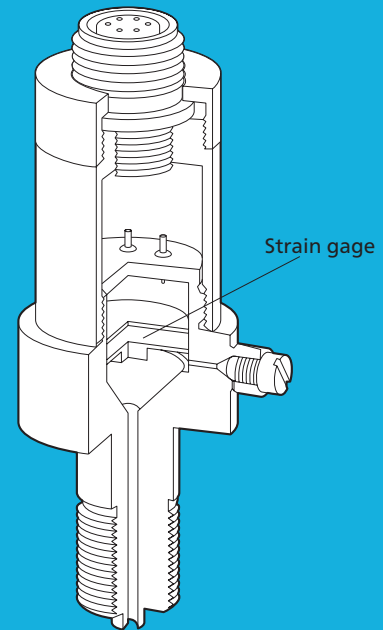


Pressure Transducers

Pressure transducers convert liquid or gas pressures into electric quantities. According to measuring purposes, they are connected to various instruments for monitoring, recording and controlling pressures.

They have highly precise dedicated self-temperature-compensated strain gages incorporated as pressure detecting elements and feature a hermetically-sealed structure with inert gas filled in, ensuring superior linearity, thermal characteristics and waterproofness. Thus, they enable highly precise and stable pressure measurement for a long period of time in a wide range of fields including chemical, machinery and steelmaking.



Features

- Long-term stable operation
- Highly precise
- Excellent thermal characteristics

■ Types of Pressure

1) Absolute Pressure

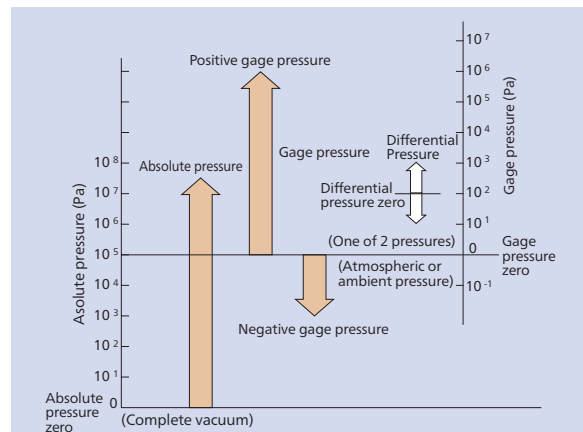
Absolute pressure is a pressure expressed by referring to vacuum (Complete) pressure as zero. It is mainly used in physical science for expressing atmospheric pressure, etc. Absolute pressure is calculated by following formula :
absolute pressure = atmospheric pressure + gage pressure.
Kyowa mentions absolute pressure as "abs." to differentiate absolute pressures to gage pressures.

2) Gage Pressure

Gage pressure is a pressure expressed by referring to atmospheric or ambient pressure as zero. Industrially, it is merely called pressure unless otherwise noted. Pressure higher than atmospheric or ambient pressure is called positive gage pressure and pressure lower than atmospheric or ambient pressure, negative gage pressure. Though ISO recommends to affix "Pe" or "Gauge" to gage pressure, Kyowa does not affix either of them to gage pressure.

3) Differential Pressure

Differential pressure is a difference between a specific pressure and other. Thus, it may be either positive or negative.



Relations between Pressure Units

Pa	bar	kgf/cm ²	atm	mmH ₂ O (mmAq)
1	1×10 ⁻⁵	1.01972×10 ⁻⁵	9.86923×10 ⁻⁶	1.01972×10 ⁻¹
1×10 ⁵	1	1.01972	9.86923×10 ⁻¹	1.01972×10 ⁴
9.80665×10 ⁴	9.80665×10 ⁻¹	1	9.67841×10 ⁻¹	1×10 ⁴
1.01325×10 ⁵	1.01325	1.03323	1	1.03323×10 ⁴
9.80665	9.80665×10 ⁻⁵	1×10 ⁻⁴	9.67841×10 ⁻⁵	1

$$1 \text{ Pa} = 1 \text{ N/m}^2$$

$$1 \text{ Torr} = 1 \text{ mmHg} = 1.33322 \times 10^2 \text{ Pa} = 1.33322 \times 10^{-3} \text{ bar} = 1.35951 \times 10^{-3} \text{ kgf/cm}^2 \\ = 1.31579 \times 10^{-3} \text{ atm} = 1.35951 \times 10 \text{ mmH}_2\text{O (mmAq)}$$

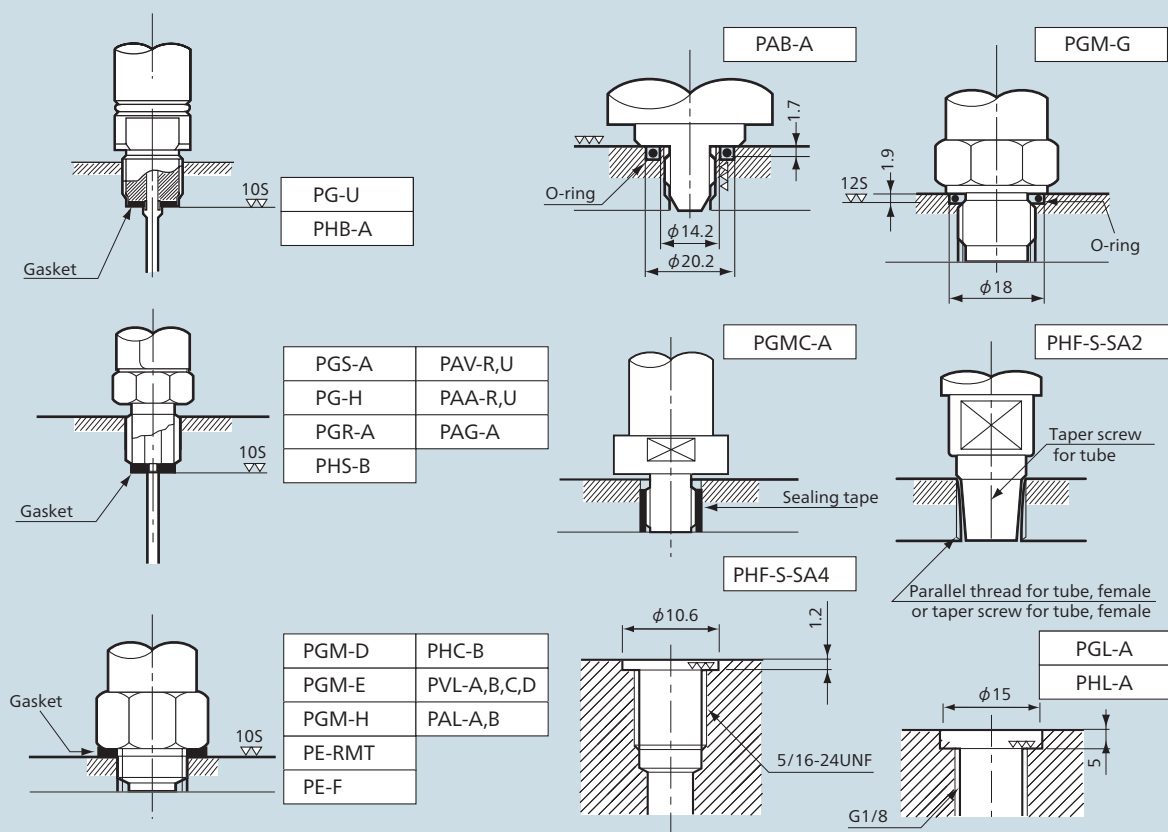
$$1 \text{ psi} = 6894.7 \text{ Pa} = 7.0307 \times 10^{-2} \text{ kgf/cm}^2$$

To Ensure Safe Usage

- Install each pressure transducer with the tightening torque stated in the Instruction Manual.
- Do not apply any load exceeding the safe overload rating. Excess load may break the pressure transducer.
- If pressure is applied repetitively, select a model which satisfies the following 2 requirements:
 - The rated capacity covers the peak pressure.
 - 50% the rated capacity covers the maximum pressure amplitude.
- If the pressure transducer may receive an unexpected excess pressure, select a model with a higher rated capacity. Especially, in the case of a pressure transducer with a higher rated capacity, if there exists air in the measuring medium, install a protective case around the pressure transducer for safety assurance.

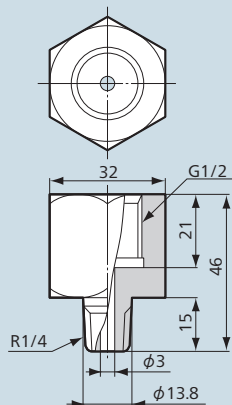
Typical Installation with Standard Accessories

For other methods of installation, contact us.



