

# PREX3000 Vector Involute Type Pneumatic Differential Pressure Transmitters Model KDP 81/82 (High Static Pressure Type)



The PREX3000 instruments are pneumatic type transmitters which employ a combination of vector balance mechanism and involute mechanism.

The instruments are featured by high resistance against adverse environments, high turn-down ratio, high accuracy, and ease of maintenance.


## Standard Specifications

Item	Specifications
<b>Measuring range (continuously adjustable)</b>	KDP 81: 0–25 to 0–500 kPa {0–2,500 to 0–50,000 mmH <sub>2</sub> O} KDP 82: 0–2.5 to 0–53.9 kPa {0–250 to 0–5,500 mmH <sub>2</sub> O}
<b>Process connection</b>	Rc 1/4 or 1/4 NPT internal thread
<b>Air supply connection</b>	Rc 1/4 or 1/4 NPT internal thread
<b>Air supply pressure</b>	140±14 kPa {1.4±0.14 kgf/cm <sup>2</sup> }
<b>Output</b>	20–100 kPa {0.2–1.0 kgf/cm <sup>2</sup> }
<b>External load</b>	ID 4 mm × Length 3 m+20 cm <sup>3</sup> or over
<b>Air supply capacity</b>	20 Nℓ/minute or over. with 6.7 kPa {50 mmHg} change
<b>Air consumption</b>	5 Nℓ/minute or less (when balanced at output 100%)
<b>Accuracy</b>	KDP 81: ±0.5% FS (for spans 0–50 to 0–500 kPa {0–5,000 to 0–50,000 mmH <sub>2</sub> O}) ±1.0% FS (for spans 0–25 to 0–less than 50 kPa {0–2,500 to 0–Less than 5,000 mmH <sub>2</sub> O}) KDP 82: ±0.5% FS (for spans 0–5 to 0–53.9 kPa {0–500 to 0–5,500 mmH <sub>2</sub> O}) ±1.0% FS (for spans 0–2.5 to 0–less than 5 kPa {0–250 to 0–Less than 500 mmH <sub>2</sub> O})
<b>Dead band</b>	0.1%FS
<b>Working pressure</b>	–50 kPa to +42 MPa {–0.5 to +420 kgf/cm <sup>2</sup> } [refer to Fig. 1]
<b>Operating temperature</b>	Meter body (process fluid): –40 to +120°C Transmitter (ambient): –30 to + 80°C [refer to Fig. 1]
<b>Operating humidity</b>	10 to 90% RH
<b>Overload protection</b>	Up to 42 MPa {420 kgf/cm <sup>2</sup> } in either direction
<b>Construction</b>	Dustproof and waterproof, meets IEC IP54, NEMA Type 3R, JIS F8001 Class 3 splashproof, JIS C0920 rainproof
<b>Materials</b>	Center body: SUS304 Wetted parts of center body: SUS316 (diaphragm: SUS316L), SUS316L, Monel, Tantalum Meter body cover (differential pressure chambers): Carbon steel (SF45A), SUS316 Wetted parts gasket: Teflon Transmitter case: Aluminium alloy
<b>Finish</b>	Acryl baking finish Color: Light beige (munsell 4Y7.2/1.3)
<b>Mounting</b>	On vertical or horizontal 2-inch pipe
<b>Net weight</b>	Approx. 15 kg (add 0.8 kg for air-set)

## Optional Specifications

Item	Specifications												
<b>(1) Suppression and elevation</b>	(unit: kPa (mmH <sub>2</sub> O))												
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">Model No.</th> <th style="width: 35%;">Span</th> <th style="width: 20%;">Suppression (max.)</th> <th style="width: 30%;">Elevation (max.)</th> </tr> </thead> <tbody> <tr> <td>KDP 81</td> <td>25 to 500 {2,500-50,000}</td> <td>500 {50,000}</td> <td>475 {47,500}</td> </tr> <tr> <td>KDP 82</td> <td>2.5 to 53.9 {250-5,500}</td> <td>53.9 {5,500}</td> <td>51.4 {5,250}</td> </tr> </tbody> </table>	Model No.	Span	Suppression (max.)	Elevation (max.)	KDP 81	25 to 500 {2,500-50,000}	500 {50,000}	475 {47,500}	KDP 82	2.5 to 53.9 {250-5,500}	53.9 {5,500}	51.4 {5,250}
	Model No.	Span	Suppression (max.)	Elevation (max.)									
	KDP 81	25 to 500 {2,500-50,000}	500 {50,000}	475 {47,500}									
KDP 82	2.5 to 53.9 {250-5,500}	53.9 {5,500}	51.4 {5,250}										
(note: elevation+span ≤ maximum span, suppression ≤ maximum span)													
<b>(2) Air-set (filter and pressure regulator)</b>	Primary pressure: 200-990 kPa {2-9.9 kgf/cm <sup>2</sup> } Secondary pressure: 140 kPa {1.4 kgf/cm <sup>2</sup> } Filter mesh diameter: 5 microns Connections: Rc1/4 or 1/4 NPT internal thread												

