

PREX3000 Vector Involute type

Pneumatic Differential Pressure Transmitter (Standard type for High and Medium Differential Pressures)

Model KDP11/22

OVERVIEW

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

Measuring range (continuously adjustable)

KDP11: 0-25 to 0-500 kPa {0-2,500 to 0-50,000 mmH₂O}

KDP22: 0-2.5 to 0-53.9 kPa {0-250 to 0-5,500 mmH₂O}

Process connection

Rc1/2 or 1/2NPT internal thread

Air supply connection

Rc1/4 or 1/4NPT internal thread

Air supply pressure

140±14 kPa {1.4±0.14 kgf/cm²}

Output

20-100 kPa {0.2-1.0 kgf/cm²}

External load

ID 4 mm × Length 3 m + 20 cm³ or over

Air supply capacity

20 ℓ/minute (N) or over, with 6.7 kPa {50 mmHg} change

Air consumption

5 ℓ/minute (N) or less (when balanced at output 100%)

Accuracy

KDP11:

±0.5% F.S. (for span 50 to 500 kPa {5,000 to 50,000 mmH₂O})

±0.75% F.S. (for span 25 less than 50kPa {2,500 to less than 5,000 mmH₂O})

KDP22:

±0.5% F.S. (for span 5 to 53.9 kPa {500 to 5,500 mmH₂O})

±0.75% F.S. (for span 2.5 to less than 5 kPa {250 to less than 500 mmH₂O})

Dead band

0.1% F.S.



Working pressure

-50 kPa to 10 MPa {-0.5 to 100 kgf/cm²} (differs by material of cover) [Refer to Figure 1]

Operating temperature

Meter body (process fluid)

-40 to +120°C

Transmitter (ambient)

-30 to +80°C

[Refer to Figure 1]

Operating humidity

10 to 90% RH

Overload protection

10 MPa {100 kgf/cm²} (on one side)

Construction

Dustproof and waterproof meets

IEC IP54, NEMA Type 3R.

JIS F8001 Class3 splashproof, JIS C0920 rainproof

Materials

Center body

SUS304

Wetted parts of center body

SUS316 (diaphragm: SUS316L)

SUS316L, Monel, Tantalum

Meter body cover (differential pressure chambers)

Carbon steel (SF45A), SUSF316, Monel,
 PVC (reinforced with SUS304 plates,
 working pressure range: -10 to +1,500 kPa
 {-0.1 to 15 kgf/cm²}
 operating temperature range: 0 to 50°C)

Wetted parts gasket

PTFE

Transmitter case

Aluminum alloy, Fill fluid, Silicone oil

Finish

Acryl baking finish

Color

Light beige (Munsell 4Y 7.2/1.3)

Mounting

On vertical or horizontal 2-inch pipe

Net weight

Approx. 8 kg (add 0.8 kg for air-set)

Optional Specifications

(1)Suppression and elevation

[Unit: kPa {mmH₂O}]

| Model No. | Span | Suppression (max.) | Elevation (max.) |
|-----------|-----------------------------|--------------------|------------------|
| KDP11 | 25 to 500 {2,500-50,000} | 500 {50,000} | 475 {47,500} |
| KDP22 | 2.5 to 53.9 {250-5,500} | 53.9 {5,500} | 51.4 {5,250} |

Note) $elevation + span \leq maximum\ span,$
 $suppression \leq maximum\ span$

(2)Air-set (filter and pressure regulator)

Primary pressure

200 to 990 kPa {2-9.9 kgf/cm²}

Secondary pressure

140 kPa {1.4 kgf/cm²}

Filter mesh diameter

5 microns

Connections

Rc1/4 or 1/4NPT internal thread

(3)High accuracy

| Model No. | Accuracy | Span (kPa {mmH ₂ O}) |
|-----------|----------|---------------------------------|
| KDP11 | ±0.25% | 50 to 500 {5,000-50,000} |
| | ±0.5% | 25 to 50 {2,500-5,000} |
| KDP22 | ±0.25% | 5 to 53.9 {500-5,500} |
| | ±0.5% | 2.5 to 5 {250-500} |

Optional Semi-standard Specifications

(1)For vacuum use (Y23)

Y169, Y182 and Y183 are not available for Y23.

[Refer to Figure 3]

(2)Steam block (Y29) (excluding PVC covers and monel covers)

Maximum working pressure

5 MPa {50 kgf/cm²}

Maximum operating temperature

250°C (excluding meter body whose temperature must not exceed 120°C)

Steam piping connections

Rc1/4 or 1/4NPT internal thread

Material of block

Carbon steel (SF45A)

(3) SUS304 bolts for meter body clamping (Y66)

Maximum working pressure

Carbon steel, SUSF316, or monel cover: 6 MPa {60 kgf/cm²}

PVC cover: 1.5 MPa {15 kgf/cm²}

(4)Corrosion-resistant and silver finish (Y138)

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.*

(5)Damping adjustment (Y169) (continuously adjustable)

Time constant

Minimum 0.5 sec. or less. Maximum 15 sec. or over.
 (when KDP11 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.)

