Flush Diaphragm Pressure Transmitter Model: P510 Series(Ceramic Diaphragm) P520 Series(Stainless steel Diaphragm)



Advantages

- Flush diaphargm with ceramic or stainless steel
- Measuring ranges from 1 to 50kgf/cm² for P510 series and 0.2 to 35kgf/cm² for P520 series
- Shock and vibration resistant
- · Zero and Span adjustable





P515

P516



The transmitters are specially designed for pressure measurement in sticky, high viscous liquids.

- Process control for food and beverage industry
- · Tank level measurement
- · Chemical and petrochemical industry
- Equipment and machinery for paint, ink, resin and dough process
- Cosmetic and pulp industry
- Pharmaceuticals





P527

P528

Descriptions

Flush mounted pressure transmitters are perfectly suitable for measuring static pressure in sticky and high viscous liquids in industrial applications. They incorporate a fully temperature compensated piezoresistive ceramic sensor which is corrosion resistant, and a strong, durable flush mounted diaphragm. The transmitters are available as absolute and relative pressure types with either 2-wire current or 3-wire voltage output. The versatile process connections including thread, flange and clamp mounting are available by customer requirement.

The pressure to be measured acts without transmitting liquid on a stable, corrosion resistant ceramic measuring cell. Piezoresistive resistors are attached to the cell and connected into a Wheatstone bridge configuration. The output signal of this bridge is converted into a standardized current or voltage output signal.

