

Low & Absolute Pressure Measurement

KP15 Pressure Transmitter

Fluids and gases measurement
(Featuring stainless diaphragm)

Overview

KP15 features diaphragm seal type pressure sensing element with SUS316L material. The diaphragm can accommodate various types of fluids and gases measurements in applications where low and absolute pressure measurements are required.

Features

- SUS316L pressure receiving part material
- Lowest range 10kPa (standard type)
(Compound range -5 to 5kPa)
- High accuracy $\pm 0.25\%$ F.S.
(Varies depending on the range)
- Available for absolute pressure range
50kPa abs., 100kPa abs., 200kPa abs.
- Response time 1ms or less
- Dust and waterproof structure
(IP65)
- Withstand voltage 500V AC
- Equipped with zero adjustment trimmer
- M12 connector connection



Standard type

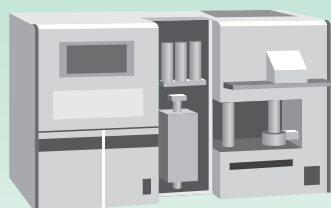
Flush diaphragm type

RoHS



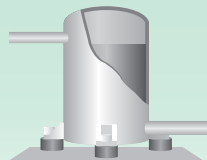
Applications

Device for various kinds of analysis/
laboratory instrument Pressure measurement



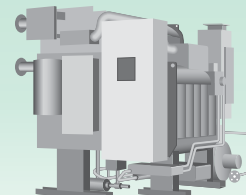
- Repeatability evaluation in absolute pressure
- Fluid measurements also possible
(Pressure receiving part material: SUS316L)

Tank level measurement

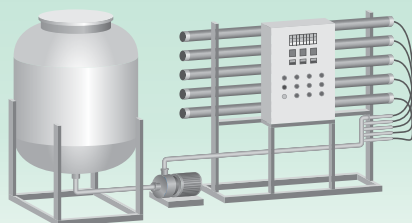


- Excellent in accuracy and temperature characteristic
- Vacuum measurement

Absorption type refrigerator
coolant pressure measurement

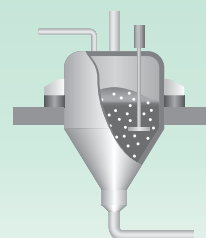


Pressure and water level monitoring
for water treatment (Liquids) application



- Pressure receiving part material: SUS316L
- Precision low pressure measurement is possible

Powder conveying, Slurry measurement



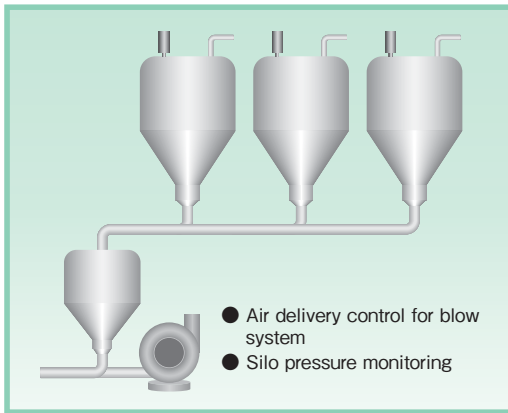
- Eliminates risk of contamination with flush diaphragm type

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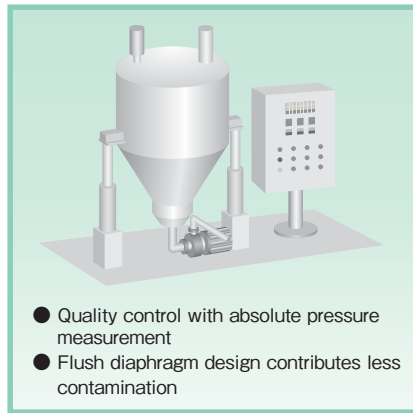
Pressure Transmitter