## Optional Semi-standard Specifications

Item	Specifications
<b>(1) For vacuum use (Y23)</b>	Y169, Y182 and Y183 are not available for Y23. <span style="float: right;">[refer to Fig. 3]</span>
<b>(2) SUS304 bolts for meter body clamping (Y66)</b>	Maximum working pressure: 23 MPa {230 kgf/cm <sup>2</sup> }
<b>(3) Corrosion-resistant and silver finish (Y138)</b>	Corrosion resistant (acryl baking) finish (Y138A): Resistant against corrosive gases. Corrosionproof (epoxy baking) finish (Y138B): Resistant against corrosive liquids. Silver-normal (acryl baking) finish (Y138C): To prevent temperature rise of instrument caused by direct sunlight or radiation from other source of heat. Silver-corrosion-resistant (acryl baking) finish (Y138D): To prevent temperature rise the same as above, plus resistance against corrosive gases. (note: silver finish is not applicable for alkaline gases.)
<b>(4) Damping adjustment (Y169) (continuously adjustable)</b>	Time constant: Minimum 0.5 sec. or less, Maximum 15 sec. or over (when KDP81 is incorporated with Y182 or Y183, the minimum time constant is 0.5 sec. or less and the maximum time constant is 3 sec. or more.)
<b>(5) For oxygen measurement (Y182)</b>	Measuring element material: SUS316 or SUS316L Liquid fill: Fluorine oil (specific gravity: 1.915 at 25°C) Operating temperature (fluid and ambient temperature): -10 to +60°C Wetted parts treatment: Treated for degreasing <span style="float: right;">[refer to Fig. 2]</span>
<b>(6) For chlorine gas measurement (Y183)</b>	Measuring element material: Tantalum Liquid fill: Fluorine oil (specific gravity: 1.915 at 25°C) Operating temperature (fluid and ambient temperature): -10 to +80°C Wetted parts treatment: Treated for degreasing <span style="float: right;">[refer to Fig. 2]</span>
<b>(7) Output pressure gauge (Y185)</b>	Pressure gauge (100 mm diameter) <div style="text-align: center; margin-top: 10px;">  <p style="margin: 0;">TRANSMITTER      OUTPUT GAUGE(φ100)</p> </div>
<b>(8) High vibration resistant type (Y188)</b>	High vibration resistant type with dashpot

Base Model No.	Cover Mat'l		Wetted Parts Mat'l		Air Piping Connections	Pressure unit / Output	Options	Description
	HP	LP	HP	LP				
KDP 81								0-25 to 0-500 kPa {0-2,500 to 0-50,000 mmH <sub>2</sub> O}
KDP 82								0-2.5 to 0-53.9 kPa {0-250 to 0-5,500 mmH <sub>2</sub> O}
	-1							Carbon steel (SF45A)
	-2							SUS316
		1						Carbon steel (SF45A)
		2						SUS316
			2					SUS316 (diaphragm: SUS316L)
			3					Monel
			4					Tantalum
			8					SUS316L
				2				SUS316 (diaphragm: SUS316L)
				3				Monel
				4				Tantalum
				8				SUS316L
					A			Rc 1/4 internal thread
					B			1/4 NPT internal thread
					1		kgf/cm <sup>2</sup> (or mmH <sub>2</sub> O) / 0.2 to 1.0 kgf/cm <sup>2</sup>	
					2		PSI / 3 to 15 PSI	
					3		bar / 0.2 to 1.0 bar	
					4		Pa / 20 to 100 kPa	
					8		Pa / 19.6 to 98.1 kPa (equality to 0.2 to 1.0 kgf/cm <sup>2</sup> )	
					-x		No option	
					-5		Elevation	
					-6		Suppression	
					-7		Air-set	

Note)  
When ordering "Y" options, please write as:  
KDP82Y-2222A1-5,7 (Y □).