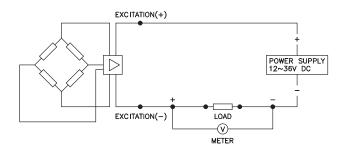
Specification

Model	Input				
Pressure ranges 1 to 50kgf/cm² relative 0~0.1 to 35kgf/cm² relative Oraction of the processor of th	Model	P510 Series	P520 Series		
Pressure reference vacuum Gauge, absolute 0~1 to 35kgf/cm² absolute Pressure reference vacuum Gauge, absolute compound Overload 1.5x full scale without damage 3x full scale without damage Output Un-amplified 2.0~3.3m V/V 5.0mm V/V Amplified 4~20mA current(2-wire) 1~5V voltage(3 or 4-wire) Other output signal available on request Electrical Specification Excitation voltage 12~36V DC Load resistance max@24V 500 \(\overline{Q}\) at 24V Influence of excitation 0.01% FSO/V Power ripple ≤500mV P-P Reverse polarity Protected Shock resistance ≤20g ≤10g Response time 1.5ms ≤2 milliseconds Adjustment ±10% FSO/zero and span ±10% FSO/zero and span Performance Specification Accuracy ≤±0.5% FSO ≤±0.25% FSO Linearity.Hysteresis & Repeatability ±0.2~0.4% FSO typical ±0.05% FSO typical Stability ±0.3% FSO/a@25°C ±0.15% FSO/a@35°C Cutoff frequency(-3 d B) ≤2KHz Reference temperature 25°C 35°C Operating temperature range -40~125°C -40~125°C Compensated temperature range 0~70°C 0~82°C Thermal zero shift ≤±0.015%/ °C typical ≤±0.05% FSO typical Process connection PF3/4", male thread as a standard Other connections available on request	Technology	Piezoresistive ceramic pressure sensor	Piezoresistive silicon pressure sensor		
Pressure reference	Pressure ranges	1 to 50kgf/cm² relative	0~0.1 to 35kgf/cm² relative		
Overload 1.5x full scale without damage 3x full scale without damage Output 0utput 5.0mm V/V Amplified 2.0~3.3m V/V 5.0mm V/V Amplified 4~20mA current(2-wire) 1~5V voltage(3 or 4-wire) Other output signal available on request Electrical Specification Excitation voltage 12~36V DC Load resistance max@24V 500 Ձ at 24V Influence of excitation 0.01% FSO/V Power ripple ≤500mV P-P Reverse polarity Protected Shock resistance ≤20g ≤10g Response time 1.5ms ≤2 milliseconds Adjustment ±10% FSO/zero and span ±10% FSO/zero and span Performance Specification <2±0.5% FSO		0~1 to 50kgf/cm² absolute	0~1 to 35kgf/cm² absolute		
Output Un-amplified 2.0~3.3m V/V 5.0mm V/V Amplified 4~20mA current(2-wire) 1~5V voltage(3 or 4-wire) Other output signal available on request Electrical Specification Excitation voltage 12~36V DC Load resistance max@24V 500 𝑔 at 24V Influence of excitation 0.01% FSO/V Power ripple ≤500mV P-P Reverse polarity Protected Shock resistance ≤20g ≤10g Response time 1.5ms ≤2 milliseconds Adjustment ±10% FSO/zero and span ±10% FSO/zero and span Performance Specification Accuracy ≤±0.5% FSO ≤±0.25% FSO Linearity,Hysteresis & Repeatability ±0.2~0.4% FSO typical ±0.05% FSO typical Stability ±0.3% FSO/a@25°C ±0.15% FSO/a@35°C Cutoff frequency(-3 d B) ≤2KHz Reference temperature 25°C 35°C Operating temperature range -0~125°C -40~125°C Compensated temperature range 0~70°C 0~82°C Thermal sensitivity shift ≤±0.015% °C typical	Pressure reference				
Un-amplified 2.0~3.3m V/V 5.0mm V/V	Overload	1.5x full scale without damage	3x full scale without damage		
Amplified 4~20mA current(2-wire) 1~5V voltage(3 or 4-wire) Other output signal available on request Electrical Specification Excitation voltage 12~36V DC Load resistance max@24V Influence of excitation 0.01% FSO/V Power ripple Second Protected Shock resistance 220g Response time 1.5ms 4.0% FSO/zero and span Performance Specification Accuracy 4.0.5% FSO Linearity,Hysteresis & Repeatability \$\frac{\pmathbb{\text{2}}{\pmathbb{\text{3}}} \pmathbb{\text{2}}{\pmathbb{\text{2}}} \pmathbb{\text{2}}{	Output				
1~5V voltage(3 or 4-wire) Other output signal available on request	Un-amplified	2.0~3.3m V/V	5.0mm V/V		
Electrical Specification Excitation voltage 12~36V DC Load resistance max@24V 500	Amplified	4~20mA current(2-wire)			