Applications

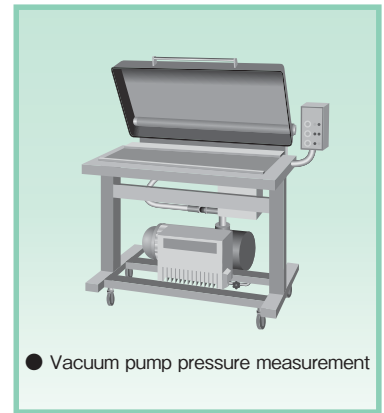
Powder conveying process



Defoaming, degassing and concentrating device



Vacuum packaging machine



Specifications

Item	Description						
Media	Fluids and gases (Compatible with wetted parts)						
Connection	R1/4, G1/2A (Flush diaphragm)						
Pressure range	-5 to 5kPa 0 to 10kPa	^{*2} -10 to 10kPa -20 to 20kPa 0 to 20kPa	-50 to 50kPa -100 to 0kPa 0 to 50kPa 0 to 100kPa	50kPa abs. 100kPa abs.	-100 to 100kPa -100 to 200kPa 0 to 200kPa	200kPa abs.	^{*2} -100 to 300kPa -100 to 500kPa 0 to 300kPa 0 to 500kPa
Accuracy ^{*1}	Standard	±0.5%F.S.	±0.35%F.S.	±0.25%F.S.			
	Flush diaphragm	—	±0.5%F.S.	±0.3%F.S.			—
Temperature coefficient (Zero, span)	±0.1%F.S./°C		±0.08%F.S./°C		±0.05%F.S./°C		±0.03%F.S./°C
Temperature compensation range	0 to 50°C		-25 to 75°C				
Maximum allowable pressure	100kPa		200kPa	200kPa abs.	400kPa	400kPa abs.	1000kPa
Allowable vacuum pressure	-20kPa		130Pa abs. or more				
Position effect	30Pa or less/90°						
Insulation resistance	100MΩ or more (50V DC between joint and all input/output terminals)						
Withstand voltage	500V AC (1 minute between joint and all input/output terminals)						
Shock resistance	100m/s ² (3 directions of X, Y, Z) Ordinary temperature						
Vibration resistance	200m/s ² (10 to 2000 Hz, 3 directions of X, Y, Z) Ordinary temperature						
Durability	Repeatable pressure at rated pressure: 10 million times or more						
Operating temperature and humidity range	-40 to 80°C, 85%RH or less (Non-freezing or condensing) Except for connector parts -25 to 70°C, 20 to 85%RH						
Storage temperature and humidity range	-40 to 80°C, 85%RH or less (Non-freezing or condensing)						
Supply voltage	9 to 36V DC ^{*3}						
Output	4 to 20mA DC 2-wire						
Response time	1ms or less						
CE compliance	EN61326-1:2006, EN61326-2-3:2006						
RoHS directive	Conform to EU RoHS						
Ingress protection	IP65 (When connector is mated)						
Weight	Approx. 110 g (Excluding cable)						
Electrical connection	Mating by connector (M12, 4-pole)						
Zero-adjustment function	Internal adjustment trimmer						
Wetted parts	Diaphragm: SUS316L ※O-ring installed in flush diaphragm type could be recognized as part of wetted parts depending on application how the product is used. Fitting: SUS316L						
Case materials	Case: SUS304 Electrical connection: PBT Trimmer cover: Chloroprene rubber (CR)						
Filled liquid	Silicone oil						

*1: Includes linearity, hysteresis and repeatability at 25°C.

*2: Standard type only.

*3: As for relationship between supply voltage and load resistance, refer to the load resistance graph in the catalog.

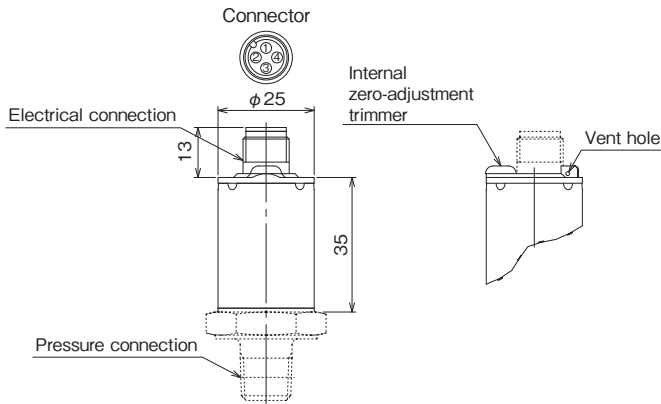
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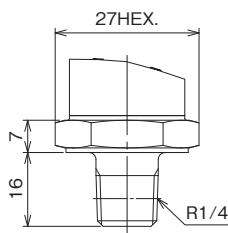
Unit: mm