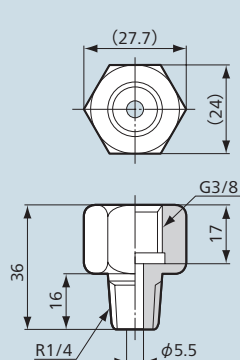
Screw Standard Conversion Adapters (G-to-R Conversion)

H-3832 G1/2→R1/4



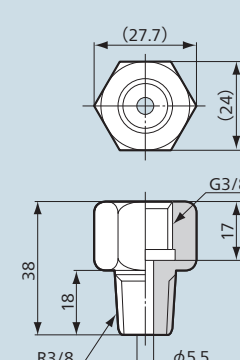
Material: SUS303

H-5237 G3/8→R1/4



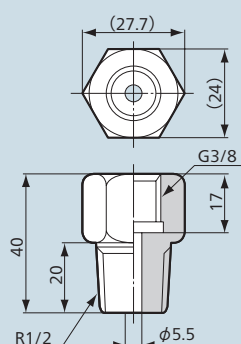
Material: SUS304

H-5238 G3/8→R3/8



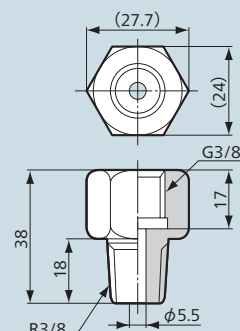
Material: SUS304

H-5239 G3/8→R1/2



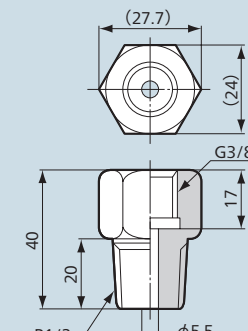
Material: SUS304

H-20109 G3/8→R3/8



Material: C3601-5B

H-20110 G3/8→R1/2



Material: C3601-5B

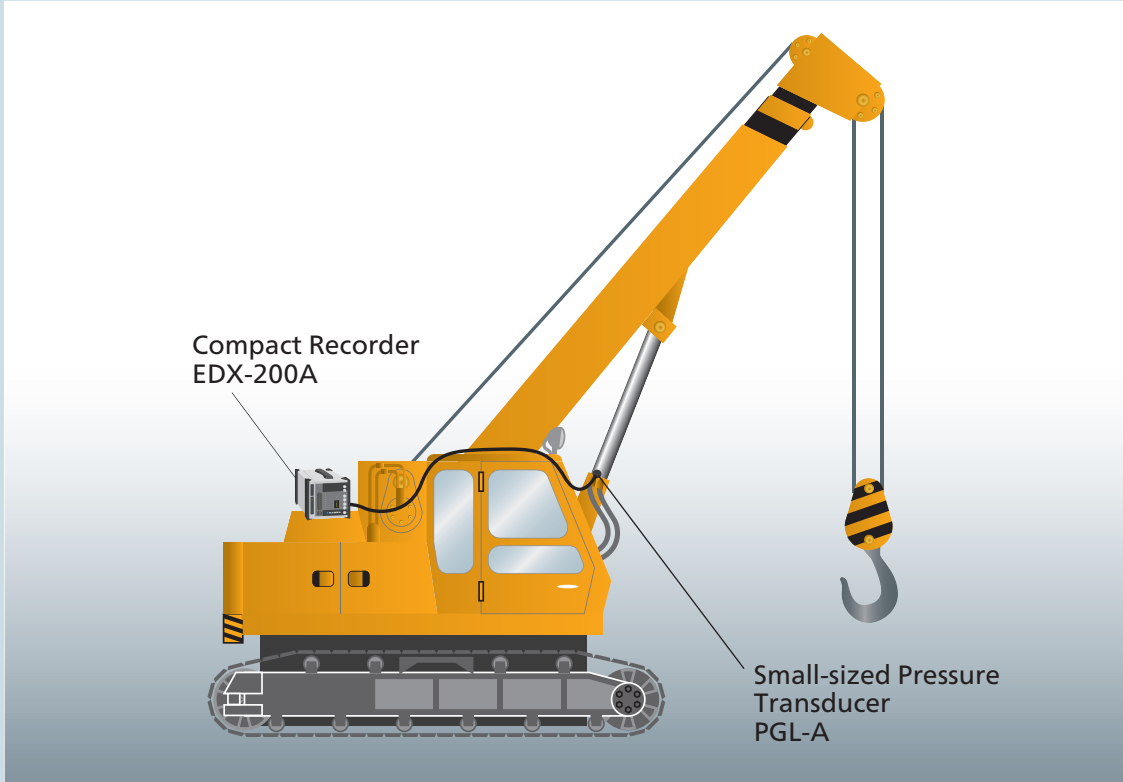


Pressure Transducers

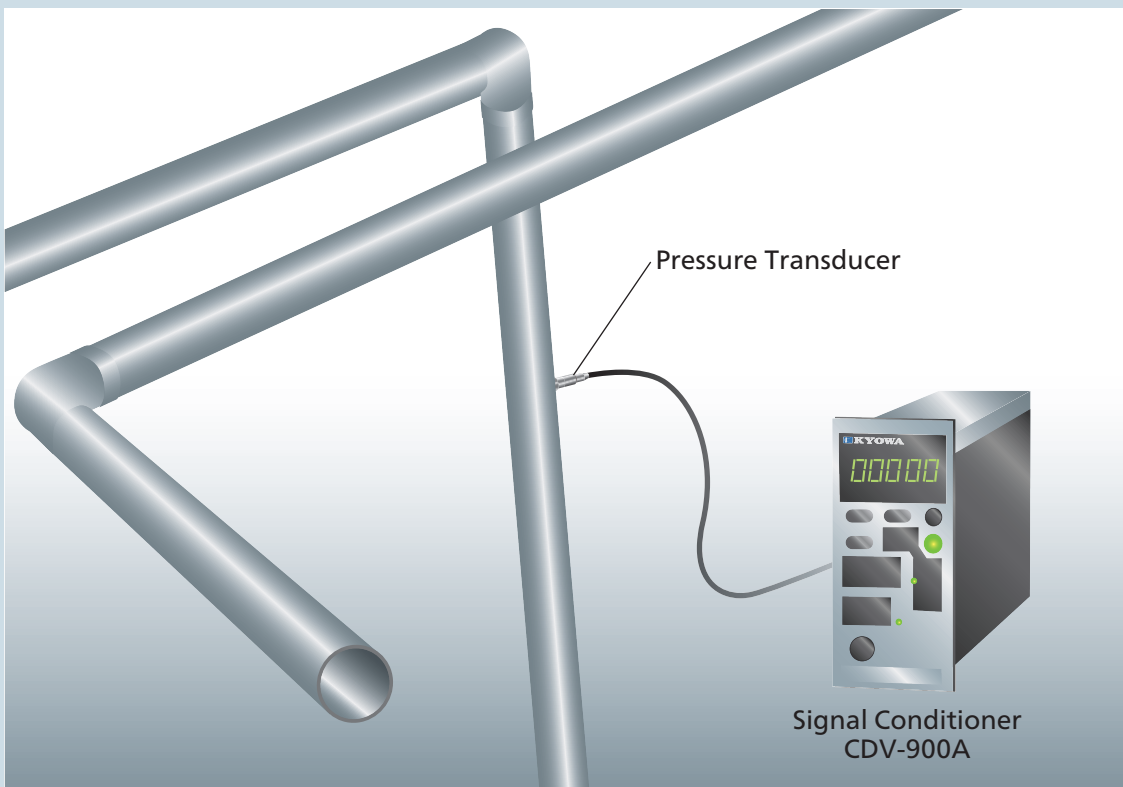


Pressure Transducers Examples of Measurement (Image)

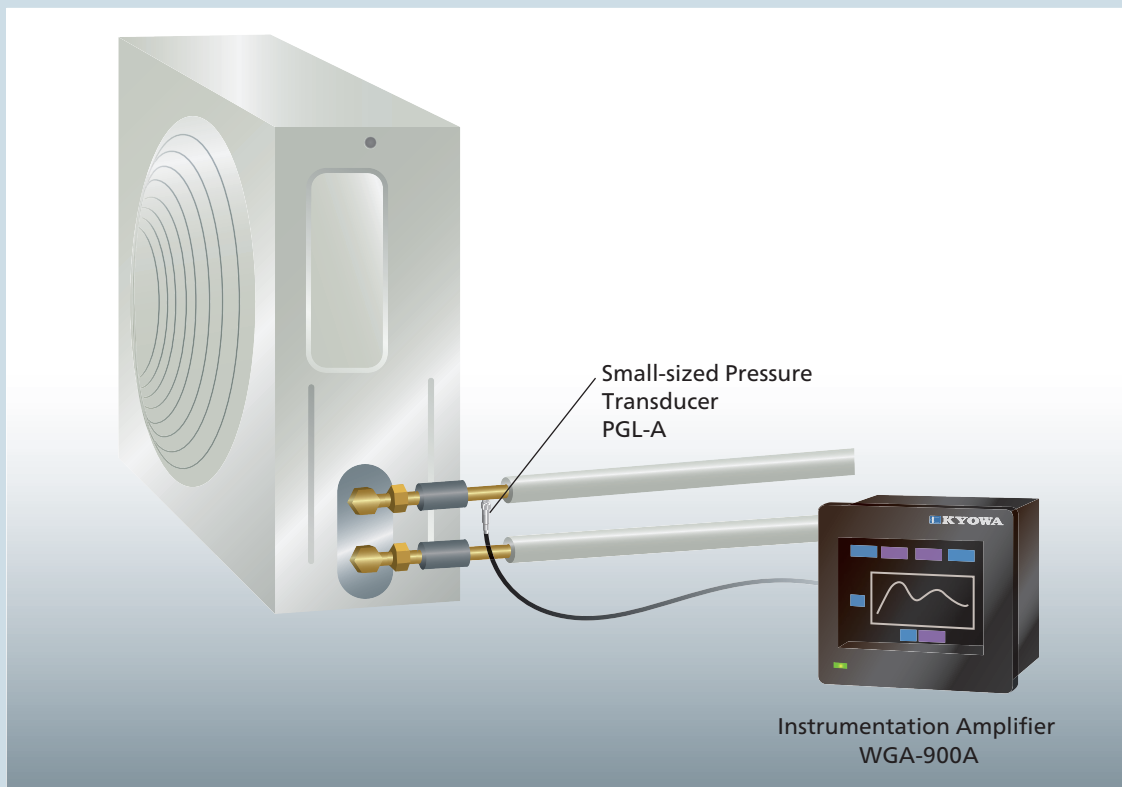
- Hydraulic Pressure monitor or control of construction machine



