

# KF Series Model KFD

## Differential Pressure Indicating Controller

### OVERVIEW

The KF Series instruments are field installed type of pneumatic indicating controllers which are used to measure and control the various types of process variables such as differential pressures (flows), temperatures, pressures and liquid levels.

Model KFD Differential Pressure Indicating Controllers (adjustable range type) 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.
- 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 enhancing the system modifications and expansion flexibility
- Interchangeable parts are used to the maximum practicable extent, thereby reducing the number of parts to be kept in stock.
- The detecting section is identical with that of the pressure transmitter of PREX3000 Pneumatic Transmitter Series.

**SPECIFICATIONS**

**Standard specification**

Item		Specifications					
Detector Section							
Model No.	Type of detector	Measuring range (continuously adjustable)	Process connection	Pressure limit	Overload protection	Suppression (max.)	Elevation (max.)
11	Standard type	0-25 to 0-500 kPa {0-2,500 to 50,000 mm H <sub>2</sub> O}	Rc ½ or ½ NPT internal thread {center to center: 54 mm}	-50 kPa to 10 MPa {-0.5 to 100 kgf/cm <sup>2</sup> } (PVC cover; -10 kPa to 1 MPa{-0.1 to 10 kgf/cm <sup>2</sup> })	To 10 MPa {100 kgf/cm <sup>2</sup> } in either direction.	500 kPa {50,000 mm H <sub>2</sub> O}	475 kPa {47,500 mm H <sub>2</sub> O}
22		0-2.5 to 0-53.9 kPa {0-250 to 5,500 mm H <sub>2</sub> O}				53.9 kPa {5,500 mm H <sub>2</sub> O}	51.4 kPa {5,250 mm H <sub>2</sub> O}
33		0-0.5 to 0-6 kPa {0-50 to 600 mm H <sub>2</sub> O}				Rc ½ or ½ NPT internal thread (center to center: 54 mm, PVC cover : 71 mm)	-50kPa to +3.5 MPa {0.5 to 35 kgf/cm <sup>2</sup> } (PVC cover; -10kPa to 1 MPa{-0.1 to 10 kgf/cm <sup>2</sup> })
44		0-0.1 to 0-1.2 kPa {0-10 to 120 mm H <sub>2</sub> O}	Rc ½ or ½ NPT internal thread (center to center: 54 mm)	-1.5kPa to + 0.5 MPa {-150mm H <sub>2</sub> O to +5 kgf/cm <sup>2</sup> }	To 0.5 MPa {5 kgf/cm <sup>2</sup> } in either direction.	1.2 kPa {120 mm H <sub>2</sub> O}	1.1 kPa {110 mm H <sub>2</sub> O}
61	Flange type	0-25 to 0-500 kPa {0-2,500 to 0-50,000 mm H <sub>2</sub> O}	HP side: Flange Flush diaphragm type; 80 mm -JIS10K,30K(RF)equiv. flange 3 in. ANSI 150, 300(RF)equiv. flange Extended diaphragm type; 100 mm -JIS10K,30K(RF) equiv.flange 4 in.-ANSI150,300(RF) equiv.flange Length of extended part; 100 or 150 mm	-50 kPa {-0.5 kgf/cm <sup>2</sup> } to maximum flange rated pressure.	To maximum flange rated pressure in either direction.	500 kPa {50,000 mm H <sub>2</sub> O}	475 kPa {47,500 mm H <sub>2</sub> O}
62		0-2.5 to 0-53.9 kPa {0-250 to 0-5,500 mm H <sub>2</sub> O}	LP side;Rc ½ or ½ NPT internal thread			53.9 kPa {5,500 mm H <sub>2</sub> O}	51.4 kPa {5,250 mm H <sub>2</sub> O}
71	Remote seal diaphragm type	0-25 to 0-500 kPa {0-2,500 to 0-50,000 mm H <sub>2</sub> O}	Flange connection(both HP and LP side) Flush diaphragm type ; 80mm -JIS10K,30K(RF) equiv.flange 3 in.- ANSI 150, 300(RF) equiv. flange Extended diaphragm type; 100 mm -JIS10K,30K(RF) equiv.flange 4 in.-ANSI150,300(RF)equiv.flange Length of extended part; 100 or 150 mm	-50 kPa {-0.5 kgf/cm <sup>2</sup> } to maximum flange rated pressure.  (PVC cover; -10 kPa to +1.5 Mpa {-0.1 to 15 kgf/cm <sup>2</sup> } or maximum flange rated pressure.)	To maximum flange rated pressure in either direction.	500 kPa {50,000 mm H <sub>2</sub> O}	475 kPa {47,500 mm H <sub>2</sub> O}
72		0-25 to 0-53.9 kPa {0-250 to 0-5,500 mm H <sub>2</sub> O}				53.9 kPa {5,500 mm H <sub>2</sub> O}	51.4 kPa {5,250 mm H <sub>2</sub> O}
81	High Static pressure type	0-25 to 0-500 kPa {0-2,500 to 0-50,000 mm H <sub>2</sub> O}	• Rc ¼ or ¼ NPT internal thread (center to center : 64 mm) • When with manifold..... ½ in. socket welding (center to center : 110 mm)	-50 kPa to 42 MPa {-0.5 to 420 kgf/cm <sup>2</sup> }	42 MPa {420 kgf/cm <sup>2</sup> } in either direction.	500 kPa {50,000 mm H <sub>2</sub> O}	475 kPa {47,500 mm H <sub>2</sub> O}
82		0-2.5 to 0-53.9 kPa {0-250 to 0-5,500 mm H <sub>2</sub> O}				53.9 kPa {5,500 mm H <sub>2</sub> O}	51.4 kPa {5,250 mm H <sub>2</sub> O}