Dimensions

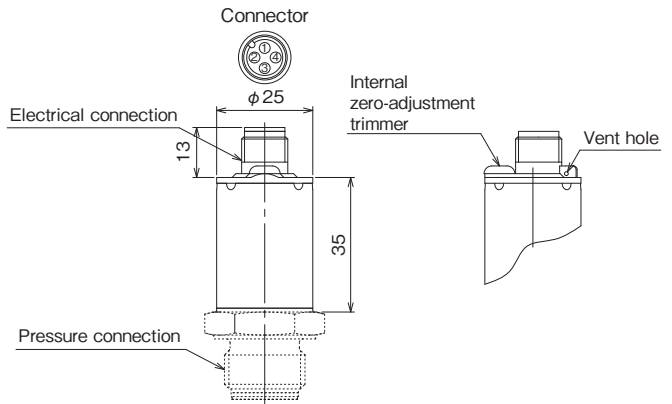
Standard type



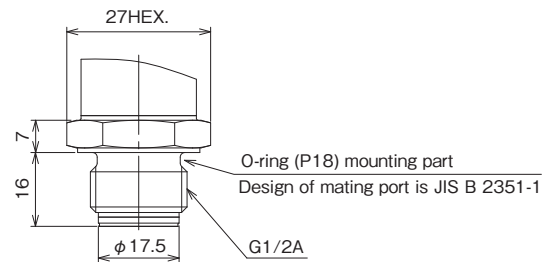
● Pressure connection
Tapered thread



Flush diaphragm type



● Pressure connection
Flush diaphragm



※ For factory default, O-ring is not installed.

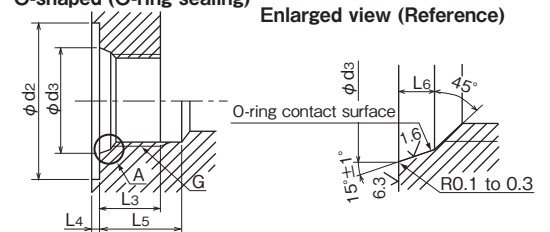
Electrical connection

Connector terminal array	Terminal number	2-wire	Cable color
	1	Power source +	Brown
	2	—	White
	3	—	Blue
	4	Power source -	Black

Design and dimension of mating port of flush diaphragm type

[JIS B 2351-1 Sourced from appendix table 7]

O-shaped (O-ring sealing)



M12 cable with connector (Optional)

	PUR cable (Oilproof)	PVC cable (Stainless nut)
Straight		
L type		
Material	① Zinc die casting (Nickel plating) ② TPU (Green) ③ PUR (Black)	① Stainless ② PP (White) ③ PVC (Gray)
Cable length (L)	2m or 5m	2m or 5m
Cross-section area of conductor	0.34mm ² (22AWG)	0.34mm ² (22AWG)
Core diameter including insulation	1.27mm	1.26mm
External cable diameter	4.7mm	4.7mm

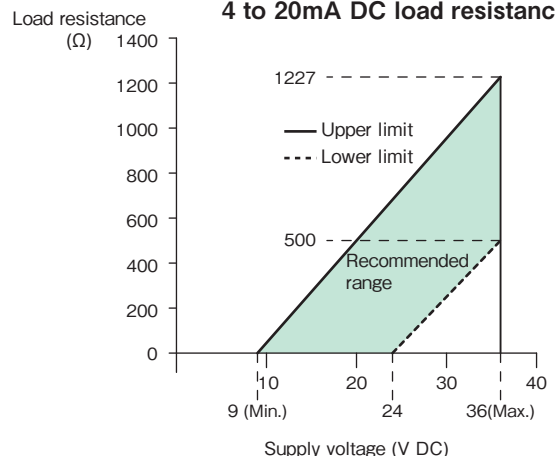
※ IP65 or higher protection when M12 cable is mated.

Nominal size G	d2 ± 0.3	d3 +0.1 / 0	L3 (Min.)	L4 (Max.)	L5 (Min.)	L6 +0.4 / 0	Orifice number of O-ring used
	O-shaped						
1/2	34	22.6	16	2.5	24	2.5	P18

- G stands for A class pipe thread specified by JIS B 0202.
- There must be no axial directional scratches or spiral tool mark on O-ring contact surface (O-shaped).
- d2 counter bore surface must be flat and perpendicular to the axis of the screw.

Load resistance

4 to 20mA DC load resistance



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Standard type

Model number configuration

Please specify the model number, each specs and the range for ordering.

Model														
K P 1 5			1 7 G			W 1		X	4	X	X	X	X	X
Pressure Transmitter			① ② ③			④ ⑤ ⑥ ⑦		⑧	⑩	⑪	⑫	⑬	⑭	⑮
Standard type														

Model number	Product specifications	Additional specifications (Optional)
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① Model	1	Connector type M12 connector (4-pole)
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② Connection	7	R1/4
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③ Wetted parts	G	Diaphragm: SUS316L, Fitting: SUS316L
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④ Pressure range (kPa) ⑤ Accuracy	④	⑤	④ Pressure range (kPa)		⑤ Accuracy	
	H	5	-5 to 5	Compound gauge	±0.5%F.S.	
	U		0 to 10			
	J	T	-10 to 10	Compound gauge	±0.35%F.S.	
	K		-20 to 20			
	V		0 to 20			
	L		-50 to 50			
	M	4	-100 to 100	Compound gauge	±0.25%F.S.	
	N		-100 to 200			
	3		-100 to 300			
	B		-100 to 500			
	S		-100 to 0			Vacuum gauge
	W		0 to 50			
	X		0 to 100			
	Y		0 to 200			
C	0 to 300					
E	0 to 500					
4	0 to 50kPa abs.	Absolute pressure				
5	0 to 100kPa abs.					
6	0 to 200kPa abs.					