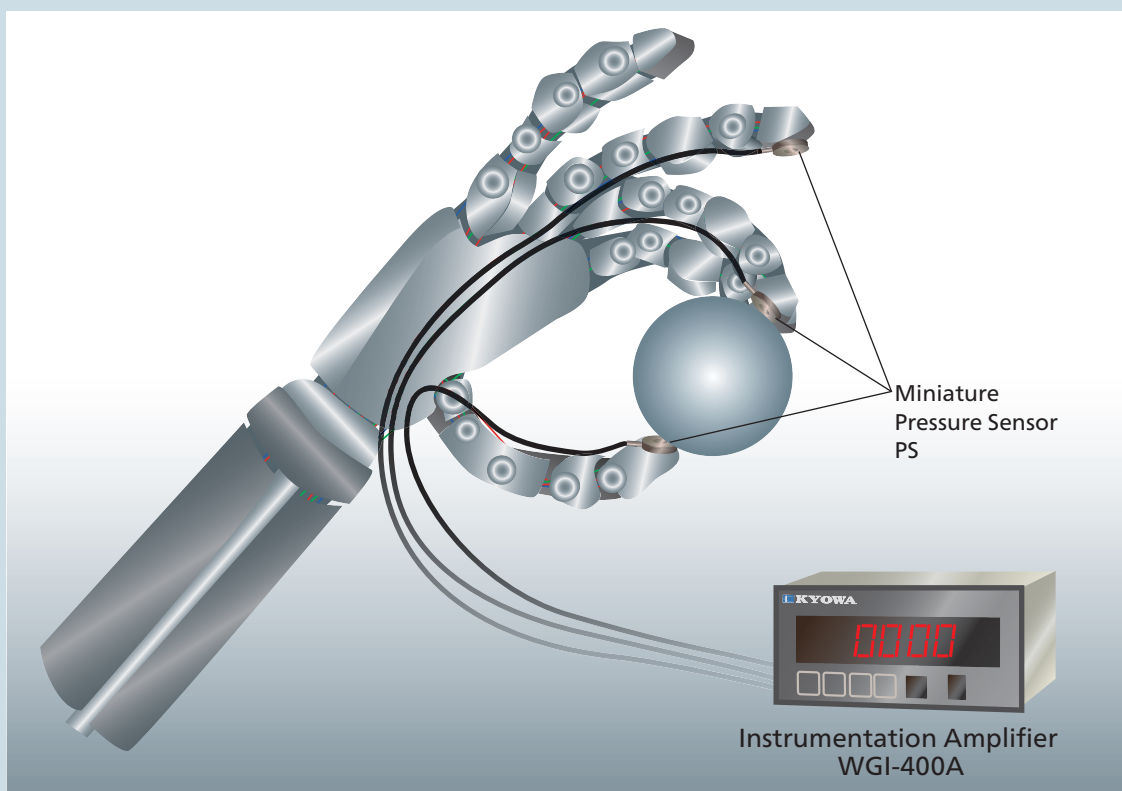
- Pressure measurement in pipes etc.














- Refrigerant pressure monitor of air conditioning facilities.












- Usable as a touch sensor for built-in robot parts.




Pressure Transducers Selection Chart






General Purpose		Rated Capacity																		Pages
		kPa					MPa													
		20	50	100	200	500	1	2	3	5	10	20	30	50	100	200	250	300		
Models																				
Low Pressure	Highly Accurate PGM-G 	Yes	Yes	Yes															2-90	
	Sensing Surface Diameter 5.5 mm PGMC-A 				Yes	Yes	Yes												2-91	
Small-sized	Highly Reliable PG-U 				Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes					2-85	
	Compact PGM-H 					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes					2-88	
	Highly Accurate PGL-A 						Yes	Yes		Yes	Yes	Yes		Yes					2-83	
	Flush Diaphragm Type PGM-E 						Yes	Yes		Yes	Yes	Yes		Yes					2-89	
	Low-cost PGS-A 						Yes	Yes		Yes	Yes	Yes	Yes	Yes					2-86	
	High Response Flush Diaphragm PGM-D 									Yes	Yes	Yes		Yes					2-92	
	High Pressure	High Pressure PG-H 														Yes	Yes			2-87
		Large Capacity  PGH-S-SA19 																Yes	Yes	2-102





High/Low Temperature		Rated Capacity										Pages
		MPa										
		Models	1	2	3	5	10	20	30	50	100	
High/Low Temperature	-196 to 200°C PHB-A 	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		2-97	
High/Low Temperature Small-sized	-196 to 200°C PHL-A 	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		2-84	
High Pressure	-20 to 150°C PGH-S-100MPA17 									Yes	2-101	
High/Low Temperature Small-sized	-40 to 150°C PHF-S-S1 Series 		Yes		Yes	Yes	Yes				2-98	
High/Low Temperature Small-sized	-40 to 150°C PHF-S-SA2 		Yes		Yes	Yes	Yes				2-99	
High/Low Temperature Small-sized	-40 to 150°C PHF-S-SA4 		Yes		Yes	Yes					2-100	
Flush diaphragm High Temperature	23 to 230°C PHC-B 		Yes		Yes	Yes	Yes				2-96	


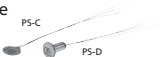

For Absolute-High Pressure		Rated Capacity							Pages
		kPa		MPa					
		200	500	1	2	5	10	20	
Models									
Absolute	Measurement Referring to Vacuum PAB-A 	Yes	Yes	Yes	Yes				2-94
High Reliable (Sputter Gage Type)	-30 to 200°C PHS-B 	Yes	Yes	Yes	Yes	Yes	Yes	Yes	2-95
High Pressure Resistant	Ultimate Overload 117.7 MPa PGR-A 			Yes	Yes	Yes	Yes	Yes	2-93



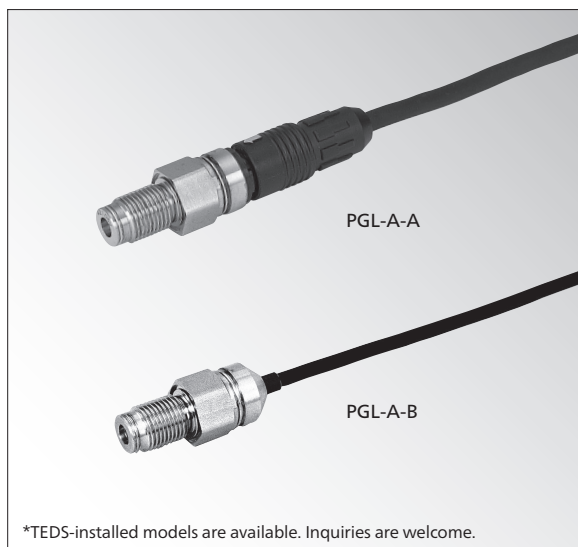
Water-cooled Type		Rated Capacity		Pages
		MPa		
		3		
Models		3		
Engine Pressure Transducer	Up to 300 °C PE-30KF 	Yes		5-10

Pressure Transmitter		Rated Capacity									Pages
		kPa		MPa							
		200	500	1	2	5	10	20	30	50	
Models											
Highly Stable Current Output	Output 4 to 20 mA Highly Reliable PAG-2KA 	Yes									2-107
Voltage Output	Output 0 to 5 V PAV-R/U 			Yes		Yes	Yes	Yes	Yes	Yes	2-103
Current Output	Output 4 to 20 mA PAA-R/U 		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	2-104
Voltage Output	Output 0 to 50 V, 1 to 5 V PVL 		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	2-105
Current Output	Output 4 to 20 mA PAL 		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	2-106

Differential Pressure Measurement		Rated Capacity												Pages
		kPa										MPa		
		1	2.5	5	7	10	20	50	100	200	500	1	2	
Models														
Minute Differential Pressure Transducer	For Wind Pressure Measurement PDS-A 	Yes	Yes	Yes	Yes									2-111
	For Wind Pressure Measurement PDV-A 	Yes	Yes	Yes	Yes									2-112
Minute Differential Pressure	Max.Line Pressure 2.94 MPa PD-A 					Yes	Yes	Yes	Yes	Yes				2-113
Stainless Steel Differential Transducer	Max.Line Pressure 30 MPa PDU-A 							Yes	Yes	Yes	Yes	Yes	Yes	2-114

Distributed Pressure Measurement		Rated Capacity										Pages
		kPa					MPa					
		20	50	100	200	500	1	2	3	5	7	
Models		20	50	100	200	500	1	2	3	5	7	
Small -sized Type	For GAS PSS 	Yes	Yes	Yes								2-109
	Ultra-thin type PS-C/D 		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	2-108
	Smallest size PSM-AB 				Yes	Yes						2-110

Small-sized Pressure Transducer



Compact & Lightweight Highly stable High Frequency Response

PGL-A series pressure transducers are suitable for pressure measurement in limited space. The semi-flush diaphragm at the top end ensures excellent response and dynamic characteristics. There are 2 types: A type with removable cable and B type with integrated cable.

Specifications

Performance

Rated Capacity	See table below.
Nonlinearity	Within $\pm 0.5\%$ RO for 1, 2 MPa Within $\pm 0.3\%$ RO for 5 to 50 MPa
Hysteresis	Within $\pm 0.5\%$ RO for 1, 2 MPa Within $\pm 0.2\%$ RO for 5 to 50 MPa
Repeatability	0.2% RO or less
Rated Output	2 mV/V $\pm 20\%$ but $\pm 30\%$ for 1, 2 MPa

Environmental Characteristics

Safe Temperature	-20 to 70°C
Compensated Temperature	-10 to 60°C
Temperature Effect on Zero	Within $\pm 0.05\%$ RO/°C for 1, 2 MPa Within $\pm 0.03\%$ RO/°C for 5 to 50 MPa
Temperature Effect on Output	Within $\pm 0.03\%$ /°C

Electrical Characteristics

Safe Excitation	6 V AC or DC
Recommended Excitation	1 to 3 V AC or DC
Input Resistance	350 $\Omega \pm 2\%$
Output Resistance	350 $\Omega \pm 2\%$
Cable	PGL-A-A: 4-conductor (0.18 mm ²) vinyl shielded cable, 4.6 mm diameter by 3 m long, terminated with connector plug PRC03-12A10-7M PGL-A-B: 4-conductor (0.08 mm ²) vinyl shielded cable, 3.2 mm diameter by 30 cm long, terminated with connector plug PRC03-12A10-7M (Shield wire is not connected to the case.)