Electrical SpecificationExcitation voltage 1236V DCLoad resistance $\max @ 24\text{V}$ $500 \ \varOmega$ at 24V Influence of excitation $0.01\% \text{ FSO/V}$ Power ripple $\leq 500\text{mV}$ P-PReverse polarityProtectedShock resistance $\leq 20g$ $\leq 10g$ Response time 1.5ms ≤ 2 millisecondsAdjustment $\pm 10\% \text{ FSO/zero}$ and span $\pm 10\% \text{ FSO/zero}$ and spanPerformance SpecificationAccuracy $\leq \pm 0.5\% \text{ FSO}$ $\leq \pm 0.25\% \text{ FSO}$ Linearity,Hysteresis & Repeatability $\pm 0.3\% \text{ FSO/a} @ 25^{\circ}\text{C}$ $\pm 0.05\% \text{ FSO}$ typicalStability $\pm 0.3\% \text{ FSO/a} @ 25^{\circ}\text{C}$ $\pm 0.15\% \text{ FSO/a} @ 35^{\circ}\text{C}$ Cutoff frequency(-3 d B) $\leq 2\text{KHz}$ Reference temperature 25°C 35°C Operating temperature range $-40^{\sim}125^{\circ}\text{C}$ $-40^{\sim}125^{\circ}\text{C}$ Compensated temperature range $0^{\sim}70^{\circ}\text{C}$ $0^{\sim}82^{\circ}\text{C}$ Thermal sensitivity shift $\leq \pm 0.015\% \text{ °C}$ typical $\leq \pm 0.05\% \text{ FSO}$ typicalThermal zero shift $\leq \pm 0.02\% \text{ FSO}/^{\circ}\text{C}$ typical $\leq \pm 0.1\% \text{ FSO}$ typicalPhysical SpecificationPF3/4", male thread as a standard Other connections available on request		1~5V voltage(3 or 4-wire)			
		Other output signal available on requ	est		
Load resistance max@24V 500 Ձ at 24V Influence of excitation 0.01% FSO/V Power ripple ≤500mV P-P Reverse polarity Protected Shock resistance ≤20g ≤10g Response time 1.5ms ≤2 milliseconds Adjustment ±10% FSO/zero and span ±10% FSO/zero and span Performance Specification Accuracy ≤±0.5% FSO ≤±0.25% FSO Linearity,Hysteresis & Repeatability ±0.2~0.4% FSO typical ±0.05% FSO typical Stability ±0.3% FSO/a@25°C ±0.15% FSO/a@35°C Cutoff frequency(-3 d B) ≤2KHz Reference temperature 25°C 35°C Operating temperature range -40~125°C -40~125°C Compensated temperature range 0~70°C 0~82°C Thermal sensitivity shift ≤±0.015%/°C typical ≤±0.05% FSO typical Thermal zero shift ≤±0.02% FSO/°C typical ≤±0.1% FSO typical Physical Specification PF3/4″, male thread as a standard Other connections available on request	Electrical Specification	·			
Influence of excitation Power ripple ≤500mV P-P	Excitation voltage	12~36V DC			
$\begin{array}{ c c c } \hline Power ripple & \leq 500 \text{mV P-P} \\ \hline Reverse polarity & Protected \\ \hline Shock resistance & \leq 20g & \leq 10g \\ \hline Response time & 1.5 \text{ms} & \leq 2 \text{ milliseconds} \\ \hline Adjustment & \pm 10\% \text{ FSO/zero and span} & \pm 10\% \text{ FSO/zero and span} \\ \hline \hline Performance Specification \\ \hline Accuracy & \leq \pm 0.5\% \text{ FSO} & \leq \pm 0.25\% \text{ FSO} \\ \hline Linearity,Hysteresis & Repeatability & \pm 0.2 \sim 0.4\% \text{ FSO typical} & \pm 0.05\% \text{ FSO typical} \\ \hline Stability & \pm 0.3\% \text{ FSO/a}@25^{\circ}\text{C} & \pm 0.15\% \text{ FSO/a}@35^{\circ}\text{C} \\ \hline Cutoff frequency(-3 d B) & \leq 2KHz \\ \hline Reference temperature & 25^{\circ}\text{C} & 35^{\circ}\text{C} \\ \hline Operating temperature range & -40 \sim 125^{\circ}\text{C} & -40 \sim 125^{\circ}\text{C} \\ \hline Compensated temperature range & 0 \sim 70^{\circ}\text{C} & 0 \sim 82^{\circ}\text{C} \\ \hline Thermal sensitivity shift & \leq \pm 0.015\% \text{ 'C typical} & \leq \pm 0.05\% \text{ FSO typical} \\ \hline Thermal zero shift & \leq \pm 0.02\% \text{ FSO}/ ^{\circ}\text{C typical} & \leq \pm 0.1\% \text{ FSO typical} \\ \hline Physical Specification \\ \hline Process connection & PF3/4'', male thread as a standard \\ \hline Other connections available on request \\ \hline \end{array}$	Load resistance max@24V	500 𝔔 at 24V			
$ \begin{array}{ c c c c } \hline \text{Reverse polarity} & \text{Protected} \\ \hline \text{Shock resistance} & \leq 20g & \leq 10g \\ \hline \text{Response time} & 1.5\text{ms} & \leq 2 \text{ milliseconds} \\ \hline \text{Adjustment} & \pm 10\% \text{ FSO/zero and span} & \pm 10\% \text{ FSO/zero and span} \\ \hline \textbf{Performance Specification} \\ \hline \text{Accuracy} & \leq \pm 0.5\% \text{ FSO} & \leq \pm 0.25\% \text{ FSO} \\ \hline \text{Linearity,Hysteresis \& Repeatability} & \pm 0.2 \sim 0.4\% \text{ FSO typical} & \pm 0.05\% \text{ FSO typical} \\ \hline \text{Stability} & \pm 0.3\% \text{ FSO/a@25°C} & \pm 0.15\% \text{ FSO/a@35°C} \\ \hline \text{Cutoff frequency(-3 d