



KF SERIESKF DIFFERENTIAL PRESSURE INDICATING CONTROLLER

MODRL: KFD

General

The KF series instruments are field installed type of pneumatic indicating controllers which are used to measure and control the various types of process (flow), temperatures.

Model KFD differential-pressure indicating controllers indicate and control a process variable by converting its differential-pressure change into mechanical displacement of a torque tube or a torque arm.

Indicating transmitters and indicating transmitting controllers also are available as well as indicating controllers. The controllers are available either in the local type to set the set-point value with the knob on the instrument or in the cascade type (remote type) to set the set point value with a pneumatic signal.

Features

- ◆ A wide variety of measuring elements and control mechanisms are available to meet various applications.
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- ◆ A pneumatic circuit board and a heat-resistant weatherproof sturdy case are used, thereby greatly improving the durability and reliability.
- ◆ The pneumatic circuit board system allows to readily add or eliminate control mechanisms and units, thereby reducing the number of parts to be kept in stock.
- ◆ The detecting section is identical with that of the differential pressure transmitter of prex3000 pneumatic transmitter series.

Standard Specifications

Item		specifications						
Detector	Model No.	Type of detector	Measuring range (continuously adjustable)	Process connection	Pressure limit	Overload protection	Suppression (max.)	Elevation (max.)
	11	Standard type	0.2,500 ~ 0.50,000 mmH ₂ O	PT ½ or ½ NPT internal thread (center to center: 54mm)	-0.5 ~ +100kgf/cm ²	To 100 kgf/cm ² in either direction.	50,000mmH ₂ O	47,500mmH ₂ O
	22		0.250 ~ 0.5,500 mmH ₂ O		PVC cover: -0.1 ~ +10kgf/cm ²		5,000mmH ₂ O	5,250mmH ₂ O
	33		0.50 ~ 0.600 mmH ₂ O	PT ½ or ½ NPT internal thread (center to center: 54mm, PVC cover: 71mm)	-0.5 ~ +35kgf/cm ²	To 35 kgf/cm ² in either direction.	600mmH ₂ O	550mmH ₂ O
	44		0.10 ~ 0.120 mmH ₂ O	PT ½ or ½ NPT internal thread (center to center: 54mm)	-150mmH ₂ O ~ +5kgf/cm ²	To 5kgf/cm ² in either direction.	120mmH ₂ O	110mmH ₂ O
	61	Flange type	0.2,500 ~ 0.50,000 mmH ₂ O	HP side : Flange Flush diaphragm type: 80mm-JIS 10k, 30k (RF) equiv flange 3"-ANSI 150,300 (RF) equiv flange Extended diaphragm type: 100mm-JIS10K, 30K (RF) equiv. flange 4"-ANSI 150,300 (RF) equiv flange Length of extended part: 100 or 150mm	-0.5kgf/cm ² to maximum flange rated pressure. (PVC cover: -0.1 ~ +15kgf/cm ² or maximum flange rated pressure.)	To maximum flange rated pressure in either direction.	50,000mmH ₂ O	47,500mmH ₂ O
	62			0.250 ~ 0.5,500 mmH ₂ O			LP side: PT ½ or ½ NPT internal thread	5,500mmH ₂ O
	71	Remote seal diaphragm type	0.2,500 ~ 0.50,000 mmH ₂ O	Flange connection (both HP & LP side) Flush diaphragm type: 80mm-JIS 10k, 30k (RF) equiv flange 3"-ANSI 150,300 (RF) equiv flange Extended diaphragm type: 100mm-JIS10K, 30K (RF) equiv. flange 4"-ANSI 150,300 (RF) equiv flange Length of extended part: 100 or 150mm	-0.5kgf/cm ² to maximum flange rated pressure.	To maximum flange rated pressure in either direction.	5,000mmH ₂ O	47,500mmH ₂ O
	72						0.250 ~ 0.5,500 mmH ₂ O	5,500mmH ₂ O
	81	High static pressure type	0.2,500 ~ 0.50,000 mmH ₂ O	PT ½ or ½ NPT internal thread (center to center: 64mm)	-0.5 ~ +420kgf/cm ²	To 420 kgf/cm ² in either direction.	50,000mmH ₂ O	47,500mmH ₂ O
82	0.250 ~ 0.5,500 mmH ₂ O		When with manifold---- ½" socket welding (center to center: 110mm)	5,500mmH ₂ O			5,250mmH ₂ O	
Function	Accuracy		Model No.	Measuring range (mmH ₂ O)				
			KFDB□□11	0-2500 to 0-less than 5,000		0-5,000 to 0-50,000		
			KFDB□□22	0-250 to 0-less than 500		0-500 to 0-5,500		
			Transmitting / Indicating	±0.5 (±0.75) / ±1.0 (±1.25)% FS *1		±0.25 (±0.375) / ±1.0% FS *1		
			KFDB□□33	0-50 to 0-less than 100		0-100 to 0-600		
			KFDB□□44	0-10 to 0-less than 20		0-20 to 0-120		
			KFDB□□61,71,81	0-2,500 to 0-less than 5,000		0-5,000 to 0-50,000		
			KFDB□□62,72,82	0-250 to 0-less than 500		0-500 to 0-5,500		
		Transmitting / Indicating	±1.0% FS / ±1.5% FS		±0.5% FS / ±1.0% FS			
Note) *1 : When whit elevation or suppression.								
Repeatability			Within 0.3% FS					
Dead band			Within 0.2% FS					