Mechanical Properties

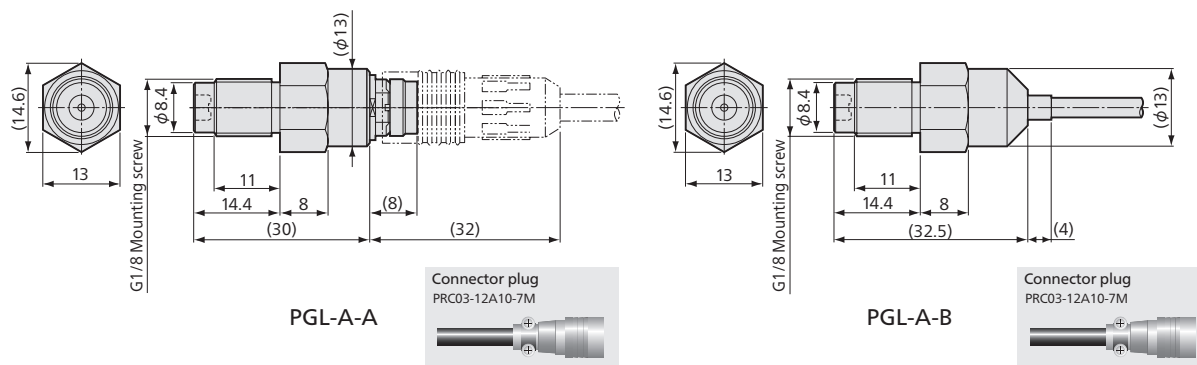
Safe Overloads	150%
Natural Frequencies	See table below.
Material	SUS 630 (Liquid-contacting part)
Weight	Approx. 20 g (Excluding cable)
Degree of Protection	PGL-A-A: IP67 (IEC 60529) PGL-A-B: IP64 (IEC 60529)
Mounting Screw	G1/8, male

Standard Accessories

Gasket (Mild copper) (SS-105 O-ring is also usable.)

Models		Rated Capacity	Natural Frequencies
Connector Type	Cable Integrated Type		
PGL-A-1MP-A	PGL-A-1MP-B	1 MPa	≈ 48 kHz
PGL-A-2MP-A	PGL-A-2MP-B	2 MPa	≈ 74 kHz
PGL-A-5MP-A	PGL-A-5MP-B	5 MPa	≈ 122 kHz
PGL-A-10MP-A	PGL-A-10MP-B	10 MPa	≈ 149 kHz
PGL-A-20MP-A	PGL-A-20MP-B	20 MPa	≈ 210 kHz
PGL-A-50MP-A	PGL-A-50MP-B	50 MPa	≈ 294 kHz

Dimensions

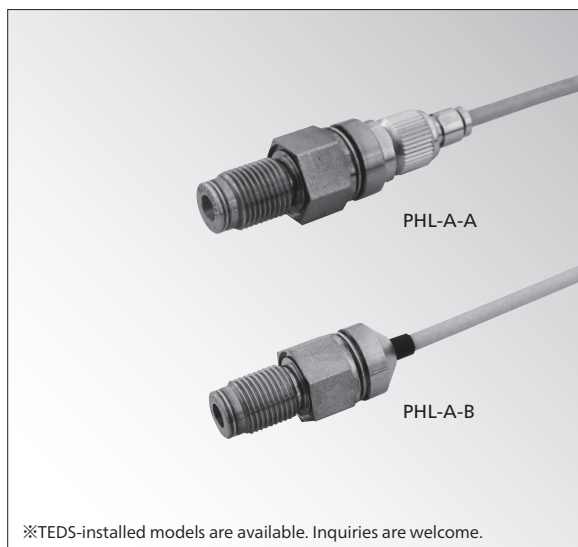


● Physical quantity indication ● Static measurement ● Dynamic measurement

PGL-A
Recommended
products for
combination



Small-sized High/Low-Temperature Pressure Transducer



Compact & Lightweight High and Low Temperature High Frequency Response

PHL-A- series pressure transducers are suitable for pressure measurement in not only limited space under both high and low temperature environments but also highly viscous heated fluids like melt resin, high-temperature gases and LPG/LNG tanks. A semi-flush diaphragm at the top not only ensures excellent response and dynamic characteristics. Connector-equipped PHL-A-A is also available.

Specifications

Performance

Rated Capacity	See table below.
Nonlinearity	Within $\pm 0.5\%$ RO for 1, 2 MPa Within $\pm 0.3\%$ RO for 3 to 50 MPa
Hysteresis	Within $\pm 0.5\%$ RO for 1, 2 MPa Within $\pm 0.2\%$ RO for 3 to 50 MPa
Repeatability	0.2% RO or less
Rated Output	2 mV/V $\pm 20\%$ but $\pm 30\%$ for 1, 2 MPa

Environmental Characteristics

Safe Temperature	PHL-A-A: -40 to 150°C PHL-A-B: -196 to 210°C Cable connectors: -25 to 85°C
Compensated Temperature	PHL-A-A: -20 to 150°C PHL-A-B: -196 to 200°C Cable connectors: -25 to 85°C
Temperature Effect on Zero	Within $\pm 0.05\%$ RO/°C for 1, 2 MPa Within $\pm 0.03\%$ RO/°C for 3 to 50 MPa
Temperature Effect on Output	Within $\pm 0.03\%$ /°C

Electrical Characteristics

Safe Excitation	6 V AC or DC
Recommended Excitation	1 to 3 V AC or DC
Input Resistance	350 $\Omega \pm 2\%$
Output Resistance	350 $\Omega \pm 2\%$
Cable	PHL-A-A: 4-conductor (0.09 mm ²) fluoroplastic shielded cable, 3.1 mm diameter by 4 m long, terminated with connector plug PRC03-12A10-7M PHL-A-B: 4-conductor (0.09 mm ²) fluoroplastic shielded cable, 3.1 mm diameter by 30 cm long, terminated with connector plug PRC03-12A10-7M (Shield wire is not connected to the case.)

Mechanical Properties

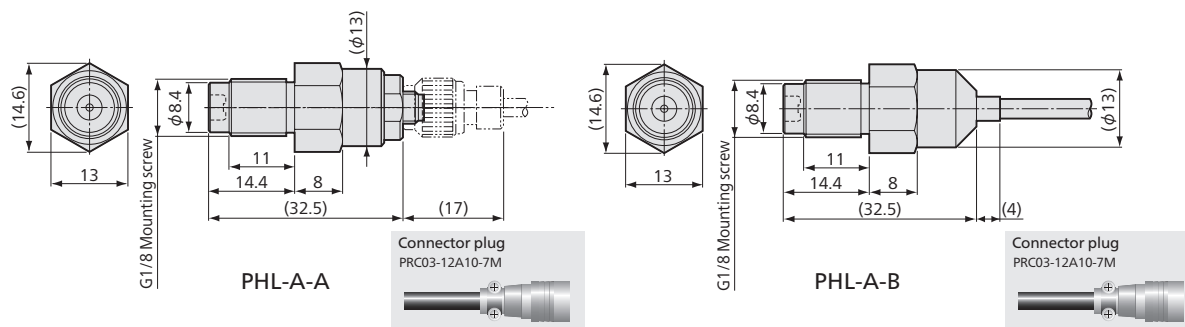
Safe Overloads	150%
Natural Frequencies	See table below.
Material	SUS 630 (Liquid-contacting part)
Weight	Approx. 20 g (Excluding cable)
Degree of Protection	PHL-A-A: IP67 (IEC 60529) PHL-A-B: IP64 (IEC 60529)
Mounting Screw	G1/8, male

Standard Accessories

Gasket (Mild copper) (SS-105 O-ring is also usable.)

Models		Rated Capacity	Natural Frequencies
Connector Type	Cable Integrated Type		
PHL-A-1MP-A	PHL-A-1MP-B	1 MPa	≈ 48 kHz
PHL-A-2MP-A	PHL-A-2MP-B	2 MPa	≈ 74 kHz
PHL-A-3MP-A	PHL-A-3MP-B	3 MPa	≈ 94 kHz
PHL-A-5MP-A	PHL-A-5MP-B	5 MPa	≈ 122 kHz
PHL-A-10MP-A	PHL-A-10MP-B	10 MPa	≈ 149 kHz
PHL-A-20MP-A	PHL-A-20MP-B	20 MPa	≈ 210 kHz
PHL-A-30MP-A	PHL-A-30MP-B	30 MPa	≈ 250 kHz
PHL-A-50MP-A	PHL-A-50MP-B	50 MPa	≈ 294 kHz

Dimensions



● Physical quantity indication ● Static measurement ● Dynamic measurement

PHL-A
Recommended
products for
combination

Instrumentation Amplifier
WGA-900A
→ 3-95

Data Logger
UCAM-60B
→ 3-25

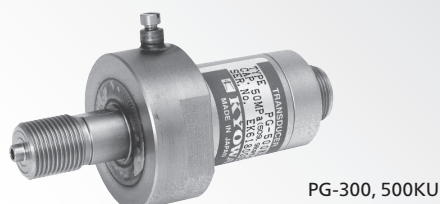
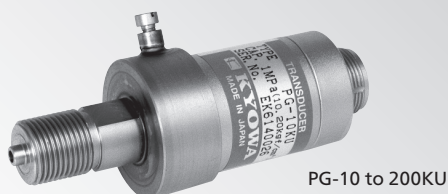
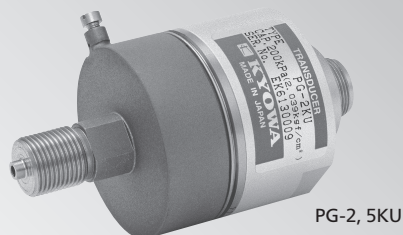
Strain Amplifier
DPM-900 Series
→ 3-5

Universal Recorder
EDX-200A
→ 3-55

Universal Recorder
EDX-100A
→ 3-63

Sensor Interface
PCD-400A
→ 3-77





*Models with no air vent are available for long-term measurement. Inquiries are welcome.

Highly Accurate and Reliable Pressure Transducers

- Hermetically-sealed structure with inert gas filled in
- Wide range of rated capacities
- Abundant application achievements

Highly accurate and reliable PG-U series pressure transducers are hermetically sealed with inert gas filled in to enable a long-term stable measurement. Typical applications include pressure measurement of hydraulic or pneumatic cylinder and pressure test of high-pressure water or gas pipe.