Please specify pressure range and unit of measure along with corresponding ordering code.

⑥ Power source	W	9 to 36V DC
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⑦ Output	1	4 to 20mA DC (2-wire)
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- *1 Perform drying treatment after degreasing the receiving part. Product comes standard with Use no oil & water without label affixed on the body.
- *2 Documents available upon request. Specify "Required" and types of document if needed.

⑨ M12 connector Cable	0	Not required	
	1	PUR cable (Oilproof)	Straight
	2		L type
	3	PVC cable (Stainless nut)	Straight
	4		L type
	5	PUR cable (Oilproof)	Straight
	6		L type
	7	PVC cable (Stainless nut)	Straight
8	L type		

Treatment against wetted parts

- **Use no oil**
Oil used in manufacturing the gauges had been flushed out & no oil residue remained inside its wetted parts.
- **Use no water**
Water used in manufacturing the gauges had been flushed out & no water residue remained inside its wetted parts.
- **Use no oil & water**
Oil/Water used in manufacturing the gauges had been flushed out & no oil/water residue remained inside its wetted parts.

⑩ Treatment*1	4	Use no oil & water (Standard)
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⑮ Documents*2	0	Not required
	1	Required Datasheet (Drawing / Specifications) Instruction manual Calibration test report Inspection / Traceability certificate

* Specify code "X" to refer N/A

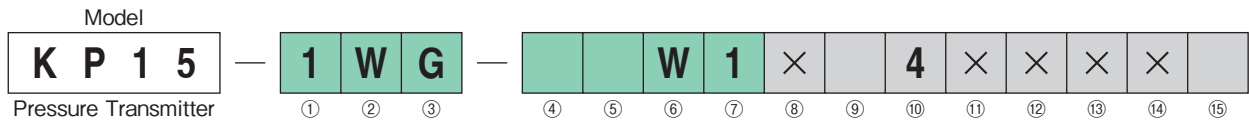
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Pressure Transmitter

Flush diaphragm type

Model number configuration

Please specify the model number, each specs and the range for ordering.



Model number		Product specifications	Additional specifications (Optional)	
① Model	1	Connector type M12 connector (4-pole)		
② Connection	W	G1/2A (Flush diaphragm)		
③ Wetted parts	G	Diaphragm: SUS316L ※O-ring is not installed.		
④ Pressure range (kPa) ⑤ Accuracy	④	⑤	④ Pressure range (kPa)	⑤ Accuracy
	J	5	-10 to 10	Compound gauge ±0.5%F.S.
	K		-20 to 20	
	V		0 to 20	
	L	S	-50 to 50	Compound gauge ±0.3%F.S.
	M		-100 to 100	
	N		-100 to 200	
	S		-100 to 0	
	W		0 to 50	Vacuum gauge
	X		0 to 100	
Y	0 to 200			
4		0 to 50kPa abs.	Vacuum gauge	
5		0 to 100kPa abs.		
6		0 to 200kPa abs.		
⑥ Power source	W	9 to 36V DC		
⑦ Output	1	4 to 20mA DC (2-wire)		
⑨ M12 connector Cable	0	Not required		
	1	PUR cable (Oilproof)	Straight	Cable length 2m
	2		L type	
	3	PVC cable (Stainless nut)	Straight	
	4		L type	
	5	PUR cable (Oilproof)	Straight	Cable length 5m
	6		L type	
	7	PVC cable (Stainless nut)	Straight	
8	L type			
⑩ Treatment*1	4	Use no oil & water (Standard)		
⑮ Documents*2	0	Not required		
	1	Required Datasheet (Drawing / Specifications) Instruction manual Calibration test report Inspection / Traceability certificate		

Please specify pressure range and unit of measure along with corresponding ordering code.

- *1 Perform drying treatment after degreasing the receiving part. Product comes standard with Use no oil & water without label affixed on the body.
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Oil/Water used in manufacturing the gauges had been flushed out & no oil/water residue remained inside its wetted parts.

* Specify code "X" to refer N/A