Note 1) Elevation + Span ≤ Maximum span, Suppression ≤ Maximum span.  
 2) Refer to the annexed table about Max. working pressure on Flange and remote seal type.

**Max working pressure**

Note 1 : Max working pressure depends on flange rating, flange materials and operating temperature. Please refer to the following data. Operating range of temperature depends on specification of transmitters.

Note 2 : In case of remote sealed type (KKP75, KFKB□□-75), Max working pressure depends on the smaller value of either 1.05 MPa or following data.

	JIS	JPI/ANSI
<b>Carbon Steel</b>	<p>The graph shows Max Working Pressure (MPa) on the y-axis (0.0 to 6.0) and Temperature (°C) on the x-axis (-50 to 300). Three curves are shown for 10 K, 20 K, and 30 K ratings. The 30 K curve starts at ~4.5 MPa, the 20 K at ~3.0 MPa, and the 10 K at ~1.2 MPa. All curves show a slight decrease in pressure as temperature increases, with a more significant drop after 100°C.</p>	<p>The graph shows Max Working Pressure (MPa) on the y-axis (0.0 to 6.0) and Temperature (°C) on the x-axis (-50 to 300). Two curves are shown for Class 150 and Class 300 ratings. The Class 300 curve starts at ~5.0 MPa and the Class 150 at ~2.0 MPa. Both curves show a decrease in pressure as temperature increases, with a more significant drop after 100°C.</p>
<b>SUS304</b>	<p>The graph shows Max Working Pressure (MPa) on the y-axis (0.0 to 6.0) and Temperature (°C) on the x-axis (-50 to 300). Three curves are shown for 10 K, 20 K, and 30 K ratings. The 30 K curve starts at ~5.0 MPa, the 20 K at ~3.5 MPa, and the 10 K at ~1.5 MPa. All curves show a decrease in pressure as temperature increases, with a more significant drop after 100°C.</p>	<p>The graph shows Max Working Pressure (MPa) on the y-axis (0.0 to 6.0) and Temperature (°C) on the x-axis (-50 to 300). Two curves are shown for Class 150 and Class 300 ratings. The Class 300 curve starts at ~5.0 MPa and the Class 150 at ~2.0 MPa. Both curves show a decrease in pressure as temperature increases, with a more significant drop after 100°C.</p>
<b>SUS316</b>	<p>The graph shows Max Working Pressure (MPa) on the y-axis (0.0 to 6.0) and Temperature (°C) on the x-axis (-50 to 300). Three curves are shown for 10 K, 20 K, and 30 K ratings. The 30 K curve starts at ~5.0 MPa, the 20 K at ~3.5 MPa, and the 10 K at ~1.5 MPa. All curves show a decrease in pressure as temperature increases, with a more significant drop after 100°C.</p>	<p>The graph shows Max Working Pressure (MPa) on the y-axis (0.0 to 6.0) and Temperature (°C) on the x-axis (-50 to 300). Two curves are shown for Class 150 and Class 300 ratings. The Class 300 curve starts at ~5.0 MPa and the Class 150 at ~2.0 MPa. Both curves show a decrease in pressure as temperature increases, with a more significant drop after 100°C.</p>
<b>SUS316L</b>	<p>The graph shows Max Working Pressure (MPa) on the y-axis (0.0 to 6.0) and Temperature (°C) on the x-axis (-50 to 300). Three curves are shown for 10 K, 20 K, and 30 K ratings. The 30 K curve starts at ~4.5 MPa, the 20 K at ~3.0 MPa, and the 10 K at ~1.2 MPa. All curves show a decrease in pressure as temperature increases, with a more significant drop after 100°C.</p>	<p>The graph shows Max Working Pressure (MPa) on the y-axis (0.0 to 6.0) and Temperature (°C) on the x-axis (-50 to 300). Two curves are shown for Class 150 and Class 300 ratings. The Class 300 curve starts at ~4.5 MPa and the Class 150 at ~1.8 MPa. Both curves show a decrease in pressure as temperature increases, with a more significant drop after 100°C.</p>