Specifications

Performance

Rated Capacity	See table below.
Nonlinearity	Within $\pm 0.3\%$ RO for 200 kPa to 1 MPa Within $\pm 0.2\%$ RO for 2 to 50 MPa
Hysteresis	Within $\pm 0.3\%$ RO for 200 kPa to 1 MPa Within $\pm 0.2\%$ RO for 2 to 50 MPa
Repeatability	0.1% RO or less
Rated Output	2 mV/V $\pm 0.5\%$ but $\pm 1\%$ for 200 kPa to 1 MPa

Environmental Characteristics

Safe Temperature	-20 to 70°C
Compensated Temperature	-10 to 60°C
Temperature Effect on Zero	Within $\pm 0.02\%$ RO/°C
Temperature Effect on Output	Within $\pm 0.02\%$ /°C

Electrical Characteristics

Safe Excitation	15 V AC or DC
Recommended Excitation	1 to 10 V AC or DC
Input Resistance	350 $\Omega \pm 1\%$
Output Resistance	350 $\Omega \pm 1\%$
Dedicated connection cable	TT-01
Cable	4-conductor (0.3 mm ²) chloroprene shielded cable, 7.6 mm diameter by 3 m long, terminated with connector plug PRC03-12A10-7M (Shield wire is connected to the case.)

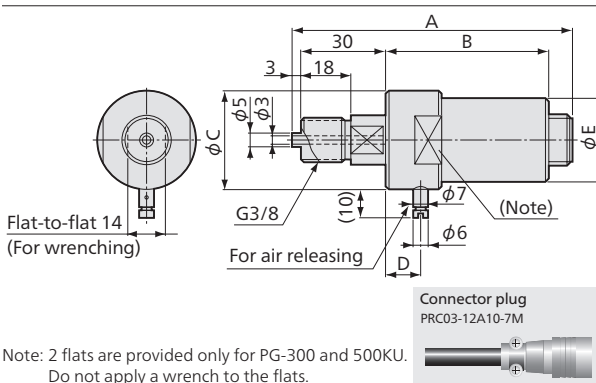
Mechanical Properties

Safe Overloads	150%
Natural Frequencies	See table below.
Material	Case: Anode oxide coated aluminum Liquid-contacting part: SUS 630 For 10KU or more, the case is die cast zinc alloy (Chrome plated)
Weight	Approx. 300 g (2, 5KU is approx. 500 g) (Excluding cable)
Degree of Protection	IP54 (IEC 60529)
Mounting Screw	G3/8, male

Standard Accessories Gasket (Mild copper)

*Do not use PG-200KU to PG-500KU for endurance/fatigue tests.
*Avoid using for a long-term measurement of gas pressure if much importance is attached to the stability of output in a minute range.

Dimensions



Models	Rated Capacity	Natural Frequencies	A	B	ϕC	D	ϕE
PG-2KU	200 kPa	≈ 2 kHz	104	63	54	4	54
PG-5KU	500 kPa	≈ 4 kHz					
PG-10KU	1 MPa	≈ 7 kHz	98	56	36	10	30
PG-20KU	2 MPa	≈ 13 kHz					
PG-50KU	5 MPa	≈ 21 kHz	102	60	36	13	30
PG-100KU	10 MPa	≈ 29 kHz					
PG-200KU	20 MPa	≈ 40 kHz	102	60	46	13	30
PG-300KU	30 MPa	≈ 45 kHz					
PG-500KU	50 MPa	≈ 50 kHz					

- Physical quantity indication
- Dynamic measurement

PG-U
Recommended
products for
combination



Small-sized Pressure Transducer



*Models with no air vent are available. When ordering, suffix "M1" to model numbers stated below.

Compact & Lightweight High Vibration & Impact Resistance

- Not affected by atmospheric pressure change
- High vibration & impact resistance
 - Vibration acceleration 490.3 m/s² (50 G)
 - Impact acceleration 4903 m/s² (500 G)

PGS-A series pressure transducers are designed and manufactured to be especially compact and lightweight.

Specifications

Performance

Rated Capacity	See table below.
Nonlinearity	Within ±0.4% RO for 1 MPa
	Within ±0.3% RO for 2 MPa
	Within ±0.2% RO for 5 to 50 MPa
Hysteresis	Within ±0.2% RO
Repeatability	0.1% RO or less
Rated Output	2 mV/V ±0.5%

Environmental Characteristics

Safe Temperature	-20 to 70°C
Compensated Temperature	-10 to 60°C
Temperature Effect on Zero	Within ±0.02% RO/°C
Temperature Effect on Output	Within ±0.01%/°C

Electrical Characteristics

Safe Excitation	15 V AC or DC
Recommended Excitation	1 to 10 V AC or DC
Input Resistance	600 Ω ±17.5%
Output Resistance	500 Ω ±1%
Cable	4-conductor (0.3 mm ²) chloroprene shielded cable, 4.5 mm diameter by 3 m long, terminated with connector plug PRC03-12A10-7M (Shield wire is not connected to the case.)

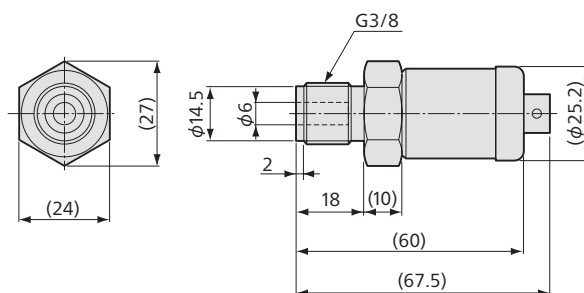
Mechanical Properties

Safe Overloads	150%
Natural Frequencies	See table below.
Material	Case: Anode oxidized aluminum Liquid-contacting part: SUS 630
Weight	Approx. 120 g (Excluding cable)
Degree of Protection	IP52 (IEC 60529)
Mounting Screw	G3/8, male

Standard Accessories Gasket (Mild copper)

Models	Rated Capacity	Natural Frequencies
PGS-10KA	1 MPa	≈ 11 kHz
PGS-20KA	2 MPa	≈ 17 kHz
PGS-50KA	5 MPa	≈ 27 kHz
PGS-100KA	10 MPa	≈ 35 kHz
PGS-200KA	20 MPa	≈ 52 kHz
PGS-300KA	30 MPa	≈ 64 kHz
PGS-500KA	50 MPa	≈ 85 kHz

Dimensions

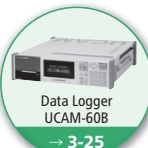


Connector plug
PRC03-12A10-7M



- Physical quantity indication
- Static measurement
- Dynamic measurement

PGS-A
Recommended
products for
combination



- Highly Reliable Inert Gas Sealed Structure
- 100 & 200 MPa



Compact, lightweight, highly accurate, and highly reliable

Available with rated capacities of 100 and 200 MPa, the PG-H series pressure transducers are hermetically sealed with inert gas filled in, enabling long-term stable measurement.

Specifications

Performance

Rated Capacity	PG-1TH: 100 MPa
	PG-2TH: 200 MPa
Nonlinearity	Within $\pm 0.2\%$ RO
Hysteresis	Within $\pm 0.2\%$ RO
Rated Output	1.5 mV/V $\pm 0.5\%$

Environmental Characteristics

Safe Temperature	-20 to 80°C
Compensated Temperature	-10 to 70°C
Temperature Effect on Zero	Within $\pm 0.02\%$ RO/°C
Temperature Effect on Output	Within $\pm 0.01\%$ /°C

Electrical Characteristics

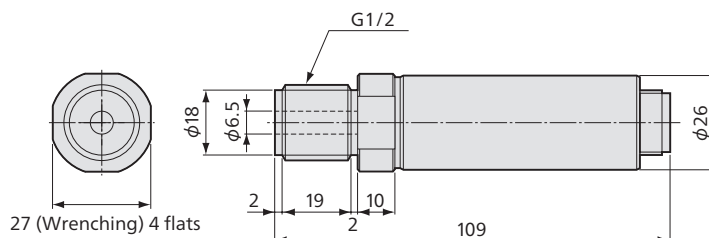
Safe Excitation	15 V AC or DC
Recommended Excitation	1 to 10 V AC or DC
Input Resistance	350 $\Omega \pm 1.5\%$
Output Resistance	350 $\Omega \pm 1.5\%$
Cable	4-conductor (0.3 mm ²) chloroprene shielded cable, 7.6 mm diameter by 3 m long, terminated with waterproof connector plug to transducer and connector plug PRC03-12A10-7M to amplifier (Shield wire is not connected to the case.)

Mechanical Properties

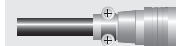
Safe Overloads	150%
Natural Frequencies	Approx. 250 kHz
Material	Case: SUS (Metallic finish)
	Liquid-contacting part: SUS 630
Weight	Approx. 220 g (Excluding cable)
Degree of Protection	IP52 (IEC 60529)
Mounting Screw	G1/2, male

Standard Accessories Gasket (Mild copper)

Dimensions



Connector plug
PRC03-12A10-7M

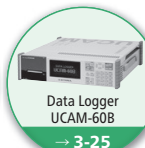


● Physical quantity
indication

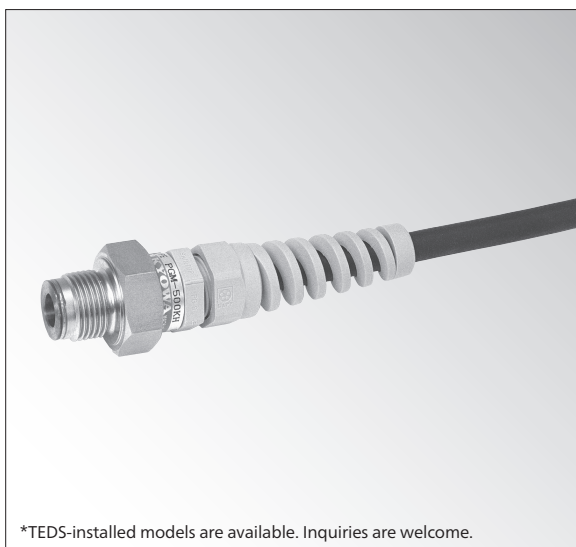
● Static
measurement

● Dynamic
measurement

PG-H
Recommended
products for
combination



Small-Sized Pressure Transducer



*TEDS-installed models are available. Inquiries are welcome.