(6)Process connection at instrument rear (Y171)

Applicable only to carbon steel cover, SUS316 cover, and SUS316L cover (only when transmitter is mounted on horizontal 2-inch pipe)

(7)For oxygen measurement (Y182)

Measuring element material

SUSF316 or SUS316L

Liquid fill

Fluorine oil (specific gravity: 1.915 at 25°C)

Operating temperature range (fluid and ambient temperature)

-10 to +60°C

Wetted parts treatment

Treated for degreasing [Refer to Figure 2]

(8) For chlorine gas measurement (Y183)

Measuring element material

Tantalum

Liquid fill

Fluorine oil (specific gravity: 1.915 at 25°C)

Operating temperature (fluid and ambient temperature)

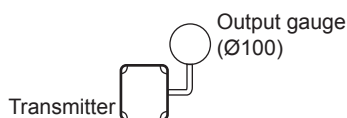
-10 to +80°C

Wetted parts treatment

Treated for degreasing [Refer to Figure 2]

(9) Output pressure gauge (Y185)

Pressure gauge (100mm diameter)



(10) High vibration resistant type (Y188)

High vibration resistant type with dashpot.

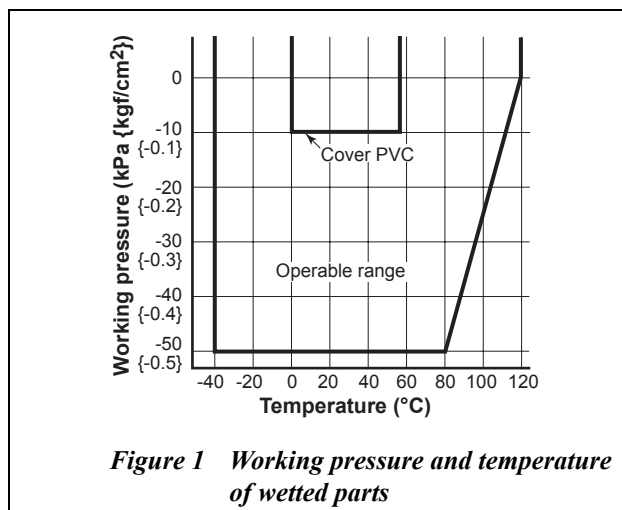


Figure 1 Working pressure and temperature of wetted parts

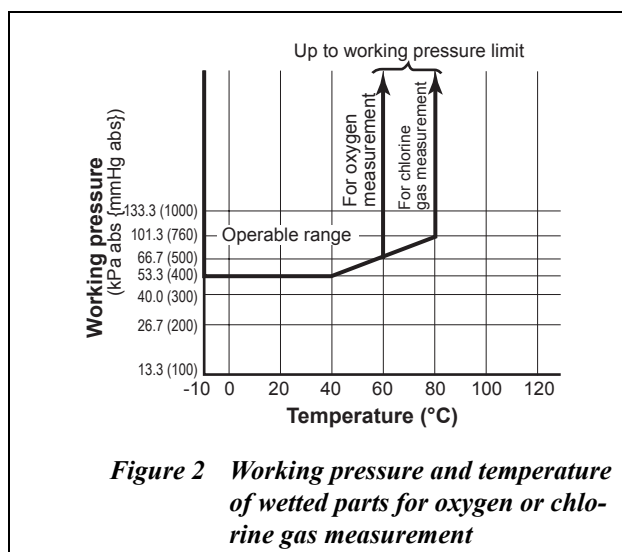


Figure 2 Working pressure and temperature of wetted parts for oxygen or chlorine gas measurement