B)} & \leq 2\text{KHz} \\ \hline \text{Reference temperature} & 25^{\circ}\text{C} & 35^{\circ}\text{C} \\ \hline \text{Operating temperature range} & -40 \sim 125^{\circ}\text{C} & -40 \sim 125^{\circ}\text{C} \\ \hline \text{Compensated temperature range} & 0 \sim 70^{\circ}\text{C} & 0 \sim 82^{\circ}\text{C} \\ \hline \text{Thermal sensitivity shift} & \leq \pm 0.015\% \text{ °C typical} & \leq \pm 0.05\% \text{ FSO typical} \\ \hline \text{Physical Specification} \\ \hline \text{Process connection} & \hline \text{PF3/4", male thread as a standard} \\ \hline \hline \text{Other connections available on request} \\ \hline \end{array}$	Influence of excitation	0.01% FSO/V			
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Power ripple	≤500mV P-P			
Response time 1.5ms ≤ 2 milliseconds Adjustment $\pm 10\%$ FSO/zero and span $\pm 10\%$ FSO/zero and span Performance Specification Accuracy $\leq \pm 0.5\%$ FSO $\leq \pm 0.25\%$ FSO Linearity,Hysteresis & Repeatability $\pm 0.2 \sim 0.4\%$ FSO typical $\pm 0.05\%$ FSO typical Stability $\pm 0.3\%$ FSO/a@25°C $\pm 0.15\%$ FSO/a@35°C Cutoff frequency(-3 d B) ≤ 2 KHz Reference temperature 25°C $\pm 0.15\%$ FSO/a $\pm 0.15\%$ FSO typical $\pm 0.05\%$ FSO typical Specification Process connection PF3/4″, male thread as a standard Other connections available on request	Reverse polarity	Protected			
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	· · · · · · · · · · · · · · · · · · ·	≤20g	≤10q		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Response time		<u> </u>		
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	-	\pm 10% FSO/zero and span	±10% FSO/zero and span		
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	<u> </u>				
$ \begin{array}{llllllllllllllllllllllllllllllllllll$		≤ +0.5% FSO	\leq \pm 0.25% FSO		
$\begin{array}{llllllllllllllllllllllllllllllllllll$			$\pm 0.05\%$ FSO typical		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		•	• •		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Cutoff frequency(-3 d B)	≤2KHz			
		25°C	35°C		
$ \begin{array}{lll} \hline \text{Thermal sensitivity shift} & \leq \pm 0.015\% / ^{\circ}\text{C typical} & \leq \pm 0.05\% \text{FSO typical} \\ \hline \text{Thermal zero shift} & \leq \pm 0.02\% \text{FSO} / ^{\circ}\text{C typical} & \leq \pm 0.1\% \text{FSO typical} \\ \hline \hline \text{Physical Specification} & \\ \hline \text{Process connection} & \hline \\ \hline \text{PF3/4", male thread as a standard} \\ \hline \hline \text{Other connections available on request} \\ \hline \end{array} $	Operating temperature range	-40~125°C	-40~125°C		
$ \begin{array}{lll} \hline \text{Thermal sensitivity shift} & \leq \pm 0.015\% / ^{\circ}\text{C typical} & \leq \pm 0.05\% \text{FSO typical} \\ \hline \text{Thermal zero shift} & \leq \pm 0.02\% \text{FSO} / ^{\circ}\text{C typical} & \leq \pm 0.1\% \text{FSO typical} \\ \hline \hline \text{Physical Specification} & \\ \hline \text{Process connection} & \hline \\ \hline \text{PF3/4", male thread as a standard} \\ \hline \hline \text{Other connections available on request} \\ \hline \end{array} $	Compensated temperature range	0~70°C	0~82°C		
$ \begin{array}{ll} \hbox{Thermal zero shift} & \leq \pm 0.02\% \ \hbox{FSO/ °C typical} & \leq \pm 0.1\% \ \hbox{FSO typical} \\ \hline Physical Specification} \\ \hbox{Process connection} & \hline PF3/4", male thread as a standard} \\ \hline Other connections available on request} \\ \end{array} $		≤ +0.015%/ °C typical	$\leq \pm 0.05\%$ FSO typical		
Physical Specification Process connection PF3/4", male thread as a standard Other connections available on request	<u> </u>	,			
Process connection PF3/4", male thread as a standard Other connections available on request	Physical Specification	71			
Other connections available on request		PF3/4", male thread as a standard			
·					
	Process media				
Materials of Diaphragm Ceramic Al ₂ O ₃ , 96%	Materials of Diaphragm				
Housing Stainless steel 316	. •	*			
		Viton, HNBR, Teflon			
Enclosure rating IP65	,				
			Under 0.5kgf/cm², mounting vertically		
Weight Approx.(157g)					