Standard Specifications

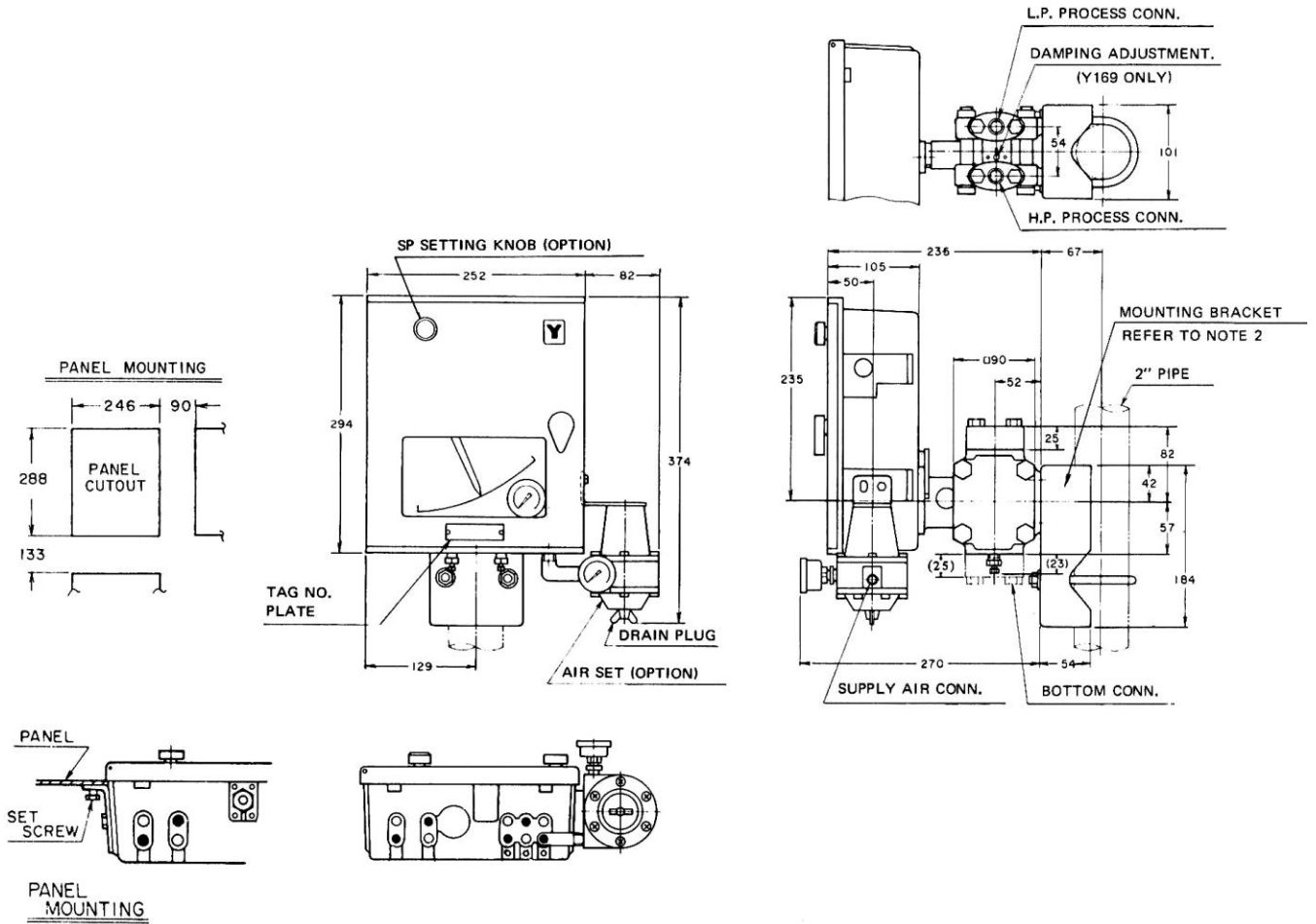
Indication	Angle	44 degrees	
	Scale length	150mm	
Output indicator (Φ40mm)	Pointer	Process variable: Red, Set point value: Green	
	Output indicator (Φ40mm)	Scale range: 0~2kgf/cm ² Indicator accuracy: ±3% FS	
Setpoint Section	Local setting	Internal or external setting by knob.	
	Remote setting	Pneumatic pressure setting of 0.2 - 1.0 kgf/cm ²	
	Setting range	0-100% FS	
Controller	Control action	P+ Manual reset, PI, PID, PD+ manual reset, PI+ Batch, On-Off, Differential gap, P+ External reset, PD+ External reset	
	Proportional band (P)	5-500% (direct or reverse action)	
	Integral (I)	0.05-30min	
	Derivative(D)	0.05-30min	
	Differential gap	1-100% FS, adjustable	
	Batch setting pressure	0.6~1.1 kgf/cm ² , adjustable	
	External reset pressure	0.2~1.0 kgf/cm ²	
	Manual reset	0-100% FS, adjustable (by pneumatic pressure setting)	
	Output	0.2~1.0 kgf/cm ² , 0 or 1.4 kgf/cm ² (on-off, differential gap)	
	Minimum load	I.D. 4mm x 3m + 20cm ³	
	Supply air pressure	1.4 ± 0.14 kgf/cm ²	
	Air consumption (50% output balanced)	Indicating transmission: 9N ℓ /min Only indicating: 5N ℓ /min Indicating control: 9N ℓ /min Manual control: +3N ℓ /min Indicating transmitting controller: 9N ℓ /min	
	Saturated air supply capacity	Pneumatic transmission: 40N ℓ /min. Output: 40N ℓ /min Manual pneumatic pressure: 30N ℓ /min	
	General Specification	Air consumption	PT ¼ or ½ NPT internal thread
Ambient temperature		At meter body (process fluid): -40 to +120°C (PVC cover: 0-55°C)	
Relative humidity		10-90% RH	
Case, Door		Enclosure:	Rain-tight and dust-tight, meets JIS F8001 Class 3 splash-proof, NEMA3, IEC IP54
		Materials:	Case.....Aluminum die-cast
			Door.....Polyester with fiberglass
			Door-glass.....Reinforced glass (3mm thick)
			Case finish: Acryl baking finish (for corrosion-resistant and silver finish, refer to the optional specification.) Color of finish: Dark beige (MUNSELL 10YR 4.7/0.5)
Mounting		Panel, 2" pipe or flange mounting	
Net weight		11.8kg (when model KFDB12-221122A1P-W)	