Compact Semiflush Diaphragm Type and Available in Various Rated Capacities

PGM-H series pressure transducers are suitable for pressure measurement in limited space. Because of a diaphragm at the end, it ensures excellent response and dynamic characteristics.

Specifications

Performance

Rated Capacity	See table below.
Nonlinearity	Within $\pm 0.5\%$ RO for 500 kPa to 2 MPa Within $\pm 0.3\%$ RO for 3 to 50 MPa
Hysteresis	Within $\pm 0.2\%$ RO
Rated Output	1.35 mV/V or more for 500 kPa 2 mV/V or more for 1 to 50 MPa

Environmental Characteristics

Safe Temperature	-20 to 70°C
Compensated Temperature	-10 to 60°C
Temperature Effect on Zero	Within $\pm 0.05\%$ RO/°C for 500 kPa to 2 MPa Within $\pm 0.03\%$ RO/°C for 3 to 50 MPa
Temperature Effect on Output	Within $\pm 0.02\%$ /°C

Electrical Characteristics

Safe Excitation	6 V AC or DC
Recommended Excitation	1 to 3 V AC or DC
Input Resistance	350 $\Omega \pm 2\%$
Output Resistance	350 $\Omega \pm 2\%$
Cable	4-conductor (0.3 mm ²) chloroprene shielded cable, 7.6 mm diameter by 3 m long, terminated with connector plug PRC03-12A10-7M (Shield wire is not connected to the case.)

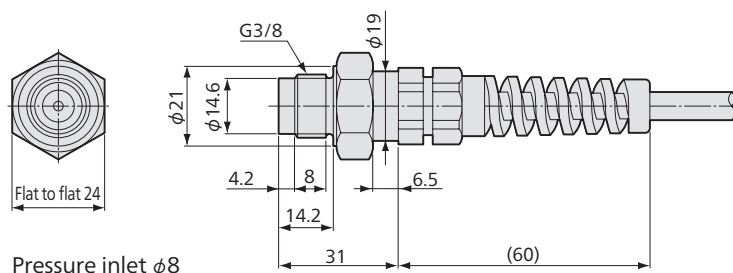
Mechanical Properties

Safe Overloads	150%
Natural Frequencies	See table below.
Material	Case: SUS metallic finish Liquid-contacting part: SUS 630
Weight	Approx. 65 g (Excluding cable)
Mounting Screw	G3/8, male

Standard Accessories Gasket (Mild copper)

Models	Rated Capacity	Natural Frequencies
PGM-5KH	500 kPa	≈ 19 kHz
PGM-10KH	1 MPa	≈ 26 kHz
PGM-20KH	2 MPa	≈ 37 kHz
PGM-30KH	3 MPa	≈ 46 kHz
PGM-50KH	5 MPa	≈ 57 kHz
PGM-100KH	10 MPa	≈ 78 kHz
PGM-200KH	20 MPa	≈ 110 kHz
PGM-300KH	30 MPa	≈ 134 kHz
PGM-500KH	50 MPa	≈ 174 kHz

Dimensions

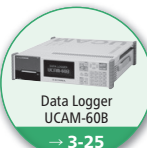


Connector plug
PRC03-12A10-7M



● Physical quantity indication ● Static measurement ● Dynamic measurement

PGM-H
Recommended
products for
combination



- Abundant Models from Low to High Pressures
- 1 to 50 MPa

Performance

Rated Capacity	See table below.
Nonlinearity	Within $\pm 1\%$ RO
Hysteresis	Within $\pm 1\%$ RO
Rated Output	1 mV/V or more for 1 to 20 MPa 1.4 mV/V or more for 50 MPa

Environmental Characteristics

Safe Temperature	0 to 80°C
Compensated Temperature	0 to 60°C
Temperature Effect on Zero	Within $\pm 0.1\%$ RO/°C
Temperature Effect on Output	Within $\pm 0.1\%$ /°C

Electrical Characteristics

Safe Excitation	5 V AC or DC
Recommended Excitation	1 to 3 V AC or DC
Input Resistance	120 $\Omega \pm 2\%$
Output Resistance	120 $\Omega \pm 2\%$
Cable	4-conductor (0.3 mm ²) chloroprene shielded cable, 7.6 mm diameter by 3 m long, terminated with connector plug PRC03-12A10-7M (Shield wire is connected to the case.)

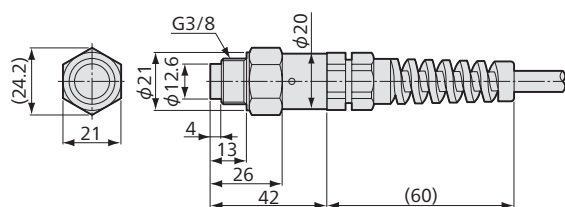
Mechanical Properties

Safe Overloads	150%
Natural Frequencies	See table below.
Material	Case: SUS304 Liquid-contacting part: SUS 630
Weight	Approx. 65 g (Excluding cable)
Degree of Protection	IP64 (IEC 60529)
Mounting Screw	G3/8, male

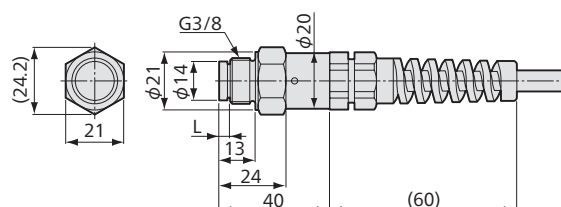
Standard Accessories	Gasket (Mild copper)
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Models	Rated Capacity	L	Natural Frequencies
PGM-10KE	1 MPa	—	≈ 22 kHz
PGM-20KE	2 MPa	—	≈ 23 kHz
PGM-50KE	5 MPa	5	≈ 46 kHz
PGM-100KE	10 MPa	5	≈ 60 kHz
PGM-200KE	20 MPa	4	≈ 73 kHz
PGM-500KE	50 MPa	3	≈ 80 kHz

■ Dimensions

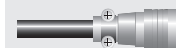


PGM-10 to 20KE



PGM-50 to 500KE

Connector plug
PRC03-12A10-7M



- Physical quantity indication ● Static measurement ● Dynamic measurement



*TEDS-installed models are available. Inquiries are welcome.
1MPa model PGM-10KD M156, and
2MPa model PGM-20KD M156 are available.

Enable Highly Accurate and Stable Measurement of Low Pressures

PGM-G series pressure transducers come with the cable in a conduit pipe for back-pressure compensation. Thus, they are easy to handle and enable highly accurate and stable measurement of low pressure.

Specifications

Performance

Rated Capacity	See table below.	
Nonlinearity	Within $\pm 0.5\%$ RO	
Hysteresis	Within $\pm 0.3\%$ RO	
Rated Output	PGM-02KG	0.75 mV/V or more
	PGM-05KG	1.25 mV/V or more
	PGM-1KG	1.4 mV/V or more

Environmental Characteristics

Safe Temperature	-20 to 70°C
Compensated Temperature	-10 to 60°C
Temperature Effect on Zero	Within $\pm 0.02\%$ RO/°C
Temperature Effect on Output	Within $\pm 0.03\%$ /°C

Electrical Characteristics

Safe Excitation	5 V AC or DC
Recommended Excitation	1 to 3 V AC or DC
Input Resistance	350 $\Omega \pm 10\%$
Output Resistance	350 $\Omega \pm 10\%$
Cable	4-conductor (0.08 mm ²) horizontal vinyl shielded cable in fluoroplastic tube, 4.2 mm diameter by 3 m long, terminated with connector plug PRC03-12A10-7M (Shield wire is not connected to the case.)

Mechanical Properties

Safe Overloads	150%
Natural Frequencies	See table below.
Material	Case: SUS metallic finish
	Liquid-contacting part: SUS 304
Weight	Approx. 40 g (Excluding cable)
Degree of Protection	IP54 (IEC 60529)
Mounting Screw	M14 P=1, male

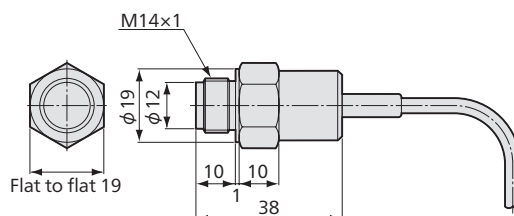
Standard Accessories O-ring (JIS B 2401-P14)

Models	Rated Capacity	Natural Frequencies
PGM-02KG	20 kPa	≈ 2 kHz
PGM-05KG	50 kPa	≈ 3 kHz
PGM-1KG	100 kPa	≈ 4 kHz

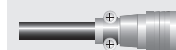
To Ensure Safe Usage

Neither bend nor vibrate the cable, otherwise, the output may be affected.
So, please fasten the cable when using.

Dimensions

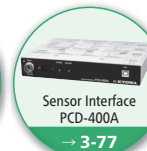
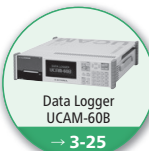


Connector plug
PRC03-12A10-7M



● Physical quantity indication ● Static measurement ● Dynamic measurement

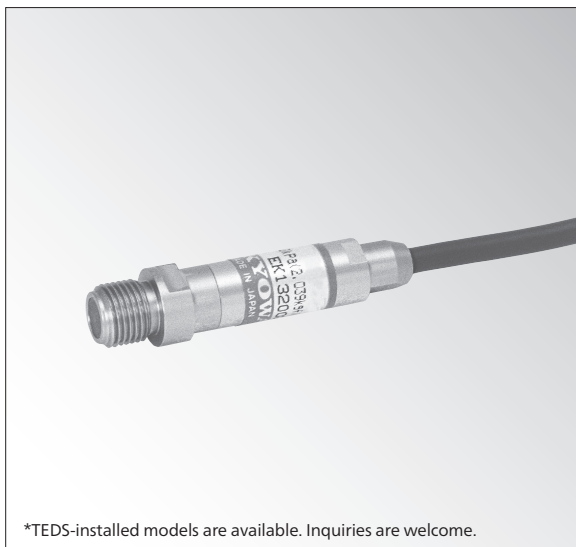
PGM-G
Recommended
products for
combination



PGMC-A

Small-sized Pressure Transducer

- Sensing surface of 5.5 mm diameter
- 200 kPa to 1 MPa



*TEDS-installed models are available. Inquiries are welcome.

