

# General Specifications

## Y/13FEA Pneumatic Flange Mounting Differential Pressure Transmitter

P10 Series

GS 02C01D03-00EN

The Flange Mounting Differential Pressure Transmitters measure level or density of practically any liquid in differential spans from 5 to 210 kPa, at static pressures from full vacuum to flange ratings. The instruments transmit a proportional 20 to 100 kPa, signal to remote pneumatic receivers.

### ■ STANDARD SPECIFICATIONS

**Span Limits:**

Refer to Table 1.  
Span is continuously adjustable within range limits.

**Range Limits\*:**

Refer to Table 1.  
\*: When lower range-value is other than zero, optional kit for elevated-zero or suppressed-zero ranges is installed.

**Static Pressure Limits:**

Full vacuum and the flange rating per JIS B 2201 or ANSI B16.5.

**Output Signal:**

Refer to Table 1.

**Accuracy (includes linearity, hysteresis and repeatability):**

Spans between 5 and less than 130 kPa, 500 and less than 13400 mmH<sub>2</sub>O, 50 and less than 1300 mbar, or 20 and less than 525 inH<sub>2</sub>O differential pressure (ΔP): ±0.5% of span.  
Spans between 130 and 210 kPa, 13400 and 21600 mmH<sub>2</sub>O, 1300 and 2100 mbar, or 525 and 850 inH<sub>2</sub>O differential pressure (ΔP): ±0.75% of span.

**Repeatability:**

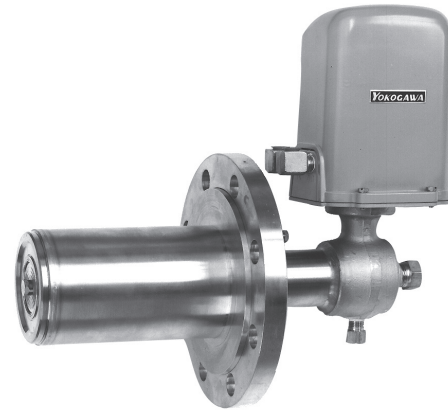
0.1% of span.

**Dead Band:**

0.1% of span.

**Supply Pressure:**

140 kPa, 1.4 kgf/cm<sup>2</sup> or bar, or 20 psi.



**Air Consumption:**

0.5 m<sup>3</sup>/h at 0°C, 101.3 kPa {1.033 kgf/cm<sup>2</sup>} absolute (0.3 scfm).

**Ambient Operating Temperature Range:**

-40 to 120°C (-40 to 250°F).

**Process Temperature Limits:**

-40 and 120°C (-40 and 250°F) at capsule.

**Mounting:**

Direct to process with connection flange in any position.

**Air Connection:**

Tapped for JIS R1/4 or 1/4 NPT, whichever specified.

**Process Connection:**

High pressure side: Nominal 100 mm JIS 10 or 20K RF, nominal 4 inches ANSI Class 150 or 300 RF modified flange, or nominal 4 inches JPI Class 150 or 300 RF modified flange.  
Low pressure side: Tapped for JIS Rc1/2 or 1/2 NPT whichever specified.

Table 1. Span and Range Limits.

Capsule		–	M-calibration	P-calibration	bar-calibration
M	Span Limits	5 to 51 kPa	0.5 to 5.2 mH <sub>2</sub> O	20 to 205 inH <sub>2</sub> O	50 to 510 mbar
	Range Limits	-51 to 51 kPa	-5.2 to 5.2 mH <sub>2</sub> O	-205 to 205 inH <sub>2</sub> O	-510 to 510 mbar
H	Span Limits	50 to 210 kPa	5 to 21.6 mH <sub>2</sub> O	200 to 850 inH <sub>2</sub> O	0.5 to 2.1 bar
	Range Limits	-210 to 210 kPa	-21.6 to 21.6 mH <sub>2</sub> O	-850 to 850 inH <sub>2</sub> O	-2.1 to 2.1 mbar
Output Signal		20 to 100 kPa	0.2 to 1.0 kgf/cm <sup>2</sup>	3 to 15 psi	0.2 to 1.0 bar
Option Code		Standard Specifications	CAL-M	CAL-E	CAL-B

**Flange Extension Length (X<sub>1</sub> in Dimensions):**

X<sub>1</sub> = 129 mm (5 inches).

**Diaphragm Extension Length (X<sub>2</sub> in Dimensions):**

X<sub>2</sub> = 50.8 mm (2 inches). For other length, refer to Options.

