downside (The drawing below is for Installation code 7.)



a	External indicator Conduit connection (optional)	e	Display (optional)	i	2-inch pipe (O.D. 60.5 mm)
b	Conduit connection	f	Process connector (optional)	p	Process connection
c	Zero adjustment	g	Mounting bracket (L-type, optional)	q	Manifold
d	Ground terminal	h	Vent/Drain plugs		

Unit: mm (approx.inch)

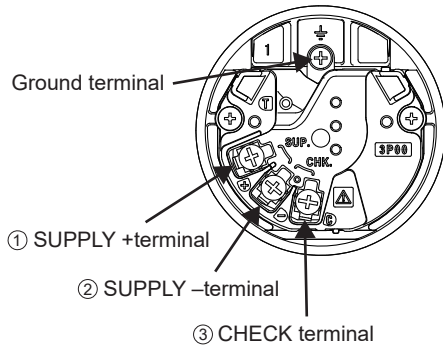
● Horizontal Impulse Piping Type (The drawing below is for Installation code 9.)



a	External indicator Conduit connection (optional)	e	Display (optional)	m	Vent plug
b	Conduit connection	f	Process connector (optional)	n	Drain plug
c	Zero adjustment	i	2-inch pipe (O.D. 60.5 mm)	p	Process connection
d	Ground terminal	l	Mounting bracket (Flat-type, optional)	q	Manifold

- *1: In case of Installation code 2, 3, or 8 is specified, the flow direction on above figure is reversed.
- *2: In case of optional codes /K01, /K05, /K41 and /K45 specified, add 15 mm (0.59 inch).
- *3: In case of optional code /UN specified, plugs are not attached.
- *4: In case of electrical connection code 7 or C is specified, a blind plug is protruded by up to 8 mm (0.31 inch) from conduit connection.
- *5: In case of optional code /PP specified, a blind plug is attached to conduit connection on both sides.
- *6: In case of Installation code 2, 3, or 8 is specified, it is 16 mm (0.63 inch).
- *7: In case of Display and interface code N specified, it is 113 mm (4.45 inch).

● Terminal Configuration



● Terminal Wiring

SUPPLY	+	①] Power supply and output terminals
	-	②	
CHECK	+	③] External indicator (ammeter) terminals *1
	-	②	
Ground terminal			

- *1: When using an external indicator or check meter, the internal resistance must be 10Ω or less. Not available for PROFINET communication type.

■ EXPLOSION PROTECTED TYPE

Item	Code	Description																
Canadian Standards Association (CSA)	-CF1	Canada Flameproof Enclosure/ Dust ignition protection by enclosure																
		Zone Certificate: FM25CA0015X																
		Applicable standard: CSA C22.2 No. 60079-0, CSA C22.2 No. 60079-1, CSA C22.2 No. 60079-31, CSA C22.2 No. 61010-1-12																
		Marking: Flameproof Approval: Ex db IIC T6...T4 Gb Dust-ignition protection by enclosure Approval: Ex tb IIIC T85°C Db																
		Ambient and Process temperature																
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Dust	-	T85°C	-40°C≤Ta≤+75°C	-40°C≤Tp≤+80°C														
Division Certificate: FM25CA0015X																		
Applicable standard: CSA C22.2 No. 25, CSA C22.2 No. 30, CSA C22.2 No. 94.2, CSA C22.2 No. 60079-40																		
Marking: Explosionproof Approval: Class I, Division 1, Groups B, C and D; Temperature class: T6...T4 Dust-Ignitionproof Approval: Class II/III, Division 1, Groups E, F and G; Temperature class: T6																		
Ambient and Process temperature																		
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Dust	-	T6	-40°C≤Ta≤+75°C	-40°C≤Tp≤+80°C														
Factory Sealed: CONDUIT SEAL NOT REQUIRED																		
Process Seal: Dual Seal Without Annunciation (up to 50 MPa)																		
Explosionproof MWP: 50 MPa																		