Compact & lightweight High frequency response Flush diaphragm type

PGMC-A series pressure transducers adopt a flush diaphragm with the sensing surface of 5.5-mm diameter. Since a high frequency response to low pressure is ensured, they are suitable for pressure measurement requiring quick response or for a complicated piping system where the attaching space is limited.

Specifications

Performance

Rated Capacity	See table below.
Nonlinearity	Within $\pm 1.5\%$ RO
Hysteresis	Within $\pm 1.5\%$ RO
Rated Output	0.6 mV/V or more for 200 kPa 1 mV/V $\pm 20\%$ for 0.5, 1 MPa

Environmental Characteristics

Safe Temperature	-10 to 60°C
Compensated Temperature	0 to 50°C
Temperature Effect on Zero	Within $\pm 0.3\%$ RO/°C for 200 kPa Within $\pm 0.2\%$ RO/°C for 0.5, 1 MPa
Temperature Effect on Output	Within $\pm 0.3\%$ /°C for 200 kPa Within $\pm 0.2\%$ /°C for 0.5, 1 MPa

Electrical Characteristics

Safe Excitation	3 V AC or DC
Recommended Excitation	1 to 2 V AC or DC
Input Resistance	350 $\Omega \pm 10\%$
Output Resistance	350 $\Omega \pm 10\%$
Cable	4-conductor (0.065 mm ²) vinyl shielded cable, 4 mm diameter by 3 m long, terminated with connector plug PRC03-12A10-7M (Shield wire is connected to the case.)

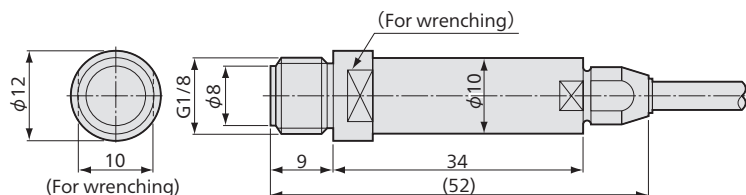
Mechanical Properties

Safe Overloads	150%
Natural Frequencies	See table below.
Material	Liquid-contacting part: C1720 Screw: SUS 303
Weight	Approx. 20 g (Excluding cable)
Degree of Protection	IP52 (IEC 60529)
Mounting Screw	G1/8, male

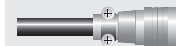
Standard Accessories Fluoroplastic sealing tape

Models	Rated Capacity	Natural Frequencies
PGMC-A-200KP	200 kPa	≈ 24 kHz
PGMC-A-500KP	500 kPa	≈ 34 kHz
PGMC-A-1MP	1 MPa	≈ 40 kHz

Dimensions



Connector plug
PRC03-12A10-7M



- Physical quantity indication
- Static measurement
- Dynamic measurement

PGMC-A
Recommended
products for
combination



Small-sized Pressure Transducer



*TEDS-installed models are available. Inquiries are welcome.
*1MPa model PGM-10KD M156, and
2MPa model PGM-20KD M156 are available.

High Frequency Response and Highly Accurate Flush Diaphragm Type with Small Pressure Sensing Surface

- Small pressure sensing surface
- Flush diaphragm type
- High frequency response

Specifications

Performance

Rated Capacity	See table below.
Nonlinearity	Within $\pm 0.5\%$ RO
Hysteresis	Within $\pm 0.5\%$ RO
Rated Output	1.5 mV/V $\pm 20\%$

Environmental Characteristics

Safe Temperature	-10 to 70°C
Compensated Temperature	0 to 60°C
Temperature Effect on Zero	Within $\pm 0.1\%$ RO/°C
Temperature Effect on Output	Within $\pm 0.1\%$ /°C

Electrical Characteristics

Safe Excitation	3 V AC or DC
Recommended Excitation	1 to 2 V AC or DC
Input Resistance	120 $\Omega \pm 2\%$
Output Resistance	120 $\Omega \pm 2\%$
Cable	4-conductor (0.065 mm ²) vinyl shielded cable, 4 mm diameter by 3 m long, terminated with connector plug PRC03-12A10-7M (Shield wire is connected to the case.)

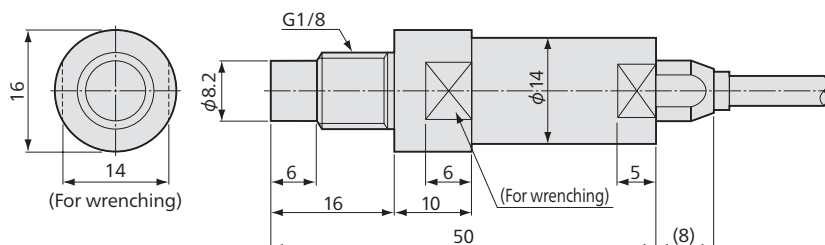
Mechanical Properties

Safe Overloads	150%
Natural Frequencies	See table below.
Material	Case: SUS metallic finish Liquid-contacting part: SUS 630
Weight	Approx. 40 g (Excluding cable)
Mounting Screw	G1/8, male

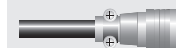
Standard Accessories Gasket (Mild copper)

Models	Rated Capacity	Natural Frequencies
PGM-50KD	5 MPa	≈ 83 kHz
PGM-100KD	10 MPa	≈ 113 kHz
PGM-200KD	20 MPa	≈ 150 kHz
PGM-500KD	50 MPa	≈ 250 kHz

Dimensions

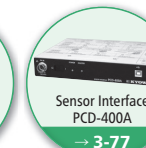


Connector plug
PRC03-12A10-7M

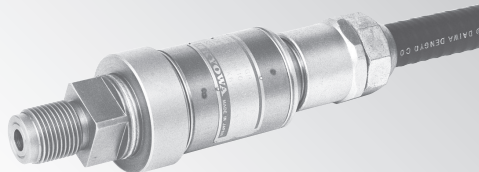


- Physical quantity indication ● Static measurement ● Dynamic measurement

PGM-D
Recommended
products for
combination



High-pressure-resistant Pressure Transducer



*TEDS-installed models are available. Inquiries are welcome.

High Temperatures up to 100°C High Pressure Withstanding Highly Accurate

- High temperatures up to 100°C
- High pressure withstanding
- High accuracy

Specifications

Performance

Rated Capacity	See table below.
Nonlinearity	Within $\pm 0.1\%$ RO
Hysteresis	Within $\pm 0.1\%$ RO
Rated Output	1.5 mV/V $\pm 5\%$

Environmental Characteristics

Safe Temperature	-30 to 110°C
Compensated Temperature	-10 to 100°C
Temperature Effect on Zero	Within $\pm 0.01\%$ RO/°C
Temperature Effect on Output	Within $\pm 0.01\%$ /°C

Electrical Characteristics

Safe Excitation	12 V AC or DC
Recommended Excitation	1 to 8 V AC or DC
Input Resistance	350 $\Omega \pm 1.4\%$
Output Resistance	350 $\Omega \pm 1.4\%$
Cable	4-conductor (0.75 mm ²) fluonlex shielded cable, 8 mm diameter by 5 m long, bared at the tip (Shield wire is not connected to the case.)

Mechanical Properties

Safe Overloads (*1)	300%
Ultimate Overloads (*2)	117.7 MPa (1 to 5 MPa) 196.1 MPa (10, 20 MPa)
Natural Frequencies	See table below.
Material	Case: SUS metallic finish Liquid-contacting part: SUS 630
Weight	Approx. 400 g (Excluding cable)
Mounting Screw	G3/8, male

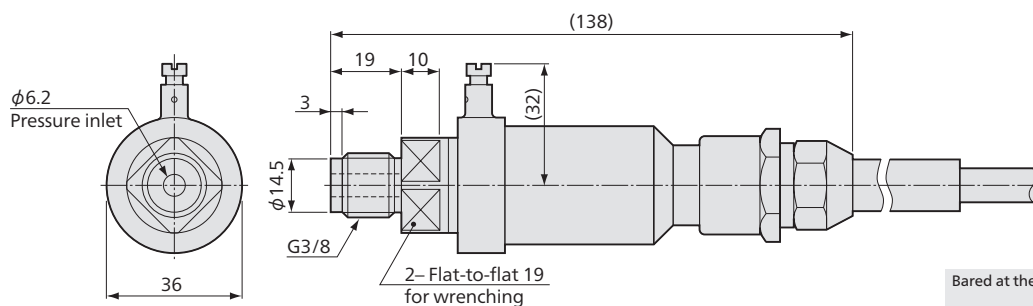
Standard Accessories Gasket (Mild copper)

Models	Rated Capacity	Natural Frequencies
PGR-10KA	1 MPa	≈ 12 kHz
PGR-20KA	2 MPa	≈ 17 kHz
PGR-50KA	5 MPa	≈ 29 kHz
PGR-100KA	10 MPa	≈ 42 kHz
PGR-200KA	20 MPa	≈ 60 kHz

*1. Maximum overload which is applied without causing any permanent change in specified characteristics

*2. Maximum overload which is applied without causing any structural damage.

Dimensions

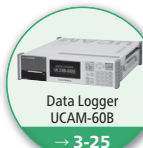


● Physical quantity indication

● Static measurement

● Dynamic measurement

PGR-A
Recommended
products for
combination



Absolute Pressure Transducer



Compact & Lightweight, Highly Stable

- Possible to measure absolute pressure
- Highly reliable (Conforming to MIL-STD-810C)

PAB-A series pressure transducers allow absolute pressure to be measured from zero to 2 MPa abs for long-term. Developed for pressure measurement on airplanes and flying objects, these transducers pass high-temperature and vibration tests in conformity to MIL-STD-810C and is widely used in various industrial and engineering fields.