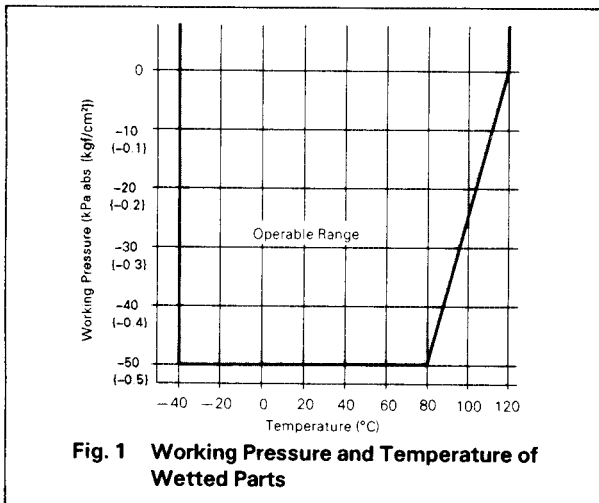


Fig. 1 Working Pressure and Temperature of Wetted Parts

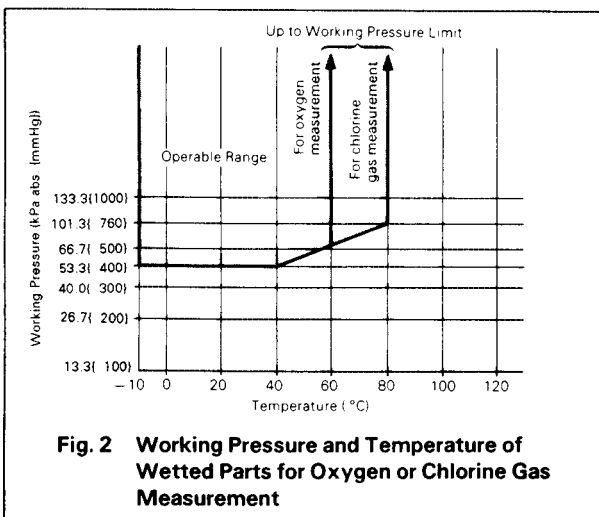


Fig. 2 Working Pressure and Temperature of Wetted Parts for Oxygen or Chlorine Gas Measurement