Optional Specifications

Item	specifications																																					
(1) External SP setting knob (for local setting)	A setting knob is mounted on the door, SP can be adjusted from outside.																																					
(2) Built-in manual controller	Consists of a manual control regulator, tow position transfer switch and balance check button.																																					
(3) With manifold valve (except type 6□/7□ detector)	<table border="1"> <thead> <tr> <th rowspan="2">Manifold valve KFD</th> <th colspan="2">Direct mounting type</th> <th rowspan="2">Separate type</th> <th rowspan="2">High pressure type NZ6</th> </tr> <tr> <th>KZ13</th> <th>KZ14</th> </tr> </thead> <tbody> <tr> <td>KFDB□□11</td> <td></td> <td>○</td> <td>○</td> <td></td> </tr> <tr> <td>KFDB□□22</td> <td></td> <td>○</td> <td>○</td> <td></td> </tr> <tr> <td>KFDB□□33</td> <td></td> <td>○</td> <td>○</td> <td></td> </tr> <tr> <td>KFDB□□44</td> <td>○</td> <td>○</td> <td></td> <td></td> </tr> <tr> <td>KFDB□□81</td> <td></td> <td></td> <td></td> <td>○</td> </tr> <tr> <td>KFDB□□82</td> <td></td> <td></td> <td></td> <td>○</td> </tr> </tbody> </table>	Manifold valve KFD	Direct mounting type		Separate type	High pressure type NZ6	KZ13	KZ14	KFDB□□11		○	○		KFDB□□22		○	○		KFDB□□33		○	○		KFDB□□44	○	○			KFDB□□81				○	KFDB□□82				○
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(4) Elevation, Suppression	Elevation: The lower limit of input range is above zero.																																					
	Suppression: The lower limit of input range is below zero.																																					
(5) Air set (not applicable to panel mounting type)	Pressure regulator with filter plus φ40mm pressure gauge. (supply pressure: 2-9.9kgf/cm ² , output: 1.4kgf/cm ² , pressure gauge: 0-2kgf/cm ²)																																					

Overall Dimensions

(Unit: mm)



AIR CONNECTIONS (REFER TO NOTE 1, 4)

- : Rc 1/4 FEMALE
- : 1/2 NPT FEMALE

REGEND

ESP : EXTERNAL SP SIGNAL
(FOR CASCADE TYPE ONLY)
X : TRANSMITTING SIGNAL
(FOR TRANSMITTER ONLY)
OUT : CONTROLLED SIGNAL
RES : EXTERNAL RESET SIGNAL
(FOR EXTERNAL RESET TYPE ONLY)
SUP : SUPPLY AIR PRESSURE

Notes:

- 1) The holes not to be used for air connection are plugged.
- 2) These holes in the bracket enable the controller to be mounted in various position.
- 3) Process connection can be selected freely in any of two positions of top or bottom. Cover, flange and vent/drain must be replaced according to the newly selected position.
- 4) For manual reset provision, "SUP" and "RES" have been preconnected.
- 5) Manifold valve; In case of detector type 11/22 . . . Separate type
33/44 . . . Direct mounting type
81/82 . . . High pressure type
- 6) This dimensions are of standard type detector. (detector model nos. 11 and 22, Caution must be taken to dimensions which depend on the shape of detector. (refer to the reference spec. sheets at the rear of this sheet.)