

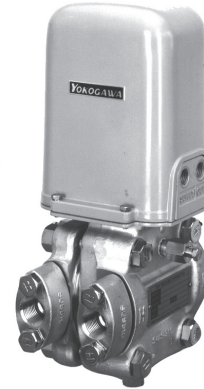
# General Specifications

## Y/13A Pneumatic Differential Pressure Transmitter

P10 Series

GS 02C01C02-00EN

Y/13A Pneumatic Differential Pressure Transmitters measure differential pressure in spans from 5 to 210 kPa at static pressure to 10 MPa. The instruments transmit a proportional 20 to 100 kPa signal to remote pneumatic receivers.



### ■ FEATURES

- Time-Proven Pneumatic Differential Pressure Transmitter Design.
- Trouble-Free Construction.
- Excellent Performance.
- Easy to Calibrate.
- Wide Range Capability.
- Versatile Applications Capability for Flow, Liquid Level, and Density Measurements.

### ■ 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:**

Refer to Table 1.

**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:**

0.05% of span.

Table 1. Span, Range and Static Pressure 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
	S. P. Limits	10 MPa	100 kgf/cm <sup>2</sup>	1500 psi	100 bar
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 bar
	S. P. Limits	10 MPa	100 kgf/cm <sup>2</sup>	1500 psi	100 bar
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

**Air 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:**

Bracket for nominal 50 mm (2 inches) horizontal or vertical pipe.

**Air Connection:**

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

**Process Connections:**

JIS Rc1/2, Rc1/4, 1/2 NPT, or 1/4 NPT female, whichever specified.

**Wetted Parts Material:**

- Body: Forged JIS SUS316 stainless steel.
- Process Connectors: SCS14A (equivalent to SUS316 Stainless Steel casting)
- Capsule Body: SUS316L stainless steel.
- Force Bar: SUS316 stainless steel.
- Force Bar Seal: Cobalt-nickel alloy.
- Process Connector Gaskets: Teflon(PTFE).
- Capsule Gaskets: SUS316L stainless steel coated with Teflon.
- Force Bar Seal Gasket: Silicone elastomer.

**Connection Hardware:**

JIS SCM435 chrome-molybdenum steel cap screws and nuts for body; JIS SCM435 cap screws for process connectors.

**Cover:**

Cast aluminum, finished with gray polyurethane paint.

**Degrees of Protection:**

IP53 (Equivalent to NEMA3)

**Approximate Weight:**

9.5 kg (21 lb).

**■ MODEL AND SUFFIX CODES**

Model	Suffix Codes	Description
Y/13A	.....	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
Process Connections	1.....	JIS Rc1/4 female
	2.....	JIS Rc1/2 female
	3*2.....	ANSI 1/4 NPT female
	4*2.....	ANSI 1/2 NPT female
	8.....	Diaphragm sealed transmitters (Refer to GS 06P01D01-00EN)
Options	/□/□	
Combinations	//□/□	

\*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.

\*2: Air connections, vent and drain plug connections are also tapped for ANSI NPT threads in addition to the process connections.

## ■ 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* <sup>1</sup>	Glass reinforced Teflon gaskets are used in the process connector and force bar seal. Maximum process temperatures to 190 °C (375 °F).	<b>DG5</b>	
Oxygen service preparation* <sup>1</sup>	Degrease cleansing treatment	<b>OSW</b>	
	Degrease cleansing treatment with fluorinated oilfilled capsule.	<b>OSFC</b>	
High damping capsule* <sup>1</sup>	Filled with high viscosity fluid (time constant is approximate 1.3 sec). Not applicable for high range capsule.	<b>HVC</b>	
Force bar seal gasket* <sup>2</sup>	GF Teflon	<b>GFT</b>	
Stainless steel bolts and nuts	JIS SUS630 bolts and nuts for the body and JIS SUS630 bolts for process connectors	<b>SSB</b>	
	JIS SUS630 bolts and nuts for the body and JIS SUS630 bolts for process connectors and sealant (liquid silicone rubber) are coated on surface of SUS630 nuts.	<b>SSB-S</b>	
Ammonia service* <sup>1</sup>	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 connections: Tapped for 1/4NPT. Applicable only for Y/13A-□S8.	<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>	
Reverse output signal* <sup>3</sup>	Reverse output signal	<b>ROUT</b>	

\*1: Not applicable for Diaphragm seal.

\*2: Not applicable for option code DG5, OSW, and OSFC.

\*3: Not applicable for option code EPF.

**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>

### <Reference>

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

**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	

## ■ COMBINATION

Item	Description	Code
Diaphragm seal	Refer to GS 06P01D01-00E	DFS
Integral flow orifice	Refer to GS 06P01E01-00E	IFO

## ■ ORDERING INSTRUCTIONS

Specify the following when ordering:

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

## ■ RELATED INSTRUMENTS

Integral Flow Orifice: Refer to GS 06P01E01-00E.

Diaphragm Seal: Refer to GS 06P01D01-00E.

## ■ DIMENSIONS

Unit: mm