**Wetted Parts Material:**

- Body and Flange: Forged JIS SUS316 stainless steel.
- Capsule (Body): SUS316L stainless steel.
- Diaphragm Extension: SUS316 stainless steel.
- Force Bar: SUS316 stainless steel.
- Force Bar Seal: Cobalt-nickel alloy.
- Capsule Gaskets: Teflon (PTFE).
- Force Bar Seal Gasket: Silicone elastomer.

**Cover:**

Cast aluminum, finished with gray polyurethane paint.

**Degrees of Protection:**

IP53 (Equivalent to NEMA3)

**Approximate Weight:**

11 kg (24 lb) for JIS 10K flange version.

**■ MODEL AND SUFFIX CODES**

Model	Suffix Codes	Description
Y/13FEA	.....	Medium and High differential pressure use.
Diaphragm Capsule	-M.....	Medium range capsule. Span: 5 to 51 kPa
	-H.....	High range capsule. Span: 50 to 210 kPa
Body Material *1	S.....	Forged SUS316 stainless steel.
Flange Size and Rating	415.....	100 mm JIS 10K or 4 inches ANSI 150/JPI 150
	435.....	100 mm JIS 20K or 4 inches ANSI 300/JPI 300
Flange Standard	J.....	JIS standard.
	A.....	ANSI standard.
	P.....	JPI standard.
Diaphragm Extension Length	2....	X <sub>2</sub> =50.8 mm (2 inches) (standard).
	4....	X <sub>2</sub> =101.6 mm (4 inches) (Optional).
	6....	X <sub>2</sub> =152.4 mm (6 inches) (Optional).
Option	/□/□	

\*1: ⚠ 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.

## ■ OPTIONS

Item	Description	Code	
Kit for elevated-zero or suppressed-zero ranges	Permits adjustments up to range limits of capsule. Upper range-value must not exceed upper range-limit of capsule.	Elevated-zero	L
		Suppressed-zero	R
Air set	Supply pressure: 0.2 to 1 MPa, 2 to 10 kgf/cm <sup>2</sup> or bar, or 30 to 150 psi. Output pressure: 140 kPa, 1.4 kgf/cm <sup>2</sup> or bar, or 20 psi. Maximum operating temperature: 80 °C (180 °F). Refer to Table 2.	<b>GAS-F□</b> <b>NAS-F□</b>	
Low differential span	Refer to Table 3.	<b>LD</b>	
Cover color other than standard finish	Specify in color block □ by color code. Refer to GS22D01F01-00E.	<b>SCF-□</b>	
Coating other than standard finish	Epoxy resin-baked coated.	<b>EPF</b>	
High process temperature	Glass reinforced Teflon gasket is used in the force bar seal. Maximum process temperatures to 190 °C (375 °F).	<b>DG5</b>	
Oxygen service preparation	Degrease cleansing treatment	<b>OSW</b>	
High damping capsule	Filled with high viscosity fluid (time constant is approximate 1.3 sec). Not applicable for high range capsule.	<b>HVC</b>	
Ammonia service	Force bar gasket: Neoprene rubber	<b>AMM</b>	
Stainless tube	Tube and connectors between air-set (fixed pressure regulator with filter) and transmitter are made by stainless steel. However, connection of pressure gauge remains as standard material (Bs-Ni3).	<b>SST</b>	
ANSI connection	Air, low pressure process, drain and vent plug connections with tapped for ANSI NPT threads. Applicable only for ANSI flange.	<b>NPT</b>	
Tropicalization	When there is a possibility to generate rusts using under the condition of high temperature and high humidity area, silicone grease is coated on whole screws. Silicon grease which has stronger oil film feature.	<b>PSG</b>	
M-calibration	Output signal: 0.2 to 1.0 kgf/cm <sup>2</sup>	<b>CAL-M</b>	
P-calibration	Output signal: 3 to 15 psi	<b>CAL-E</b>	
bar-calibration	Output signal: 0.2 to 1.0 bar	<b>CAL-B</b>	
Stainless Tag plate	Stainless Tag plate fixed with screws. Up to 16 characters.	<b>TP-S</b>	
Force bar seal gasket*1	GF Teflon	<b>GFT</b>	
Teflon coating*2	Teflon coating for wetted parts of high side. Applicable only for Y/13FA.	<b>TFSC</b>	

\*1: Not applicable for option code DG5 and OSW.

