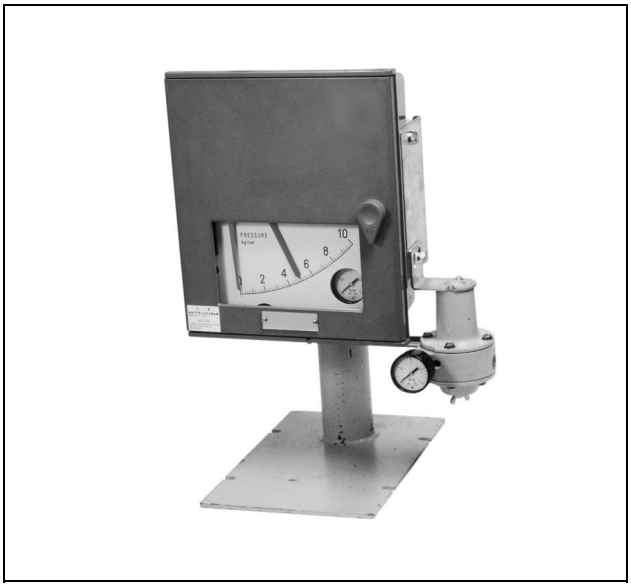
KF Series
Pressure Indicating Controller
Model KFP

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 pressures, temperatures, flows and liquid levels.

Model KFP Pressures Indicating Controllers indicate and control a process variable by converting its pressure change into mechanical displacement of a bellows or a spiral pressure receiving element.

Indicating transmitter 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 hard 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 modification and expansion flexibility.
- Interchangeable parts are used to the maximum practicable extent, thereby reducing the number of parts to be kept in stock.
- A balancing weight and a pulsation damping spiral (optional) are employed, thereby making the instruments highly resistant against mechanical vibration and process pulsation. (Type approvals awarded by Lloyd's Register of Shipping and Nippon Kaiji Kyokai.)

SPECIFICATIONS

Standard Specifications

Item		Specification
Detector Section		
	Measuring range	SUS316 bellows; 0 to 50, 0 to 100, 0 to 150, 0 to 200 kPa {0 to 0.5, 0 to 1, 0 to 1.5, 0 to 2 kgf/cm^2} gauge pressure SUS316 spiral; 0 to 300, 0 to 400, 0 to 500, 0 to 600, 0 to 1000 kPa {0 to 3, 0 to 4, 0 to 5, 0 to 6, 0 to 10 kgf/cm^2} 0 to 1.5, 0 to 2, 0 to 2.5, 0 to 3.5, 0 to 5 MPa {0 to 15, 0 to 20, 0 to 25, 0 to 35, 0 to 50 kgf.cm^2} 0 to 7, 0 to 10, 0 to 15, 0 to 25, 0 to 35 MPa {0 to 70, 0 to 100, 0 to 150, 0 to 250, 0 to 350 kgf/cm^2} gauge pressure Phosphor bronze bellows; 20 to 100 kPa {0.2 to 1.0 kgf/cm^2} pneumatic pressure signal SUS316 bellows; -101.3 to 0 kPa { -760 to 0 mmHg} negative pressure
	Allowable over to range without re-calibration	Span of 7 MPa {70 kfg/cm^2} or less; Maximum pressure plus 50% of span Span of 10 MPa {100 kgf/cm^2} or more; Maximum pressure plus 20% of span
	Process connection	G¼ internal thread
Function		
	Accuracy	± 1% FS (± 1.5% FS for range of 0 to 15 MPa {0 to 150 kgf/cm^2} or more.)
	Repeatability	Within 0.3% Fs (within 0.45% FS for range of 0 to 15 MPa {0 to 150 kgf/cm^2} or more.)
	Dead band	Within 0.2% FS (within 0.3% FS for range of 0 to 15 MPa {0 to 150 kgf/cm^2} or more.)
Indication		
	Angle	44 degrees
	Scale length	150mm
	Pointer	Process variable ; Red, Set to point value ; Green
	Output indicator (∅ 40 mm)	Scale range; 0 to 200 kPa {0 to 2 kgf/cm^2}, Indicator accuracy; ± 3% FS
Set to point Section		
	Local Setting	Internal or external by setting knob
	Remote setting	Pneumatic pressure setting of 20 to 100 kPa {0.2 to 1.0 kgf/cm^2}
	Setting range	0 to 100% FS
Controller		
	Control action	P + Manual reset, PI, PID, PD +Manual reset, PI + Batch, On to Off, Differential gap, P + External reset, PD + External reset
	Proportional band (P)	5 to 500% (direct or reverse action)
	Integral (I)	0.05 to 30 min.
	Derivative (D)	0.05 to 30 min.
	Differential gap	1 to 100% FS, adjustable
	Batch setting pressure	60 to 110 kPa {0.6 to 1.1 kgf/cm^2}, adjustable
	External reset pressure	20 to 100 kPa {0.2 to 1.0 kgf/cm^2}
	Manual reset	0 to 100% FS, adjustable (by pneumatic pressure setting.)
General Specifications		
	Output	20 to 100 kPa {0.2 to 1.0 kgf/cm^2}, 0 or Corresponding to supply air pressure (on to off, differential gap)
	Minimum load	I.D. 4 mm × 3 m + 20 cm^3
	Supply air pressure	140 ± 14 kPa {1.4 ± 0.14 kgf/cm^2}
	Air consumption (50% output balanced)	Indicating transmitter (A0) ; 4 L/min [N] Indicating controller (A1, A3) ; 4 L/min [N] Indicating transmitting controlling (A2, A4) ; 8 L/min [N] Manual controller (M) ; 3 L/min [N]
	Saturated air supply capacity	Transmitter output ; 40 L/min [N] Controller output ; 40 L/min [N] Manual control output ; 30 L/min [N]
	Air connection	Rc¼ or ¼ NPT internal thread
	Ambient temperature	30 to 80°C
	Relative humidity	10 to 90% RH
	Case, Door	Enclosure ; Rain to tight and dust to tight, meets JIS F8001 Class 3 splash to proof, NEMA 3, IEC IP54 Vibration resistant.....Lloyd regulation or equivalent Materials ; Case .....Aluminum die to cast Door.....Polyester with fiberglass Door –glass.....Reinforced glass (3 mm thick) Case finish ; Acryl baking finish (for corrosion to resistant and silver finish, refer to the optional specification.) Color of finish ; Dark beige (munsell 10YR 4.7 / 0.5)
	Mounting	Panel, wall or 2 to inch pipe mounting (mounting bolt, nut material; SUS304)
	Weight	Approx. 5.8 kg (local model PI controller using 0 to 294 kPa {0 to 3 kgf/cm^2} element without option.)