Standard Specification (Continued)

Item	Specification
<b>Function</b>	
Model no.	Measuring range kPa ( mmH <sub>2</sub> O)
Accuracy	
KFDB□□ 11	0 - 25 to 0-less than 50 {0-2,500 to 0-less than 5,000} 0 - 50 to 0 - 500 {0 - 5,000 to 0 - 50,000}
KFDB□□ 22	0 - 2.5 to 0-less than 5 {0-250 to 0-less than 500} 0 - 5 to 0 - 53.9 {0 - 500 to 0 - 5,5000}
Transmitting / Indicating	± 0.75 / ±1.0 (±1.25) % FS <sup>*1</sup> ± 0.5 / ± 1.0 % FS
KFDB□□ 33	0 - 0.5 to 0-less than 1 {0-50 to 0-less than 100} 0 - 1 to 0 - 6 {0 - 100 to 0 - 600}
KFDB□□ 44	0 - 0.1 to 0-less than 0.2 {0-10 to 0-less than 20} 0 - 0.2 to 0 - 0.2 {0 - 20 to 0 - 20}
KFDB□□ 61, 71, 81	0 - 25 to 0-less than 50 {0-2,500 to 0-less than 5,000} 0 - 50 to 0 - 500 {0 - 5,000 to 0 - 50,000}
KFDB□□ 62, 72, 82	0 - 2.5 to 0-less than 5 {0-250 to 0-less than 500} 0 - 5 to 0 - 53.9 {0 - 500 to 0 - 5,5000}
Transmitting / Indicating	± 1.0% FS / ±1.5 % FS ± 0.5% FS / ± 1.0% FS
Note) *1 ; When with elevation or suppression.	
<b>Repeatability</b>	Within 0.3% FS
<b>Dead Band</b>	Within 0.2% FS
<b>Indication</b>	
<b>Angle</b>	44 degrees
<b>Scale length</b>	150 mm
<b>Pointer</b>	Process variable ; Red, Setpoint value ; Green
<b>Output indicator (40 mm)</b>	Scale range ; 0 to 200 kPa {0 to 2 kgf/cm <sup>2</sup> } Indicator accuracy ; ± 3% FS
<b>Set-point Section</b>	
<b>Local setting</b>	Internal or external setting by setting knob.
<b>Remote setting</b>	Pneumatic pressure setting of 20 to 100 kPa {0.2 to 1.0 kgf/cm <sup>2</sup> }
<b>Setting range</b>	0 to 100% FS
<b>Controller</b>	
<b>Control action</b>	P+ Manual reset, PI, PID, PD + Manual reset, PI + Batch, On-Off, Differential gap, P+ External reset, PD, + External reset
<b>Proportional band (P)</b>	5 - 500% (direct or reverse action)
<b>Integral (I)</b>	0.05 to 30 min.
<b>Derivative (D)</b>	0.05 to 30 min.
<b>Differential gap</b>	1 to 100% FS, adjustable
<b>Batch setting pressure</b>	60 to 110 kPa { 0.6 - 1.1 kgf /cm <sup>2</sup> }, adjustable
<b>External reset pressure</b>	20 to 100 kPa { 0.2 - 1.0 kgf /cm <sup>2</sup> }, adjustable
<b>Manual reset</b>	0 to 100% FS, adjustable (by pneumatic pressure setting)
<b>General Specification</b>	
<b>Output</b>	20 to 100 kPa {0.2 to 1.0 kgf /cm <sup>2</sup> }, 0 or Corresponding to supply air pressure (on-off, differential gap)
<b>Minimum load</b>	I.D. 4 mm x 3 m + 20 cm <sup>3</sup>
<b>Supply air pressure</b>	140 ± 14 kPa {1.4 ± 0.14 kgf/cm <sup>2</sup> }
<b>Air consumption (50% output balanced)</b>	Indicating transmitter (A0) ; 5 L/min [N] Indicating controller (A1, A3) ; 9 L/min [N] Indicating transmitting controller (A2, A4) ; 9 L/min [N] Manual controller (M) ; 3 L/min [N]
<b>Saturated air supply capacity</b>	Transmitter output ; 40 L/min [N] Controller output ; 40 L/min [N] Manual controller output ; 30 L/min [N]
<b>Air connection</b>	Rc ¼ or ¼ NPT internal thread
<b>Ambient temperature</b>	At meter body (process fluid) ; -40 to 120 °C (PVC cover; 0 to 55 °C) At transmitter (ambient) ; -30 to 80 °C
<b>Relative humidity</b>	10 to 90% RH
<b>Case, Door</b>	Enclosure ; Rain-tight and dust-tight, meets JIS F 8001 class 3 splash-proof, NEMA 3, IEC IP 54 Materials ; Case..... Aluminum die-case Door..... Polyester with fiberglass Door glass..... Reinforced glass (3 mm thick) Case finish ; Acryl baking finish (for corrosion-resistant and silver finish, refer to the optional specification)
<b>Mounting</b>	Panel, 2 in. pipe or flange mounting.
<b>Weight</b>	11.8 kg (when model KFDB12-221122A1P-X)

