

Yamatake-Honeywell

SPECIFICATION

## KF SERIES (FIELD TYPE) PRESSURE INDICATING CONTROLLER MODEL:KFP(FIXED RANGE TYPE)

### General

Each of KF Series instruments consists of two major items: one is the measuring element which detects the process variable and the other is the indicating controller section which is common for all models of instruments. Simply by changing measuring elements, the same instrument can be used to measure and control such basic process variables as temperature, pressure, flow rate, and liquid level, with a standardized pneumatic signal of 0.2 to 1.0 kg/cm<sup>2</sup>.

The KFP type pressure indicating controller measures and controls the gauge pressure ranged from the 0~0.5 to 0~350kg/cm<sup>2</sup>. The pneumatic pressure signals in the 0.2~1.0kg/cm<sup>2</sup> range and the negative pressure in the -760~0mmHg range also measure and control.

### Features

#### • Various models and functions:

Simply by changing measuring elements, the instrument can also measure process variables (temperature, pressure, and flow) other than liquid level, and can perform receiving and controlling functions on the detected pneumatic signal. Various control actions are available, such as P, PI, PID, PD, and PI batch actions. Also, various provisions are incorporated for such operations as ON-OFF, differential gap, manual reset, and external reset operations.

#### • High reliability:

The KF Series instruments employ a pneumatic circuit block system, as the first of its kind for field type instruments. This system eliminates the use of air tubing which could often cause air leakage, thereby greatly enhancing instrument reliability. The case is made of non-flammable metal, providing sufficient sturdiness, heat resistance, and weather resistance. The instrument provides water resistant and dust resistant features equivalent to NEMA3, IP54, and JIS F8001, Class 3 water spray test.

#### • Convenient expandability of functions and high flexibility of use:

Various control functions are selectable and a number of optional features

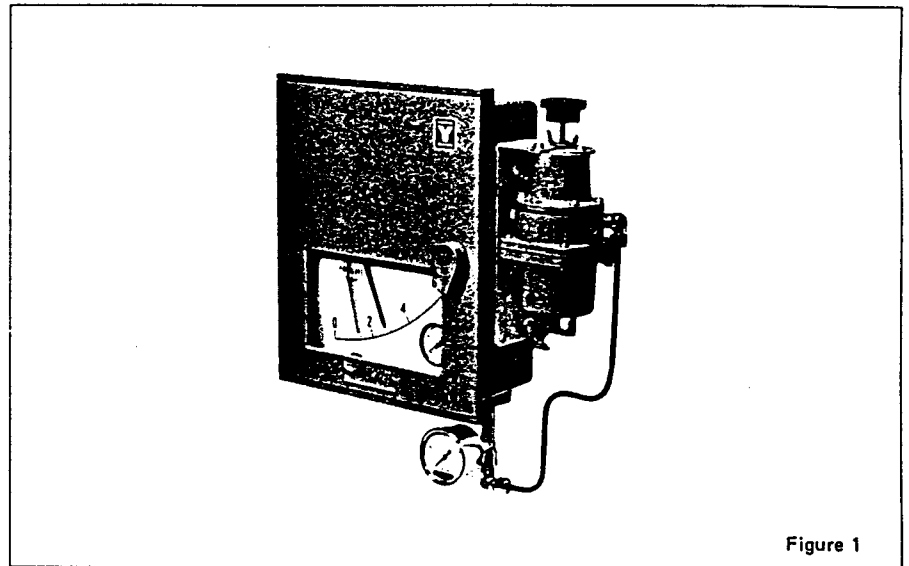


Figure 1

are available. These can be conveniently selected and coupled as the pneumatic circuit block system is employed, thereby making this field instrument as flexible in use as panel instruments.

#### • High maintainability, interchangeability, and economy:

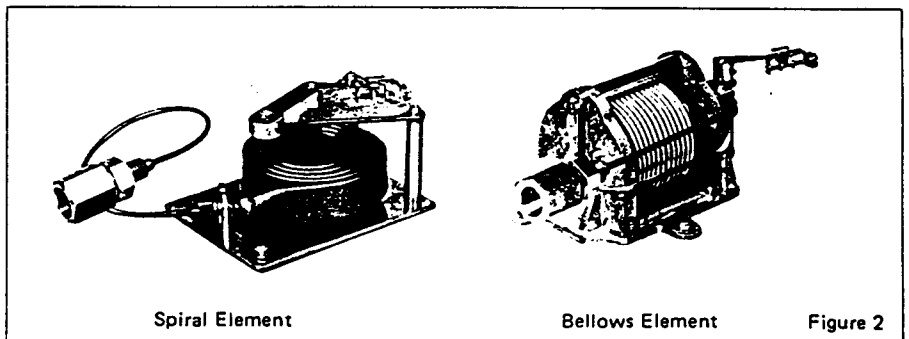
Measuring elements are interchangeable with those of other existing models of pneumatic instruments supplied by Yamatake-Honeywell. Components except the measuring elements are interchangeable, thereby greatly reducing the number of replacement spares to be kept in stock. Various expandable features and optional features are available, enhancing operability, maintainability, reduction in replacement spares, and economy.