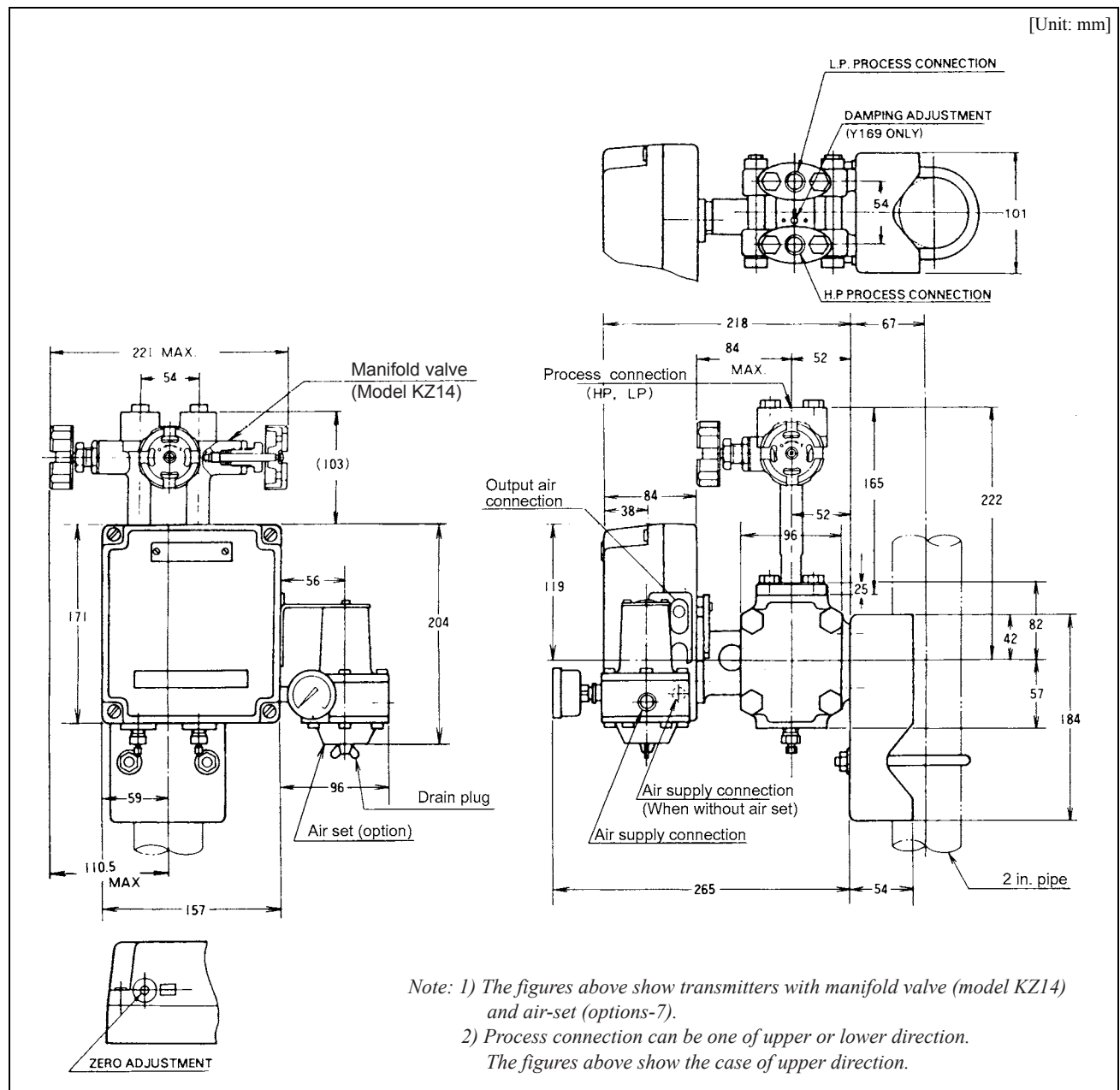


Figure 3 Working pressure and temperature of wetted parts for vacuum use

MODEL SELECTION

| Basic model no. | Cover material | | Wetted parts material | | Airpiping connections | Pressure unit/ Output | Options | Description |
|-----------------|----------------|----|-----------------------|----|-----------------------|-----------------------|---------|--|
| | HP | LP | HP | LP | | | | |
| KDP11 | | | | | | | | 0-25 to 0-500 kPa {0-2,500 to 0-50,000 mmH ₂ O} |
| KDP22 | | | | | | | | 0-2.5 to 0-53.9 kPa {0-250 to 0-5,500 mmH ₂ O} |
| | -1 | | | | | | | Carbon steel (SF45A) |
| | -2 | | | | | | | SUSF316 |
| | -3 | | | | | | | Monel |
| | -5 | | | | | | | PVC |
| | | 1 | | | | | | Carbon steel (SF45A) |
| | | 2 | | | | | | SUSF316 |
| | | 3 | | | | | | Monel |
| | | 5 | | | | | | PVC |
| | | | 2 | | | | | SUS316 (diaphragm: SUS316L) |
| | | | 3 | | | | | Monel |
| | | | 4 | | | | | Tantalum |
| | | | 8 | | | | | SUS316L |
| | | | | 2 | | | | SUS316 (diaphragm: SUS316L) |
| | | | | 3 | | | | Monel |
| | | | | 4 | | | | Tantalum |
| | | | | 8 | | | | SUS316L |
| | | | | | A | | | Rc1/4 internal thread |
| | | | | | B | | | 1/4NPT internal thread |
| | | | | | | 1 | | kgf/cm ² (or mmH ₂ O) / 0.2 to 1.0 kgf/cm ²) |
| | | | | | | 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 ² } |
| | | | | | | | -X | No option |
| | | | | | | | -5 | Elevation |
| | | | | | | | -6 | Suppression |
| | | | | | | | -7 | Air-set |
| | | | | | | | -H | High circuracy (refer to optional specifications) |

Note) When ordering "Y" options, please write as: KDP22Y-2222A 1-5, 7 (Y□)

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 ID2-5220-0020.

- 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

Yamatake Corporation

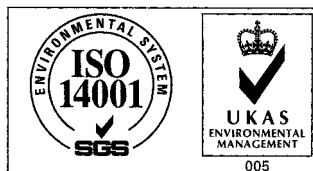
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