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 (with auto-manual transfer switch)	Consist of manual control regulator, two position transfer switch and balance check button.																																
(3) With manifold valve (except type 6□ / 7□ detector)	<table border="1"> <thead> <tr> <th data-bbox="598 286 794 315">Manifold valve</th> <th colspan="2" data-bbox="794 286 1243 315">Direct Mounting type</th> <th data-bbox="1243 286 1460 315">High pressure type</th> </tr> <tr> <th data-bbox="598 315 794 344">KFD</th> <th data-bbox="794 315 1027 344">Without Extension type</th> <th data-bbox="1027 315 1243 344">With Extension type</th> <th data-bbox="1243 315 1460 344">NZ16</th> </tr> </thead> <tbody> <tr> <td data-bbox="598 344 794 374">KFD□□-11</td> <td data-bbox="794 344 1027 374"></td> <td data-bbox="1027 344 1243 374">✓</td> <td data-bbox="1243 344 1460 374"></td> </tr> <tr> <td data-bbox="598 374 794 403">" -22</td> <td data-bbox="794 374 1027 403"></td> <td data-bbox="1027 374 1243 403">✓</td> <td data-bbox="1243 374 1460 403"></td> </tr> <tr> <td data-bbox="598 403 794 432">" -33</td> <td data-bbox="794 403 1027 432"></td> <td data-bbox="1027 403 1243 432">✓</td> <td data-bbox="1243 403 1460 432"></td> </tr> <tr> <td data-bbox="598 432 794 461">" -44</td> <td data-bbox="794 432 1027 461">✓</td> <td data-bbox="1027 432 1243 461">✓</td> <td data-bbox="1243 432 1460 461"></td> </tr> <tr> <td data-bbox="598 461 794 490">" -81</td> <td data-bbox="794 461 1027 490"></td> <td data-bbox="1027 461 1243 490"></td> <td data-bbox="1243 461 1460 490">✓</td> </tr> <tr> <td data-bbox="598 490 794 519">" -82</td> <td data-bbox="794 490 1027 519"></td> <td data-bbox="1027 490 1243 519"></td> <td data-bbox="1243 490 1460 519">✓</td> </tr> </tbody> </table>	Manifold valve	Direct Mounting type		High pressure type	KFD	Without Extension type	With Extension type	NZ16	KFD□□-11		✓		" -22		✓		" -33		✓		" -44	✓	✓		" -81			✓	" -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) Pressure regulator with filter (hot applicable to panel mounting type)	Pressure regulator with filter plus 40 mm pressure gauge. (supply pressure ; 200 to 970 kPa {2 to 9.9 kgf/cm <sup>2</sup> }, output; 140 kPa {1.4 kgf/cm <sup>2</sup> }, pressure gauge; 0 to 200 kPa {0 to 2 kgf/cm <sup>2</sup> })																																
(6) High accuracy type (applicable model KFDB□□-11-22)	<table border="1"> <thead> <tr> <th data-bbox="598 725 746 754">Model no.</th> <th data-bbox="746 725 1230 754">Measuring span kPa{mmH<sub>2</sub>O}</th> <th data-bbox="1230 725 1460 754">Accuracy</th> </tr> </thead> <tbody> <tr> <td data-bbox="598 754 746 784">KFDB□□ -11</td> <td data-bbox="746 754 1230 784">50 to less than 500 {5,000 to less than 50,000}</td> <td data-bbox="1230 754 1460 784">±0.25 (±0.375)*1</td> </tr> <tr> <td data-bbox="598 784 746 813">KFDB□□ -22</td> <td data-bbox="746 784 1230 813">5 to less than 53.9 {500 to less than 5,500}</td> <td data-bbox="1230 784 1460 813"></td> </tr> <tr> <td data-bbox="598 813 746 842">KFDB□□ -11</td> <td data-bbox="746 813 1230 842">25 to less than 50 {2,500 to less than 5,000}</td> <td data-bbox="1230 813 1460 842">±0.5 (±0.75)*1</td> </tr> <tr> <td data-bbox="598 842 746 871">KFDB□□ -22</td> <td data-bbox="746 842 1230 871">2.5 to less than 5 {250 to less than 500}</td> <td data-bbox="1230 842 1460 871"></td> </tr> </tbody> </table>	Model no.	Measuring span kPa{mmH <sub>2</sub> O}	Accuracy	KFDB□□ -11	50 to less than 500 {5,000 to less than 50,000}	±0.25 (±0.375)*1	KFDB□□ -22	5 to less than 53.9 {500 to less than 5,500}		KFDB□□ -11	25 to less than 50 {2,500 to less than 5,000}	±0.5 (±0.75)*1	KFDB□□ -22	2.5 to less than 5 {250 to less than 500}																		
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Note) \*1: When with elevation or suppression.