Optional Specifications

Item	Specification
(1) External SP setting knob (for local setting)	A setting knob is mounted on the door. SP can be adjusted from outside.
(2) Built to in manual controller (with auto to manual transfer switch)	Consists of a manual control regulator, two position transfer switch and balance check button.
(3) Air set (not applicable to panel mounting type)	Pressure regulator with filter plus 40 mm pressure gauge. (supply pressure; 200 to 970 kPa {2 to 9.7 kgf/cm^2} output; 140 kPa {1.4 kgf/cm^2}, pressure gauge; 0 to 200 kPa {0 to 2 kgf/cm^2})

Optional Semi to standard and Special Specifications

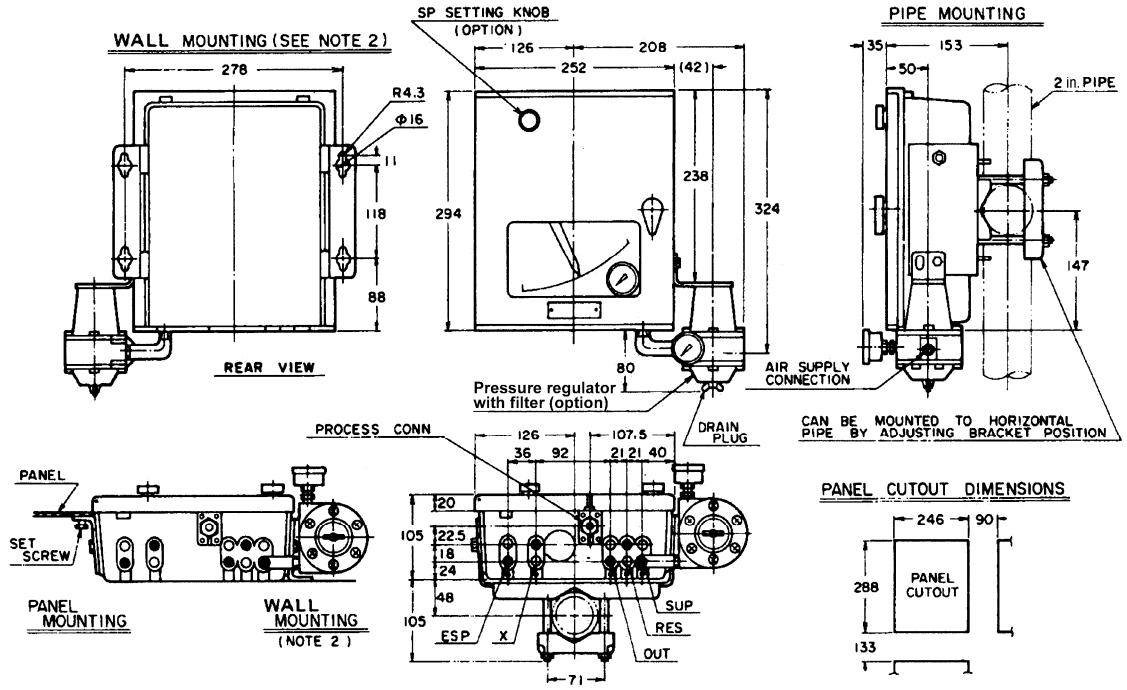
Item	Specification
(1) Corrosion to resistant and silver finish (Y 138)	*Corrosion to resistant finish with baked acryl (Y 138A)* : Resistant against corrosive gases. *Corrosion to proof finish with baked epoxy resin (Y 138B)* : Resistant against corrosive liquids. *Regular silver finish with baked acryl (Y138C)* : To suppress temperature rise caused by direct sunlight or other cause. *Corrosion to resistant silver finish with baked acryl (Y 138D)* : To suppress temperature rise cause as above and to be resistance against corrosive gases. (note: silver finish is not resistant against alkaline gases.)
(2) Oil to free (Y 158)	Oil to free treatment. (excluding 20 to 100 kPa {0.2 to 1.0 kgf/cm^2}, pneumatic signal receiving type.)
(3) Special order items (the items mentioned in the right are available as special order items.)	1) Elevation (a) For measuring ranges less than 9.81 MPa {100 kgf/cm^2}: Up to 20% of maximum value of span. (b) For measuring ranges 10 MPa {100 kgf/cm^2} or over: Up to 10% of maximum value of span. 2) Process pipe connections: Rc½, ½NPT, Rc¼, ¼NPT internal thread 3) Spiral element with pulsation damper 4) Indication only 5) Door lock key 6) Compound meter Bellows type: to 101 to 19.6 kPa { to 760 to 0.2 mmHg} to 101 to 98.1kPa { to 760 to 1 mmHg} to 98.0 to 49.0 kPa { to 1 to 0.5 kgf/cm^2} to 98.0 to 98.0 kPa { to 1 to 1 kgf/cm^2} to 24.5 to 24.5kPa { to 0.5 to 0.5 kgf/cm^2} Spiral type: Standard ranges with 0 to 3.43 MPa {0 to 35 kgf/cm^2} Indicating accuracy: +1.5% FS 7) Stainless steel tag plate 8) AUTO/MAN switch viewing window 9) Pressure gauge (40 mm) for transmitting signal