Note : $\ensuremath{\bigcirc}$ Cable version : 1.5m standard length, 4-wire, shielded with integral vent tube

Vented gauge units must breathe dry, non - corrosive gases.
 Connector version is vented through the removed pin, cable versions are vented through a vent tube inside the cable sleeve

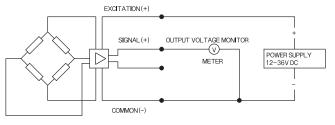
System connection for 2-wire transmitter System connection for 3-wire transmitter



PF 3/4"

022

17.5 10



Dimension(mm)

CERAMIC FLUSH DIAPHRAGM

Electrical connection



E : Excitation S : Signal C : Common

System Color	2-Wire	3-Wire	4-Wire	
Red	E+	E+	E+	
Black	E-	C -	E-	
Green		S+	S+	
White			S-	
=	Shielded	Shielded	Shielded	

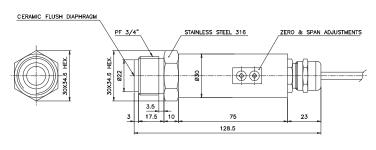
CERAMIC FLUSH DIAPHRAGM STAINLESS STEEL 316 ZERO & SPAN ADJUSTMENTS DINA3650-A HIRSCHMANN CONNECTOR 132.5

100

156.5

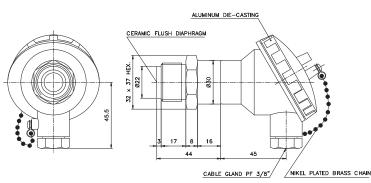
DIN connector

System Color	2-Wire	3-Wire	4-Wire		
1	E+	E+	E+		
2	E-	C -	E-		
3		S+	S+		
₹	Shielded	Shielded	S-		

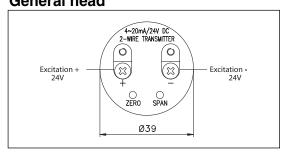


Flying lead

System Color	2-Wire	3-Wire	4-Wire	
Red	E+	E +	E+	
Black	E -	C -	E-	
Green		S+	S+	
White			S-	
₹	Shielded	Shielded	Shielded	



General head



Ordering Information

Flush	Diaphragm	Pressure	Transmitter
	Diapinagn		I I WI I O I I I I I I I I

Flush	Dia	phi	ragı	n P	res	sure	: Tr	ans	mit	ter					
P515										Ceramic Diaphragm	- Circular Connector				
P525										Stainless Steel Diaphragm	- Circular Connector				
P516										Ceramic Diaphragm	DIN Compostor				
P526										Stainless Steel Diaphragm	- DIN Connector				
P517										Ceramic Diaphragm	Christ Lood				
P527										Stainless Steel Diaphragm	Flying Lead				
P518										Ceramic Diaphragm	General Head				
P528										Stainless Steel Diaphragm	General nead				
	R									Relative pressure					
	Α									Absolute pressure					
		М								Male thread					
		F								Female thread					
			Т							PT thread					
			F							PF thread(standard)					
			X							Other process connections available	e on request				
				1						3/4" (standard)					
				2						1"					
				X						Other units available on request					
					Н					Accuracy ±0.25% FSO					
					S					Accuracy ±0.5% FSO					
						01				Measuring range 2000mmH₂O					
						02				3500					
						03				5000					
						04				1					
						05				2					
						06				5					
						07				20					
						80				35					
						09				50 Other calibration ranges available of	on request				
						XX	K			Calibration in kgf/cm²	on request				
							A			Calibration in MPa					
							В			Calibration in bar					
							Р			Calibration in psi					
							Х			Other units available on request					
								A1		4~20mA, DC, 2-wire output					
								A2		4~20mA, DC, 4-wire output					
	B1									1~5V, DC, 3-wire output					
								B2		0~5V, DC, 3-wire output					
								B3		0~10V, DC, 3-wire output					
									N	None options					
									X	Other accessories available on req	uest				
										· · · · · · · · · · · · · · · · · · ·					