Optional Semi-standard and Special Specification

Item	Applicable Models	Specifications																				
(1) Vacuum use (Y23)	KFDB□□ - 11, 22, 6□, 7□, 8□ (Fig 1.) KFDB□□ - 7□ (Fig 2.)	<p><b>Relation of Process temperature and Pressure</b></p> <p>For details, please contact your Yamatake-Honeywell agent.</p>																				
(2) High temperature use (Y62)	KFDB□□ - 7□ (Fig 3.)																					
(3) High temperature-Vacuum use (Y62+Y23)	KFDB□□ - 7□ (Fig 4.)																					
(4) Steam block (Y29)	KFDB□□-11, 23, 33 (except PVC and monel cover)	<p>Max. operating pressure ; 5 MPa {50 kgf/cm<sup>2</sup>}</p> <p>Max. operating temperature; 250 °C (below 120 °C at meter body)</p> <p>Steam piping connection; PT ¼ or ½ NPT internal thread</p> <p>Material; Carbon steel (SF45A)</p>																				
(5) Stainless steel bolts (Y66)	KFDB□□-11, 22, 33, 6□, 8□	<p>SUS304 stainless steel is used for meter body fixing bolts.</p> <p>Max. operating pressure; [MPa]</p> <table border="1" data-bbox="842 763 1422 882"> <thead> <tr> <th></th> <th>SF45A</th> <th>SUS316</th> <th>Monel</th> <th>PVC</th> </tr> </thead> <tbody> <tr> <td>KFDB□□ - 11, 22, 6□</td> <td>6</td> <td>6</td> <td>6</td> <td>1.5</td> </tr> <tr> <td>" - 33</td> <td>2.5</td> <td>2.5</td> <td>2.5</td> <td>1</td> </tr> <tr> <td>" - 8□</td> <td>23</td> <td>23</td> <td>-</td> <td>-</td> </tr> </tbody> </table>		SF45A	SUS316	Monel	PVC	KFDB□□ - 11, 22, 6□	6	6	6	1.5	" - 33	2.5	2.5	2.5	1	" - 8□	23	23	-	-
	SF45A	SUS316	Monel	PVC																		
KFDB□□ - 11, 22, 6□	6	6	6	1.5																		
" - 33	2.5	2.5	2.5	1																		
" - 8□	23	23	-	-																		
(6) Corrosion resistant and silver finish (Y138)	All the KFD models	<p>Corrosion-resistant finish with baked acryl (Y138A) ; Resistant against corrosive gases.</p> <p>Corrosion-proof finish with baked epoxy resin (Y138B) : Resistant against corrosive liquids.</p> <p>Regular silver finish with baked acryl (Y138C) : To suppress temperature rise caused by direct sunlight or other cause.</p> <p>Corrosion-resistant silver finish with baked acryl (Y138D) : To suppress temperature rise caused as above and to be resistance against corrosive gases.</p> <p>(note: silver finish is not resistant against alkaline gases.)</p>																				
(7) Variable damping mechanism (Y169)	KFDB□□-11, 22, 33, 6□, 7□, 8□ (when measuring element material is SUS316 or SUS316L.)	<p>Time Constant:</p> <table border="1" data-bbox="826 1227 1433 1368"> <thead> <tr> <th rowspan="2">Model no.</th> <th colspan="2">Time constant (continuously variable)</th> </tr> <tr> <th>Min.</th> <th>Max.</th> </tr> </thead> <tbody> <tr> <td>KFDB□□ -11, 22, 8□</td> <td>0.5 sec. or less</td> <td>30 sec. or over</td> </tr> <tr> <td>KFDB□□ -33, 6□</td> <td>2 sec. or less</td> <td>30 sec. or over</td> </tr> <tr> <td>KFDB□□ - 7□</td> <td>6 sec. or less</td> <td>50 sec. or over</td> </tr> </tbody> </table> <p>Note: KFDB□□-44 is with min.2 sec. or less and max. 15 sec. or over</p>	Model no.	Time constant (continuously variable)		Min.	Max.	KFDB□□ -11, 22, 8□	0.5 sec. or less	30 sec. or over	KFDB□□ -33, 6□	2 sec. or less	30 sec. or over	KFDB□□ - 7□	6 sec. or less	50 sec. or over						
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KFDB□□ - 7□	6 sec. or less	50 sec. or over																				
(8) Rear connection for process piping (Y171)	KFDB□□-11, 22	Applicable only when cover material is carbon steel or SUS 316 (installation method is limited to that on a 2-inch horizontal pipe)																				
(9) For oxygen measurement (Y182)	All the KFD models (when measuring element material is SUS316 or SUS316L.)	Liquid fill ; Fluorine oil Operating temperature (both fluid and ambient); -10 to 60 °C Wet-part treatment; Treated for degreasing																				
(10) For chlorine gas measurement (Y183)	KFDB□□-11, 22, 33, 6□, 7□, 8□ (when measuring element material is tantalum.)	Liquid fill ; Fluorine oil Operating temperature (both fluid and ambient); -10 to 80 °C Wet-part treatment; Treated for degreasing																				
(11) Special order items (the items mentioned in the right are available as special order item.)	All the KFD models	<ol style="list-style-type: none"> <li>1) Door lock</li> <li>2) Stainless steel tag plate</li> <li>3) AUTO/MAN switch viewing window</li> <li>4) Pressure gauge (40 mm) for transmitting signal</li> </ol>																				