#### • Prevention of troubles:

Screws are identified between those for clamping (Phillips screws) and those for adjustments (plain screws). Provisions are made to prevent troubles caused by simple errors, such as prevention of erroneous assembling of parts.

#### • Vibration Resistance Characteristics

The vibration resistance characteristic, which was not satisfactory with the use of a spiral element, etc., has been improved by the adoption of a blance design in which a deviation angle due to pressure changes is taken from the center of the element. (Equivalent to Lloyd's requirement)



Spiral Element

Bellows Element

Figure 2

## Standard-Specifications

Item		Specifications	
Sensing element	Measuring range	316SS Bellows : 0~0.5, 0~1, 0~1.5, 0~2 (kg/cm <sup>2</sup> Gage pressure) 316SS Spiral : 0~3, 0~4, 0~5, 0~6, 0~10, 0~15, 0~20, 0~25, 0~35, 0~50, 0~70, 0~100, 0~150, 0~250, 0~350 (kg/cm <sup>2</sup> Gage pressure) Phosphor bronze bellows : 0.2~1.0 (kg/cm <sup>2</sup> Pneumatic pressure signal) 316SS Bellows : -760~0 (mmHg Negative pressure)	
	Allowable overrange without recalibration	Span of 70kg/cm <sup>2</sup> or less; Maximum pressure +50 % of span Span of 100kg/cm <sup>2</sup> or more; Maximum pressure +20 % of span	
	Process connection	PF $\frac{1}{4}$ (ISO R228 $\frac{1}{4}$ " ) tap thread	
Function	Accuracy	$\pm 1$ % FS ( $\pm 1.5$ % FS for range of 0 ~ 150kg/cm <sup>2</sup> or more)	
	Repeatability	Within 0.3 % FS (Within 0.45 % FS for range of 0 ~ 150kg/cm <sup>2</sup> or more)	
	Dead band	Within 0.2 % FS (Within 0.3 % FS for range of 0 ~ 150kg/cm <sup>2</sup> or more)	
Indication	Angle	44 degrees	
	Scale length	150mm	
	Pointer	Process variable . . . Red, Setpoint value . . . Green	
Set-point section	Output indicator	Scale range : 0 ~ 2kg/cm <sup>2</sup> , Indicator accuracy : $\pm 3$ % FS	
	Local setting	Internal or external setting by setting knob.	
	Remote setting	Pneumatic pressure setting of 0.2 ~ 1.0kg/cm <sup>2</sup> .	
Controller	Setting range	0 ~ 100 % FS	
	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 ~ 30 min.	
	Derivative (D)	0.05 ~ 30 min.	
	Differential gap	1 ~ 100 % FS, adjustable	
	Batch setting pressure	0.6 ~ 1.1kg/cm <sup>2</sup> , adjustable	
	External reset pressure	0.2 ~ 1.0kg/cm <sup>2</sup>	
	Manual reset	0 ~ 100% FS, adjustable (By pneumatic pressure setting.)	
	General specifications	Output	0.2 ~ 1.0kg/cm <sup>2</sup>
Minimum load		I.D. 4mm x 3m + 20cm <sup>3</sup>	
Supply air pressure		1.4 $\pm$ 0.14 kg/cm <sup>2</sup>	
Air consumption (50% output balanced)		Indicating and transmission	: 4 Nℓ/min.
		Indicating and control	: 4 Nℓ/min.
		Indicating and control and air pressure transmission	: 8 Nℓ/min.
Saturated air supply capacity		Pneumatic transmission	: 40 Nℓ/min.
		Output	: 40 Nℓ/min.
Manual pneumatic pressure			: 30 Nℓ/min.
		Air connection	PT $\frac{1}{4}$ (ISO R7 $\frac{1}{4}$ " ) or $\frac{1}{4}$ " NPT tap thread
Ambient temperature	-30 ~ +80°C		
Relative humidity	10 ~ 90 % RH		
Case, Door	Enclosure	: Rain-tight and dust-tight, meets JIS F8001 Class III splash-proof NEMA 3 IEC IP54 Vibration resistant . . . Lloyd regulation or equivalent	
	Materials	: Case . . . . . Aluminum die-cast Door . . . . . Polyester with fiberglass Door-glass . . . . Reinforced glass (3mm thick, JIS R 3206, equivalent)	
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	Wall, 2-inch pipe or panel mounting. (Mounting bolt and nut mat'l . . . 304 SS)		
Net weight	Approx. 5.8kg (Local mode PI controller using 0 ~ 3kg/cm <sup>2</sup> element without option.)		