MODEL SELECTION

Base Model No.			Selections					Options	Description
Type	Function	Control action	Type of detector	Measuring range	Air connection	Output pressure unit	Mounting method		
KFP									Pressure indicating controller
	A0								Indicating transmitter
	A1								Indicating controller (local type)
	A2								Indicating transmitter controller (local type)
	A3								Indicating controller (cascade type)
	A4								Indicating transmitter controller (cascade type)
		0							No selection
		1							P + Manual reset
		2							PI
		3							PID
		4							PD + Manual reset
		5							PI + Batch
		6							On-Off
		7							Differential gap
		8							P + External reset
		9							PD + External reset
			-01						Spiral type
			-02						Bellows type
			-03						Pneumatic signal receiving type
				003					Spiral type 0 to 300 kPa {3 kgf/cm^2}
				004					" 0 to 400 kPa {4 kgf/cm^2}
				005					" 0 to 500 kPa {5 kgf/cm^2}
				006					" 0 to 600 kPa {6 kgf/cm^2}
				010					" 0 to 1000 kPa {10 kgf/cm^2}
				015					" 0 to 1500 kPa {15 kgf/cm^2}
				020					" 0 to 2000 kPa {20 kgf/cm^2}
				025					" 0 to 2500 kPa {25 kgf/cm^2}
				035					" 0 to 3500 kPa {35 kgf/cm^2}
				050					" 0 to 5000 kPa {50 kgf/cm^2}
				070					" 0 to 7000 kPa {70 kgf/cm^2}
				100					" 0 to 10 MPa {100 kgf/cm^2}
				150					" 0 to 15 MPa {150 kgf/cm^2}
				250					" 0 to 25 Mpa {250 kgf/cm^2}
				350					" 0 to 35 MPa {350 kgf/cm^2}
				760					Bellows type 0 to -101.3 kPa{-760 mmHg} (Negative pressure)
				805					" 0 to 50 kPa {0.5 kgf/cm^2}
				810					" 0 to 100 kPa {1.0 kgf/cm^2}
				815					" 0 to 150 kPa {1.5 kgf/cm^2}
				820					" 0 to 200 kPa {2 kgf/cm^2}
				821					Pneumatic signal 20 to 100 kPa {0.2 to 1.0 kgf/cm^2} receiving type
					A				Rc 1/4 internal thread (When this option chosen, instruction plate becomes Japanese version)
					B				1/4 NPT internal thread (When this option chosen, instruction plate becomes English version)
						1			0.2 to 1.0 kgf/cm^2
						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^2)
							P		Panel mounting (pressure regulator with filter cannot be installed)
							S		Wall mounting
							T		2-inch pipe mounting
								-X	No option
								-K	With external SP setting knob (applicable to type A1 or A2 controller.)
								-M	Built-in manual controller (with auto/manual switch)
								-7	With pressure regulator with filter

DIMENSIONS

(Unit: mm)



AIR CONNECTIONS (Refer to note 1, 3)

- o : 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) If two or more instruments are to be mounted on wall, keep them apart at least 80 mm (163 mm for instruments with air set) horizontally and at least 126 mm vertically.
3) For manual reset provision, “SUP” and “RES” have been preconnected.

Ordering Information

When ordering please specify;

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

Note

Please, read 'Terms and Conditions' from following URL before the order and use.

http://www.azbil.com/products/bi/order.html

Specifications are subject to change without notice.

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