**MODEL SELECTION**

Basic model no.			Selections										Options	
Type	Function	Control action	Type of detector	Cover or flange <sup>1</sup> material		Pressure element material		Flange rating	Capillary tube length	Length of extended part of flange	Air connection	Pressure unit / Output		Mounting method
				HP <sup>2</sup>	LP <sup>3</sup>	HP	LP							
KFD	I	II	III	IV	V	VI	VII	VIII	IV	X	XI	XII	XIII	XIV

I	B0	Indicating transmitter	
	B1	Indicating controller (local type)	
	B2	Indicating transmitting controller (local type)	
	B3	Indicating controller (cascade type)	
	B4	Indicating transmitting controller (cascade type)	

II	0	No selection	5	PI + Batch
	1	P + Manual reset	6	On-Off
	2	PI	7	Differential gap
	3	PID	8	P + External reset
	4	PD + Manual reset	9	PD + External reset

III	11	Standard type	025 to 0500 kPa {02,500 to 0 50,000 mm H <sub>2</sub> O}
	22	Standard type	02.5 to 053.9 kPa {0250 to 0 50,000 mm H <sub>2</sub> O}
	33	Standard type	00.5 to 06 kPa {050 to 0 600 mm H <sub>2</sub> O}
	44	Standard type	00.1 to 01.2 kPa {010 to 0 120 mm H <sub>2</sub> O}
	61	Flange type	025 to 0500 kPa {02,500 to 0 50,000 mm H <sub>2</sub> O}
	62	Flange type	02.5 to 053.9 kPa {0250 to 0 5,500 mm H <sub>2</sub> O}
	71	Remote seal diaphragm type	025 to 0500 kPa {02,500 to 0 50,000 mm H <sub>2</sub> O}
	72	Remote seal diaphragm type	02.5 to 053.9kPa {0250 to 0 5,500 mm H <sub>2</sub> O}
	81	High static pressure type	025 to 0500 kPa {02,500 to 050,000 mm H <sub>2</sub> O}
	82	High static pressure type	025 to 053.9 kPa {0250 to 0 5,500 mm H <sub>2</sub> O}

IV	1	Carbon steel (SF45A)	
	2	SUS316 (applicable type 11, 22, 33, 44, or 8□ detector.)	
	3	Monel lining (base SUS316) (applicable to type 11, 22, or 33 detector.)	
	5	Rigid PVC (applicable type 11, 22, 33 detector.)	
	7	SUS304 (applicable to type 6□ or 7□ detector.)	