## Options (Accessories)

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)	Consists of a manual control regulator, two position transfer switch and balance check button.
(3) Air set	Adjustable combination regulator with 50mm gauge mounted and piped to controller, not available with panel mounted controller.

## Semi-Standard Options

Item	Specifications
(1) Corrosion-resistant and silver finish (Y138)	Corrosion-resistant (Acryl baking) finish (Y138A); Resistance for corrosive gases. Corrosion-proof (Epoxy baking) finish (Y138B); Resistance for corrosive liquids. Silver-normal (Acryl baking) finish (Y138C); Protection for temperature rise of device caused by direct sun light, radiation heat, etc. Silver-corrosion-resistant (Acryl baking) finish (Y138D); Protection for above-mentioned temperature rise and resistance for corrosive gases. (Note: Silver finish is not applicable for alkaline gases.)
(2) Oil-free (Y158)	Oil-free treatment. (Excluding 0.2 ~ 1.0kg/cm <sup>2</sup> pneumatic signal receiving type.)

# Model Number Table

Ex. KFP 102-01003AT-K, M, 7

Basic Model No.			Selections				Options	Description
Type	Function	Control action	Sensing element	Measuring range	Air connection	Mounting method		
KFP							Pressure indicating controller	
	0						Indicating transmitter	
	1						Indicating controller (Local type)	
	2						Indicating transmitting controller (Local type)	
	3						Indicating controller (Cascade type)	
	4						Indicating transmitting controller (Cascade type)	
	00						No selection	
	01						P + Manual reset	
	02						PI	
	03						PID	
	04						PD + Manual reset	
	52						PI + Batch	
	65						On-Off	
	66						Differential gap	
	71						P + External reset	
	74						PD + External reset	
			-01				Spiral type	
			-02				Bellows type	
			-03				Pneumatic signal receiving type	
				003			Spiral type 0 ~ 3kg/cm <sup>2</sup>	
				004			" 0 ~ 4kg/cm <sup>2</sup>	
				005			" 0 ~ 5kg/cm <sup>2</sup>	
				006			" 0 ~ 6kg/cm <sup>2</sup>	
				010			" 0 ~ 10kg/cm <sup>2</sup>	
				015			" 0 ~ 15kg/cm <sup>2</sup>	
				020			" 0 ~ 20kg/cm <sup>2</sup>	
				025			" 0 ~ 25kg/cm <sup>2</sup>	
				035			" 0 ~ 35kg/cm <sup>2</sup>	
				050			" 0 ~ 50kg/cm <sup>2</sup>	
				070			" 0 ~ 70kg/cm <sup>2</sup>	
				100			" 0 ~ 100kg/cm <sup>2</sup>	
				150			" 0 ~ 150kg/cm <sup>2</sup>	
				250			" 0 ~ 250kg/cm <sup>2</sup>	
				350			" 0 ~ 350kg/cm <sup>2</sup>	
				760			Bellows type 0 ~ -760mmHg	
				805			" 0 ~ 0.5kg/cm <sup>2</sup>	
				810			" 0 ~ 1kg/cm <sup>2</sup>	
				815			" 0 ~ 1.5kg/cm <sup>2</sup>	
				820			" 0 ~ 2kg/cm <sup>2</sup>	
				821			Pneumatic signal (0.2 ~ 1.0kg/cm <sup>2</sup> ) receiving type	
					A		PT $\frac{1}{4}$ (ISO R7 $\frac{1}{4}$ " ) tap thread	
					B		$\frac{1}{4}$ " NPT tap thread	
						P	Panel mounting	
						S	Wall mounting	
						T	2-inch pipe mounting	
						-X	No selection	
						-K	With external SP setting knob	
						-M	Built-in manual controller (With auto/manual switch)	
						-7	With air-set	