Item	Code	Description																																									
Canadian Standards Association (CSA)	-CS1	Canada Intrinsically safe																																									
		<p>Output signal Code: J HART</p> <p>Intrinsically safe approval Certificate: FM25CA0015X</p> <p>Applicable standard: CSA C22.2 No.0 C22.2 No. 94.2, C22.2 No.213, C22.2 No. 60079-0 CSA-C22.2 No. 60079-11, CSA-C22.2 No. 61010-1-12, CSA C22.2 No. 60079-40</p> <p>Marking: IS Class I, Division 1, Groups A, B, C, D; Class II, Division 1, Groups E, F, G; Class III, Division 1; Temperature Code: T5...T4 Ex ia IIC T5...T4 Ga</p> <p>Ambient and Process temperature</p> <table border="1"> <thead> <tr> <th>Type</th> <th>output</th> <th>Temperature class</th> <th>Ambient temperature</th> <th>Process temperature</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Gas</td> <td rowspan="2">-J</td> <td>T5</td> <td>-55°C≤Ta≤+40°C</td> <td>Tp≤+95°C</td> </tr> <tr> <td>T4</td> <td>-55°C≤Ta≤+60°C</td> <td>Tp≤+120°C</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Type</th> <th>output</th> <th>Maximum surface temperature</th> <th>Ambient temperature</th> <th>Process temperature</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Dust</td> <td rowspan="3">-</td> <td>T85°C</td> <td rowspan="3">-40°C≤Ta≤+60°C</td> <td>Tp≤+80°C</td> </tr> <tr> <td>T100°C</td> <td>Tp≤+95°C</td> </tr> <tr> <td>T120°C</td> <td>Tp≤+115°C</td> </tr> </tbody> </table> <p>Electrical parameter: Ui=30 V, Ii=200 mA, Pi=1.0 W, Ci=22 nF, Li=0 mH</p> <p>Non-incendive approval Certificate: FM25CA0015X</p> <p>Applicable standard: CSA C22.2 No.0 C22.2 No. 94.2, C22.2 No.213, C22.2 No. 60079-0 CSA-C22.2 No. 60079-11, CSA-C22.2 No. 61010-1-12, CSA C22.2 No. 60079-40</p> <p>Marking: NIFW Class I, Division 2, Groups A, B, C, D; Class II, Division 2, Groups F, G; Class III, Division 1; Temperature Code: T6...T4 CL I Zone 2, Group IIC T6...T4</p> <p>Ambient and Process temperature</p> <table border="1"> <thead> <tr> <th>Type</th> <th>output</th> <th>Temperature class</th> <th>Ambient Temperature</th> <th>Process Temperature</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Gas Dust</td> <td rowspan="3">-J</td> <td>T6</td> <td>-40°C≤Ta≤+53°C</td> <td>-40°C≤Tp≤+80°C</td> </tr> <tr> <td>T5</td> <td>-40°C≤Ta≤+66°C</td> <td>-40°C≤Tp≤+95°C</td> </tr> <tr> <td>T4</td> <td>-40°C≤Ta≤+80°C</td> <td>-40°C≤Tp≤+130°C</td> </tr> </tbody> </table> <p>Electrical parameter Ui=42 V, Ci=22 nF, Li=0 mH</p>	Type	output	Temperature class	Ambient temperature	Process temperature	Gas	-J	T5	-55°C≤Ta≤+40°C	Tp≤+95°C	T4	-55°C≤Ta≤+60°C	Tp≤+120°C	Type	output	Maximum surface temperature	Ambient temperature	Process temperature	Dust	-	T85°C	-40°C≤Ta≤+60°C	Tp≤+80°C	T100°C	Tp≤+95°C	T120°C	Tp≤+115°C	Type	output	Temperature class	Ambient Temperature	Process Temperature	Gas Dust	-J	T6	-40°C≤Ta≤+53°C	-40°C≤Tp≤+80°C	T5	-40°C≤Ta≤+66°C	-40°C≤Tp≤+95°C	T4
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-CU1	Multiple type of protection (CF1 or CS1)																																										