V	1	Carbon steel (SF45A)	
	2	SUS316 (applicable type 11, 22, 33, 44, 6□ or 8□ detector.)	
	3	Monel lining (base SUS316) (applicable to type11, 22, 33 or 6□ detector.)	
	5	Rigid PVC (applicable type 11, 22, 33 or 6□ detector.)	
7	SUS304 (applicable to type 7□ detector.)		

VI	2	SUS316 (diaphragm; SUS316L, SUS316 in case of type 44)	
	3	Monel (excluding type 44 and extended diaphragm of 6□ or 7□ detector.)	
	4	Tantalum (excluding type 44 and extended diaphragm of 6□ or 7□ detector.)	
	8	SUS316L (excluding type 44 detector.)	

VII	2	SUS316 (diaphragm; SUS316L, SUS316 in case of type 44)	
	3	Monel ( excluding type 44 and extended diaphragm of 7□ detector.)	
	4	Tantalum (excluding type 44 and extended diaphragm of 7□ detector.)	
	8	SUS316L (excluding type 44 detector.)	

VIII	SUS316 (diaphragm; SUS316L, SUS316 in case of type 44)		Applicable type is 6□ or 7□ detector	
	1	80 mm-JIS 10K (RF) equiv. flange		Flush diaphragm type
	2	80 mm-JIS 30K (RF) equiv. flange		
	3	3 in. -ANSI 150 (RF)equiv. flange		
	4	3 in. -ANSI 300 (RF) equiv. flange		
	5	100 mm-JIS 10K (RF) equiv. flange		Extended diaphragm type
	6	100 mm-JIS 30K (RF) equiv. flange		
	7	4 in. -ANSI 150 (RF)equiv. flange		
8	4 in.-ANSI 300 (RF) equiv. flange			

IX	Blank (applicable to type 11, 22, 33, 44, 6□ or 8□ detector)	
	02	2 m (applicable to type 7□ detector.)
	03	3 m (applicable to type 7□ detector.)
	05	5 m (applicable to type 7□ detector.)

X	Blank (applicable to type 11, 22, 33, 44, 6□ or 8□ detector.)	
	00	Applicable to flush diaphragm, wafer and button diaphragm type.)
	10	100 mm (applicable to extended diaphragm of type 6□ or 7□ detector.)
15	150 mm (applicable to extended diaphragm of type 6□ or 7□ detector.)	

XI	A	Rc ¼ internal thread (When this option chosen, instruction plate becomes Japanese version.)
	B	¼ NPT internal thread (When this option chosen, instruction plate becomes Japanese version.)

XII	1	0.2 to 1.0 kgf/ cm <sup>2</sup>
	2	3 to 15 PSI
	3	0.2 to 1.0 bar
	4	20 to 100 kPa
	8	19.6 to 98.1 kPa (equality to 0.2 to 1.0 kgf/cm <sup>2</sup> )

XIII	P	Panel mounting (not applicable to with air-set.)
	T	2 in. pipe mounting
	F	Flange mounting (applicable to type 61 or 62 detector.)

XIV	-X	No selection
	-M	Built in manual controller (with auto/manual transfer switch) (applicable to type B <sub>1</sub> , B <sub>2</sub> , B <sub>3</sub> or B <sub>4</sub> controller.)
	-K	With external SP setting knob (applicable to type B <sub>1</sub> or B <sub>2</sub> controller.)
	-5	Elevation
	-6	Suppression
	-7	Pressure regulator with filter