[Note]

1) When specifying semi-standard option (Y□), please write as:  
KFP102Y-01003AT-K, M, 7 (Y138, Y158)

**Overall Dimensions**

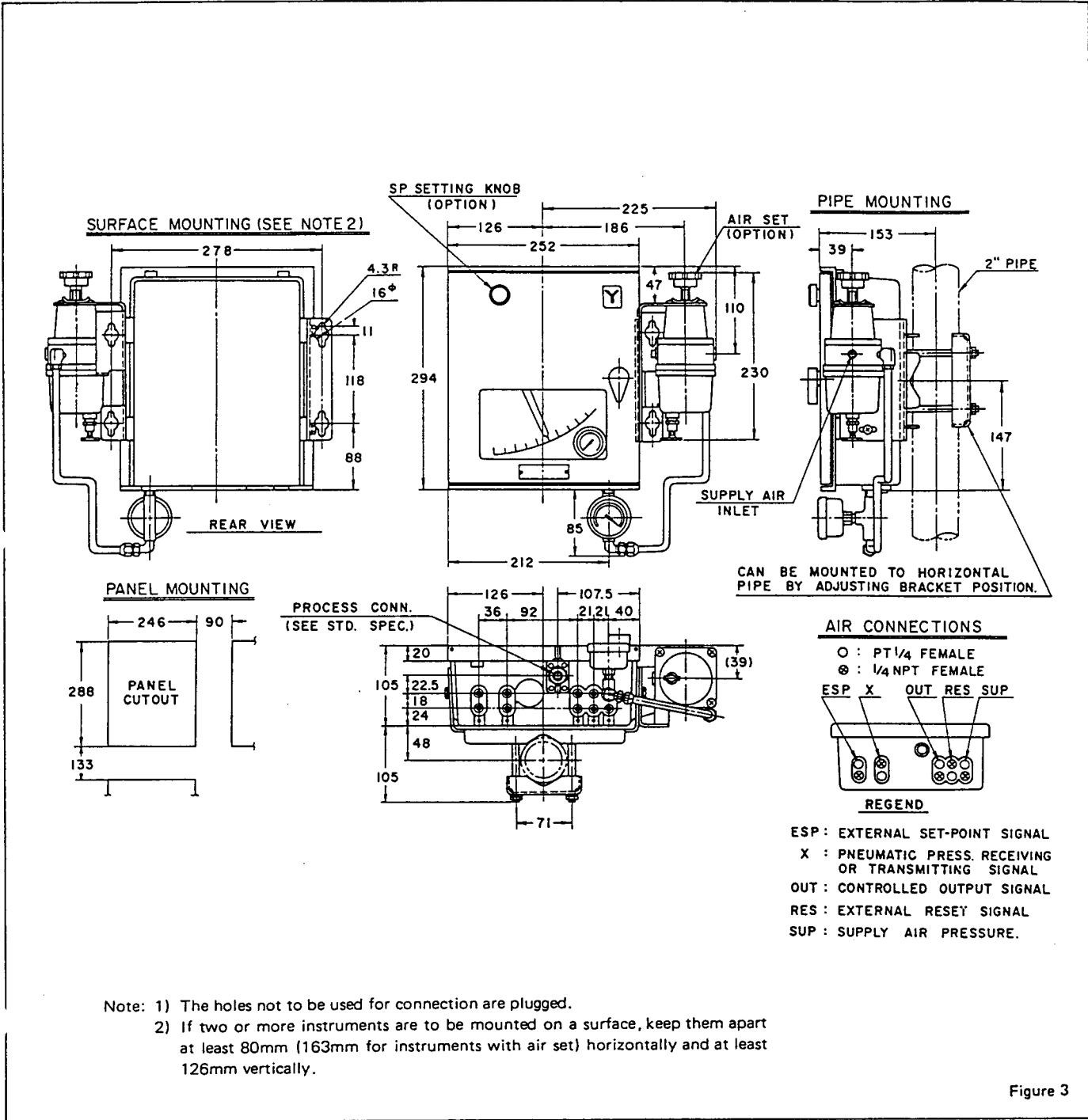


Figure 3

**Ordering Information**  
 When ordering, please specify:  
 1) Model no.  
 2) Pressure range  
 3) Options

\* Reference instruction manual . . . . . OM2-611-010

\* Specifications are subject to change without notice.

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