Item	Code	Description																
FM explosion protection (USA)	-FF1	USA Flameproof Enclosure/ Dust ignition protection by enclosure																
		Zone Certificate: FM25US0031X																
		Applicable standard: ANSI/UL 60079-0, ANSI/UL 60079-1, ANSI/UL 60079-31, ANSI/UL 61010-1																
		Marking: Flameproof Approval: Zone 1, AEx db IIC T6...T4 Gb Dust-ignition protection by enclosure Approval: Zone 21, AEx tb IIIC T85°C Db																
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		<p>Output signal Code: J HART</p> <p>Intrinsically safe approval Certificate: FM25US0031X</p> <p>Applicable standard: FM 3600, FM 3610, FM 3611, FM 3810, ANSI/UL 60079-0, ANSI/UL 60079-11, UL 60079-47, ANSI/UL 61010-1, ANSI/UL 121201, ANSI/UL 122701, ANSI/UL 50E</p> <p>Marking: IS Class I, Division 1, Groups A, B, C, D; Class II, Division 1, Groups E, F, G; Class III, Division 1; Temperature Code: T5...T4 CL I Zone 0, AEx ia IIC T5...T4 Ga</p> <p>Enclosure: Type 4X</p> <p>Ambient and Process temperature</p> <table border="1"> <thead> <tr> <th>Type</th> <th>output</th> <th>Temperature class</th> <th>Ambient temperature</th> <th>Process temperature</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Gas</td> <td rowspan="2">-J</td> <td>T5</td> <td>-55°C≤Ta≤+40°C</td> <td>Tp≤+95°C</td> </tr> <tr> <td>T4</td> <td>-55°C≤Ta≤+60°C</td> <td>Tp≤+120°C</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Type</th> <th>output</th> <th>Maximum surface temperature</th> <th>Ambient temperature</th> <th>Process temperature</th> </tr> </thead> <tbody> <tr> <td rowspan="3">Dust</td> <td rowspan="3">-</td> <td>T85°C</td> <td rowspan="3">-40°C≤Ta≤+60°C</td> <td>Tp≤+80°C</td> </tr> <tr> <td>T100°C</td> <td>Tp≤+95°C</td> </tr> <tr> <td>T120°C</td> <td>Tp≤+115°C</td> </tr> </tbody> </table> <p>Electrical parameter: Ui=30 V, li=200 mA, Pi=1.0 W, Ci=22 nF, Li=0 mH</p> <p>Non-incendive approval Certificate: FM25US0031X</p> <p>Applicable standard: FM 3600, FM 3610, FM 3611, FM 3810, ANSI/UL 60079-0, ANSI/UL 60079-11, ANSI/UL 61010-1, ANSI/UL 121201, ANSI/UL 122701, ANSI/UL 50E</p> <p>Marking: NIFW Class I, Division 2, Groups A, B, C, D; Class II, Division 2, Groups F, G; Class III, Division 1; Temperature Code: T6...T4 CL I Zone 2, Group IIC T6...T4</p> <p>Enclosure: Type 4X</p> <p>Ambient and Process temperature</p> <table border="1"> <thead> <tr> <th>Type</th> <th>output</th> <th>Temperature class</th> <th>Ambient Temperature</th> <th>Process Temperature</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Gas</td> <td rowspan="3">-J</td> <td>T6</td> <td>-40°C≤Ta≤+53°C</td> <td>-40°C≤Tp≤+80°C</td> </tr> <tr> <td>T5</td> <td>-40°C≤Ta≤+66°C</td> <td>-40°C≤Ta≤+95°C</td> </tr> <tr> <td>Dust</td> <td>T4</td> <td>-40°C≤Ta≤+80°C</td> <td>-40°C≤Tp≤+130°C</td> </tr> </tbody> </table> <p>Electrical parameter: Ui=42 V, Ci=22 nF, Li=0 mH</p>	Type	output	Temperature class	Ambient temperature	Process temperature	Gas	-J	T5	-55°C≤Ta≤+40°C	Tp≤+95°C	T4	-55°C≤Ta≤+60°C	Tp≤+120°C	Type	output	Maximum surface temperature	Ambient temperature	Process temperature	Dust	-	T85°C	-40°C≤Ta≤+60°C	Tp≤+80°C	T100°C	Tp≤+95°C	T120°C	Tp≤+115°C	Type	output	Temperature class	Ambient Temperature	Process Temperature	Gas	-J	T6	-40°C≤Ta≤+53°C	-40°C≤Tp≤+80°C	T5	-40°C≤Ta≤+66°C	-40°C≤Ta≤+95°C	Dust	T4
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		T4	-40°C≤Ta≤+60°C	Tp≤+120°C																											
Type	output	Maximum surface temperature	Ambient temperature	Process temperature																											
Dust	-	T85°C	-40°C≤Ta≤+60°C	Tp≤+80°C																											
		T100°C		Tp≤+95°C																											
		T120°C		Tp≤+115°C																											
-SU1	Multiple type of protection (SF1 or SS1)																														
Combination of Approval	-VU1	Combination of KU1, FU1, CU1 and SU1																													