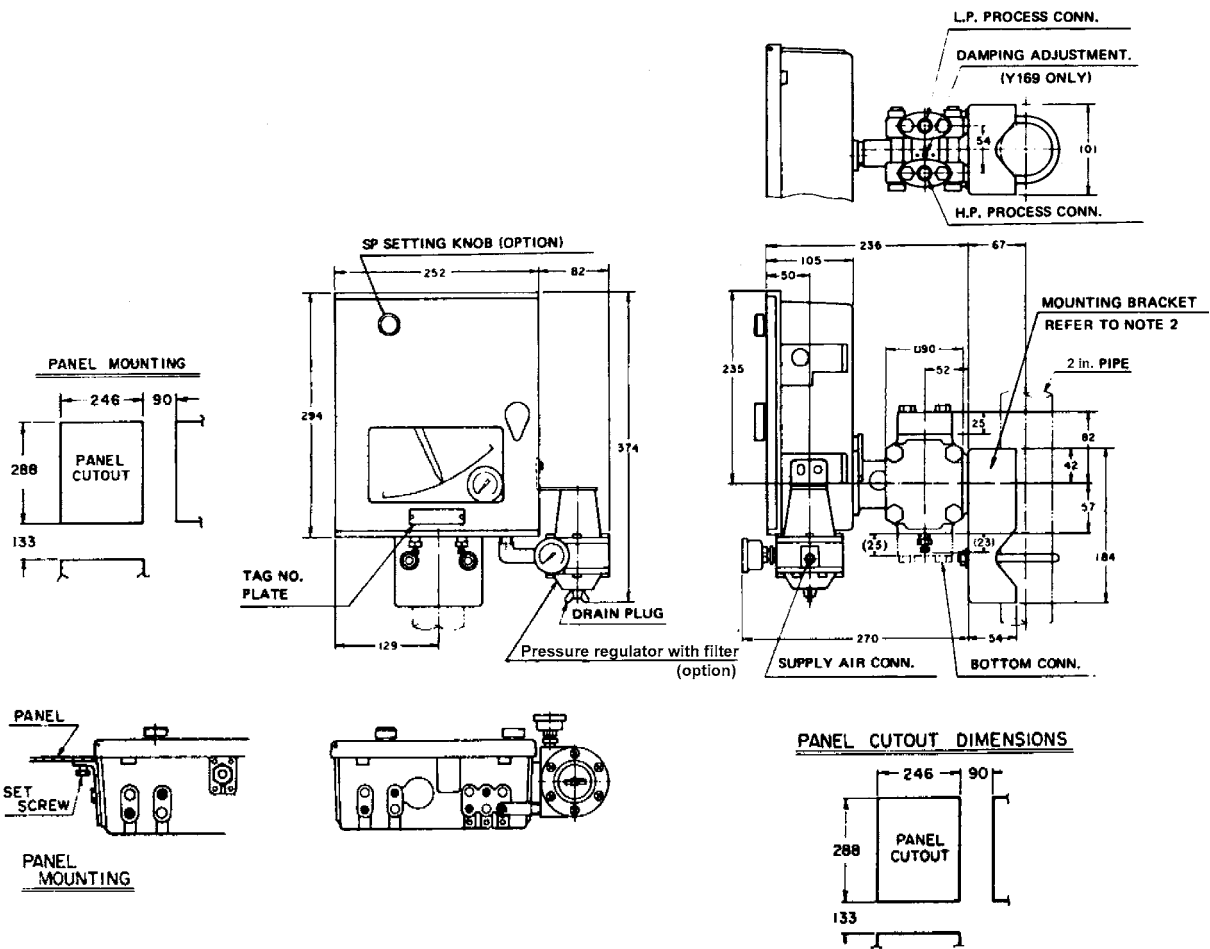
[Notes]

- 1) For material of cover and flange.
- \*1. Cover material denote for detector type 11/22/33/44/61 LP<sup>3</sup>/62LP<sup>3</sup>/81 or 82. Flange materials denote for detector type 61HP<sup>2</sup>/62HP<sup>2</sup>/71 or 72.
- \*2. For detector type 61 or 62; Flange material
- \*3. For detector type 61 or 62; Chamber cover material

- 2) When specifying semi- standard option (Y□) not listed in model no. table, please write as; KFD11Y-112222A1T-M,K,6,7 (Y66,Y138). Please consult with factory in case of a multiple of "Y" spec. are required.)

**DIMENSIONS**

(Unit:mm)



**AIR CONNECTIONS (Refer to note 1, 4)**

- : Rc ¼ internal
- : ¼ NPT internal

**REGEND**

- ESP : EXTENAL SP SIGNAL  
(FOR CASCADE TYPE ONLY)
- × : 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 connection are plugged.
- 2) These holes in the bracket enable the controller to be mounted in various position.
- 3) For manual reset provision, "SUP" and "RES" have been preconnected.
- 4) This dimensions are of bourdon type detector. (detector model nos 11~14). Caution must be taken to dimensions which depend on the shape of elements. (refer to the reference specification sheets at the rear of this sheet.)

**Ordering Information**

When ordering please specify;

- 1) Model no.
- 2) Pressure range
- 3) Options







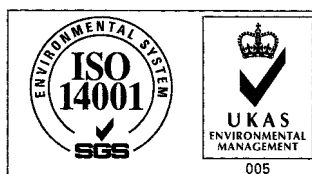
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Certificate No. E8318  
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