\*2: Not applicable for option code OSW and HVC.

**Table 2. Air set**

Air Connection	Gauge Scale	Code
JIS Rc 1/4 female	0 to 200 kPa	<b>GAS-FP</b>
	0 to 2 kgf/cm <sup>2</sup>	<b>GAS-FM</b>
	0 to 30 psi	<b>GAS-FE</b>
	0 to 2 bar	<b>GAS-FB</b>
1/4 NPT female	0 to 200 kPa	<b>NAS-FP</b>
	0 to 2 kgf/cm <sup>2</sup>	<b>NAS-FM</b>
	0 to 30 psi	<b>NAS-FE</b>
	0 to 2 bar	<b>NAS-FB</b>

**Table 3. Low differential spans**

Capsule	Span (kPa)	Accuracy (%)	
		Suffix Code LD	Suffix Code LD+R (L)
M	2.5 to 25	±0.5	±1.0
H	25 to 65	±0.5	
	65 to 105	±0.75	

### <Reference>

Teflon: Trademark of E.I. DuPont de Nemours & Co.

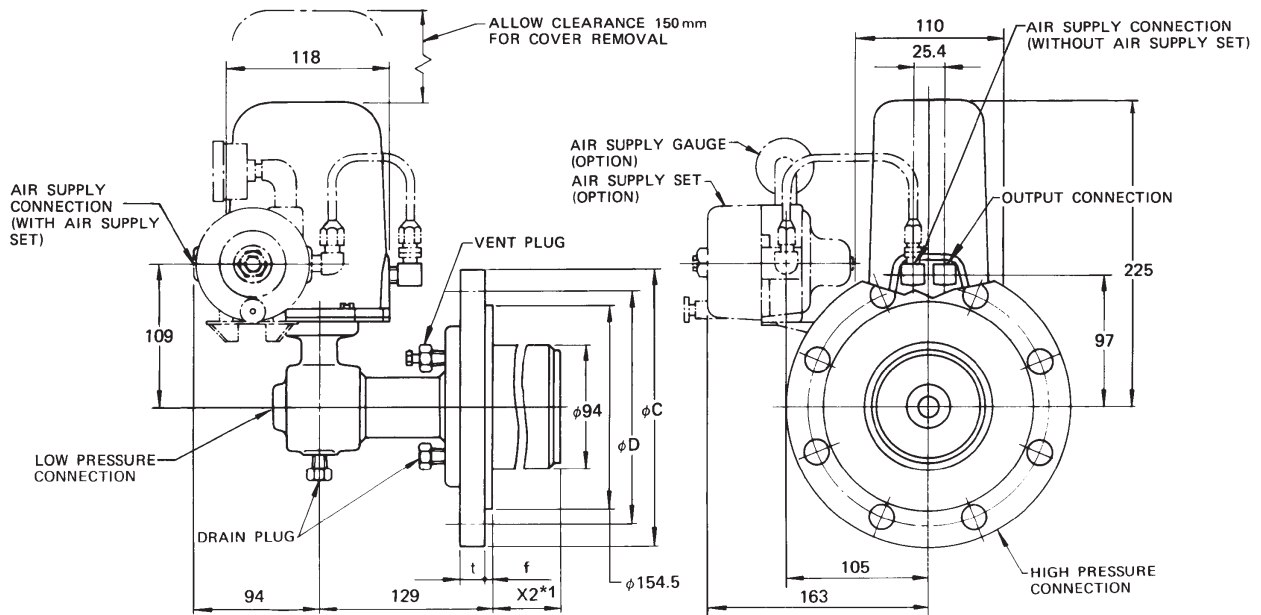
## ■ ORDERING INSTRUCTIONS

Specify the following when ordering:

1. Model and suffix codes.
2. Option codes.
3. Calibrated range.
4. Tag number.

## ■ DIMENSIONS

Unit: mm



\*1: 50.8, 101.6 or 152.4.

Flange Rating	Bolt Holes		$\phi D$	$\phi C$	t	f
	No.	DIA.				
100 mm JIS 10K	8	19	175	210	18	4.8
100 mm JIS 20K	8	23	185	225	24	6.4
4-inch ANSI Class 150	8	19.1	190.5	228.6	22.2	4.8
4-inch ANSI Class 300	8	22.2	200	254	30.2	6.4
4-inch JPI Class 150	8	19	190.5	229	24	4.8
4-inch JPI Class 300	8	22	200.2	254	32	6.4