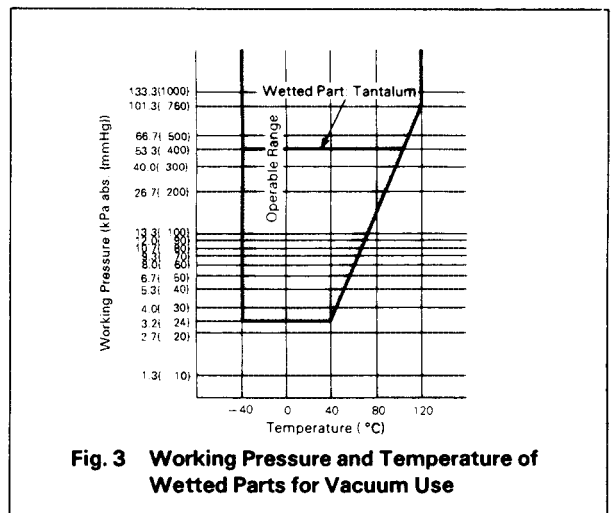
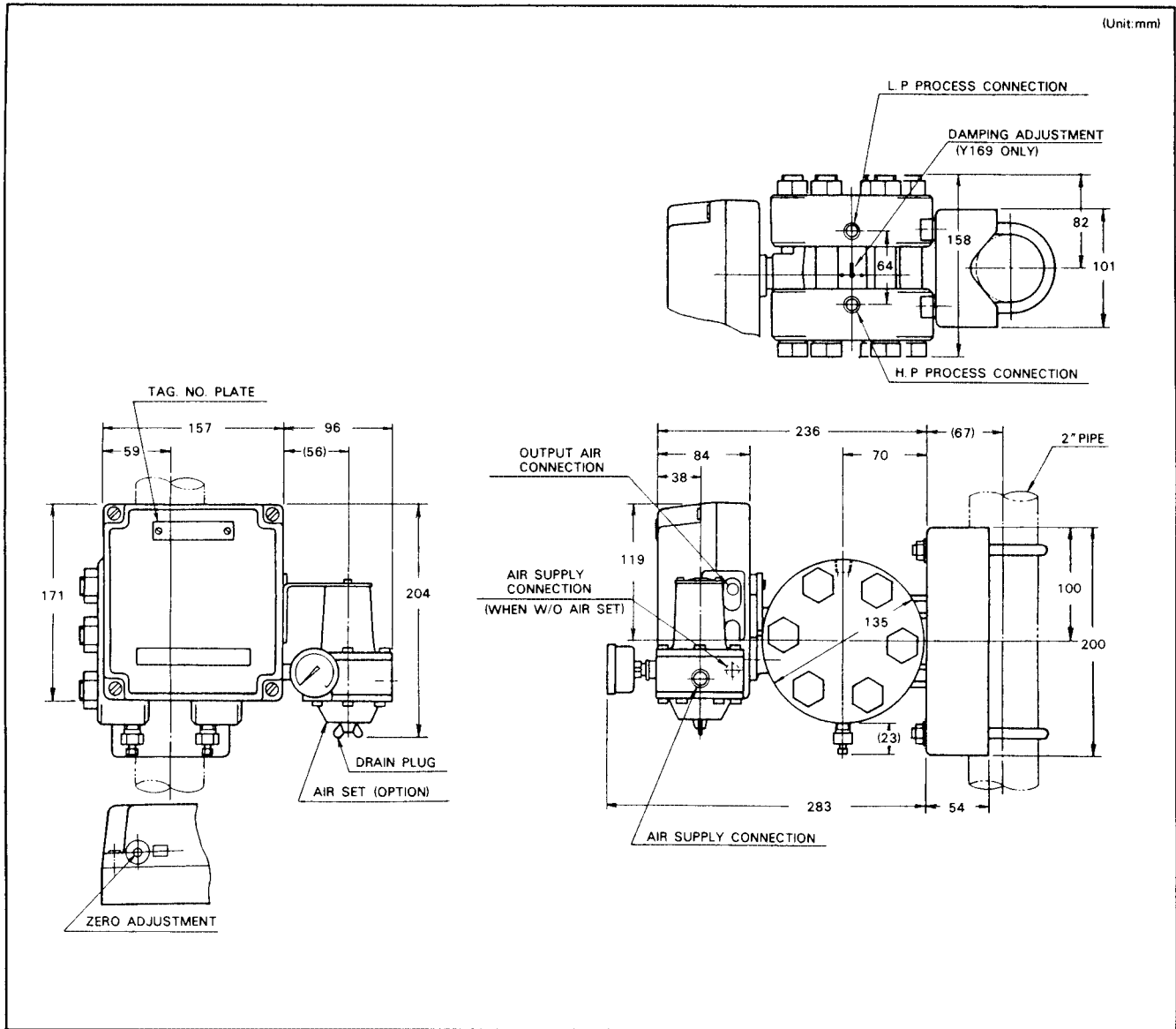


Fig. 3 Working Pressure and Temperature of Wetted Parts for Vacuum Use

## Dimensions



### Ordering Information

When ordering, please specify:

- 1) Model No.
- 2) Measuring range

Note) PREX3000 Transmitter covers a wide measuring range. At a span close to the minimum range point, however, the instrument exhibits particular characteristics. When operating the instrument at this span, refer to Instrumentation Data Sheet ID2-522-002.

- 3) Optional specification
- 4) Optional semi-standard specification

Note) For any combination of two or more Y-specification items, please consult your Yamatake agent.

Reference instruction manual ...

OM2-5220-0000/  
OM2-5220-1100

Specifications are subject to change without notice.

## Yamatake Corporation

Totate International Building  
2-12-19 Shibuya  
Shibuya-ku Tokyo 150-8316  
Tel : 81-3-3486-2216  
Fax: 81-3-3486-2503

Yamatake-SIC Control Systems Co., Ltd.  
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