< Ordering Information >

1. Model, suffix codes, and option codes
2. Calibration range, unit and output mode
 This product requires sizing to determine the differential pressure range and orifice diameter at the time of ordering. Please contact our sales office.
 - 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 -99999 to 99999. When reverse range is designated, specify Lower Range Value (LRV) as greater than Upper Range Value (URV)
 - 2) Specify only one unit from the table, 'Factory Settings' when shipped.
 - 3) Specify output mode from LINEAR or SQUARE ROOT. When SQUARE ROOT is selected, the smaller value of the range limit must be zero.
3. Display scale, unit and display mode (for transmitters equipped with Display only)
 Specify either 0 to 100 % or unit scale and 'Range and Unit' for 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 -99999 to 99999. The unit display consists of 6-digit, therefore, if the specified unit is longer than 7 characters excluding '/', the first 6 characters will be displayed on the unit display.
 Select either LINEAR or SQRT for the display mode.
 For PROFINET communication, select from the display unit options and select LINEAR when the output mode is LINEAR, and select SQRT when the output mode is SQUARE ROOT.
 When SQUARE ROOT is selected for display mode, the smaller value of the scale limit must be zero.
4. TAG NO (if required)
5. Parameter Setting (Optional code /CB, /CA, /CK, /CJ)
 - Software damping in second (0.00 to 100.00)
 - Descriptor (up to 16 characters)
 - Message (Optional code: /CA and /CJ): up to 32 characters
 - Memo (Optional code /CB and /CK) up to 32 character
6. Burnout direction setting (for HART protocol) High or Low
7. Network setting (for PROFINET protocol)
 Specify the IP ADDRESS, SUBNET MASK, DEFAULT GATEWAY, and STATION NAME.
 If you specify it, please specify a combination of settings that can be communicated.

< Factory Setting >

Tag number. (*1)	As specified in order: up to 22 characters (SOFTWARE TAG: up to 32 characters)
Software damping	2.00 s or as specified in order
Output mode	'Linear' unless otherwise specified in order
Calibration range lower range value	As specified in order
Calibration range upper range value	As specified in order
Calibration range units	Selected from mmH ₂ O, mmHg, mmHg(68°F), mmAq(*2), mmWG(*2), Pa, hPa, kPa, MPa, mbar, bar, gf/cm ² , kgf/cm ² , inH ₂ O, inHg, ftH ₂ O, ftHg(68°F) or psi. (Only one unit can be specified)
Display setting	Designated value specified in order. (% or user scaled value.) Display mode 'Linear' or 'Square root' is also as specified in order
Static pressure display range	0 to 16 MPa, absolute value. Measuring high pressure side.
Burnout (for HART protocol)	'High' unless otherwise specified in order
Network setting (for PROFINET protocol)	Unless otherwise specified, - IP ADDRESS: 192.168.1.210 - SUBNET MASK: 255.255.255.0 - DEFAULT GATEWAY: 0.0.0.0 - STATION NAME: pressure-transmitter-ejx-s (*3)

*1: The specified characters will be engraved on the tag plate and written into the main unit (communication parameters) before shipping.
 If you want to specify characters different from the tag plate, please specify it separately in the software tag.
 Available characters include uppercase and lowercase letters, numbers, spaces, and the following symbols.

!	#	()	+	-	.	/	:	=	_
---	---	---	---	---	---	---	---	---	---	---

For HART communication type, the tag parameter will be written using the first 8 characters. If lowercase letters are included, they will be converted to uppercase.

*2: Not available for HART protocol type.

*3: The STATION NAME can be a combination of lowercase letters, numbers, and hyphens, up to 40 characters long.

< Related Instruments >

FieldMate Versatile Device Management Wizard: Refer to GS 01R01A01-01E.

< Reference >

1. FieldMate; Trademark of Yokogawa Electric Corporation.
2. Hastelloy; Trademark of Haynes International Inc.
3. HART®: Registered trademark of the FieldComm Group.

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.