Specifications

Performance

Rated Capacity	See table below.
Nonlinearity	Within $\pm 0.1\%$ RO
Hysteresis	Within $\pm 0.1\%$ RO
Rated Output	2 mV/V or more

Environmental Characteristics

Safe Temperature	-30 to 80°C
Compensated Temperature	-20 to 70°C
Temperature Effect on Zero	Within $\pm 0.01\%$ RO/°C
Temperature Effect on Output	Within $\pm 0.01\%$ /°C

Electrical Characteristics

Safe Excitation	8 V AC or DC
Recommended Excitation	1 to 3 V AC or DC
Input Resistance	367 $\Omega \pm 2\%$
Output Resistance	350 $\Omega \pm 2\%$
Cable	4-conductor (0.3 mm ²) chloroprene shielded cable, 7.6 mm diameter by 3 m long, bared at the tip (Shield wire is connected to the case.)

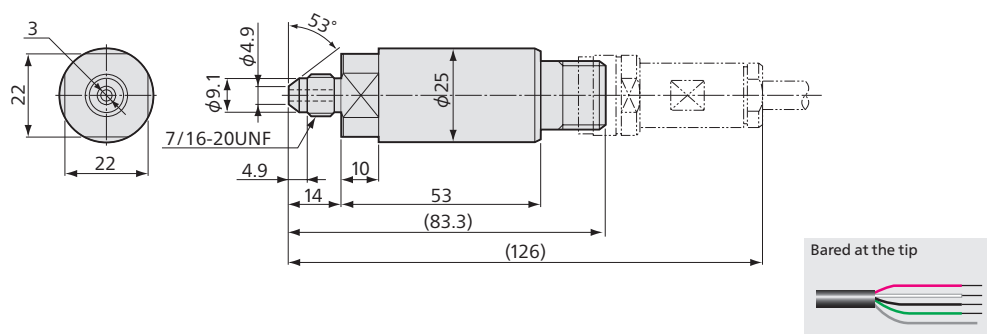
Mechanical Properties

Safe Overloads	150%
Natural Frequencies	See table below.
Material	SUS 630 (Liquid-contacting part)
Weight	Approx. 130 g (Excluding cable)
Mounting Screw	7/16-20UNF male

Standard Accessories O-ring (JIS B 2401-P15)

Models	Rated Capacity	Natural Frequencies
PAB-A-200KP	200 kPa _{abs.}	≈ 5 kHz
PAB-A-500KP	500 kPa _{abs.}	≈ 8 kHz
PAB-A-1MP	1 MPa _{abs.}	≈ 10 kHz
PAB-A-2MP	2 MPa _{abs.}	≈ 12 kHz

Dimensions



Dynamic measurement

PAB-A
Recommended
products for
combination

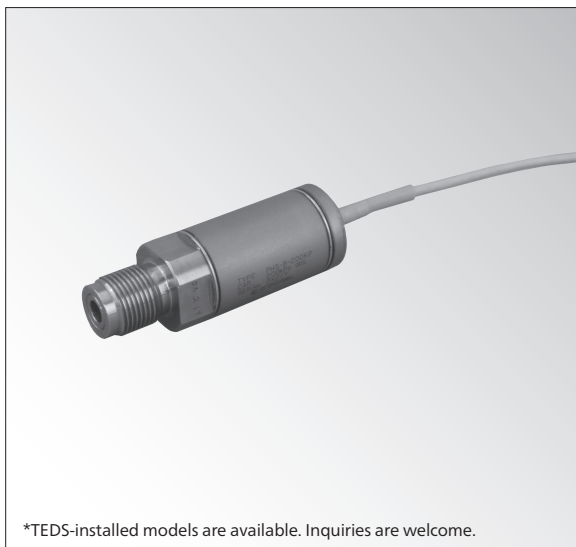
Universal Recorder
EDX-200A
→ 3-55

Universal Recorder
EDX-100A
→ 3-63

Memory Recorder/Analyzer
EDX-5000A
→ 3-68



Highly Reliable Pressure Transducer (Sputter-gage type)



*TEDS-installed models are available. Inquiries are welcome.

Both High and Low Temperatures Possible to Measure Absolute Pressure Excellent High-temperature

PHS-B series pressure transducers have the thin-film strain gage and temperature-compensating resistive membrane formed directly on the diaphragm by sputtering and photo-lithography, thereby enabling accurate temperature compensation even at high temperatures.

Specifications

Performance

Rated Capacity	See table below.
Nonlinearity	Within $\pm 0.2\%$ RO
Hysteresis	Within $\pm 0.2\%$ RO
Rated Output	1.5 mV/V or more

Environmental Characteristics

Safe Temperature	-196 to 230°C
Compensated Temperature	-30 to 200°C
Temperature Effect on Zero	Within $\pm 0.02\%$ RO/°C
Temperature Effect on Output	Within $\pm 0.015\%$ /°C

Electrical Characteristics

Safe Excitation	15 V AC or DC
Recommended Excitation	1 to 10 V AC or DC
Input Resistance	900 Ω $\frac{100}{-150} \Omega$
Output Resistance	900 Ω $\frac{100}{-150} \Omega$
Cable	4-conductor (0.09 mm ²) fluoroplastic shielded cable, 5 m long, 3.1 mm diameter, bared at the tip (Shield wire is not connected to the case.)

Mechanical Properties

Safe Overloads	150%
Natural Frequencies	See table below.
Materials	Case: SUS (Metallic finish) Liquid-contacting part: SUS 630
Weight	Approx. 130 g (Excluding cable)
Mounting Screw	G3/8, male

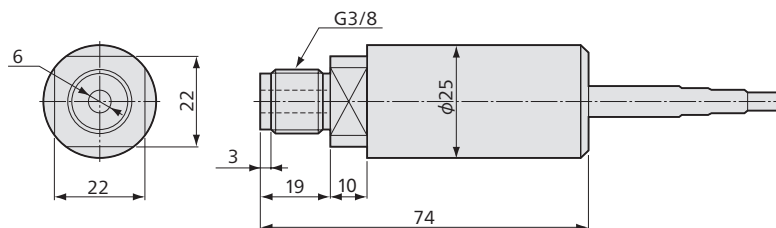
Standard Accessories Gasket (Mild copper)

Models	Rated Capacity	Natural Frequencies
PHS-B-200KP	200 kPa _{abs.}	≈ 5 kHz
PHS-B-500KP	500 kPa _{abs.}	≈ 7 kHz
PHS-B-1MP	1 MPa _{abs.}	≈ 20 kHz
PHS-B-2MP	2 MPa _{abs.}	≈ 30 kHz
PHS-B-5MP	5 MPa _{abs.}	≈ 50 kHz
PHS-B-10MP	10 MPa _{abs.}	≈ 70 kHz
PHS-B20MP	20 MPa _{abs.}	≈ 100 kHz

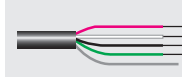
To Ensure Safe Usage

High-carrier-based dynamic strain amplifier DPM-912, 913 or 952 may not satisfy the specified rated output in some rare case. Request us to calibrate the transducer in combination with the strain amplifier. Or, if possible, use dynamic strain amplifier DPM-911 or 951 or signal conditioner CDV-900A.

Dimensions



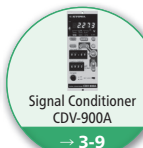
Bared at the tip



● Physical quantity indication

● Dynamic measurement

PHS-B
Recommended
products for
combination



Flush Diaphragm Type High-temperature Pressure Transducer



*TEDS-installed models are available. Inquiries are welcome.

Heat-resistant Sputter Gages Achieve Pressure Measurement at High-Temperature

- Safe temperature from -30 to 240°C
- Flush diaphragm ensuring high frequency response
- Compact, flexible, and heat-resistant cable ensuring ease of use

To enable pressure measurement at high temperature, PHC-B series pressure transducers adopt thin-film strain gage formed by sputtering.

The sensor part is a flush, diaphragm detecting pressure directly on a flat surface without pressure medium, thus enabling pressure measurement without missing momentary pressure changes. In addition, the flush diaphragm makes these transducers suitable for measuring not only liquid or gas pressure but also pressure of highly viscous medium.

The small-sized design and flexible cable make them easy to use even in limited space.

Specifications

Performance

Rated Capacity	See table below.
Nonlinearity	Within $\pm 0.5\%$ RO
Hysteresis	Within $\pm 0.3\%$ RO
Repeatability	0.2% RO or less
Rated Output	0.6 mV/V or more

Environmental Characteristics

Safe Temperature	-30 to 240°C (200°C with cable, -25 to 85°C with connector plug)
Compensated Temperature	23 to 230°C
Temperature Effect on Zero	Within $\pm 0.03\%$ RO/°C
Temperature Effect on Output	Within $\pm 0.03\%$ /°C

Electrical Characteristics

Safe Excitation	12 V AC or DC
Recommended Excitation	1 to 10 V AC or DC
Input Resistance	380 to 650 Ω
Output Resistance	380 to 650 Ω
Cable	4-conductor (0.09 mm ²) fluoroplastic shielded cable, 3.1 mm diameter by 3 m long, terminated with connector plug PRC03-12A10-7M (Shield wire is not connected to the case.)

Mechanical Properties

Safe Overloads	150%
Natural Frequencies	See table below.
Material	Case: SUS metallic finish
	Liquid-contacting part: SUS 630
Weight	Approx. 70 g (Excluding cable)
Degree of Protection	IP62 (IEC 60529)
Mounting Screw	G1/8, male

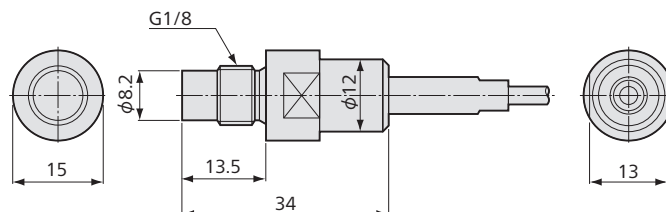
Standard Accessories Gasket (Mild copper)

Models	Rated Capacity	Natural Frequencies
PHC-B-2MP	2 MPa	≈ 45 kHz
PHC-B-5MP	5 MPa	≈ 75 kHz
PHC-B-10MP	10 MPa	≈ 85 kHz
PHC-B-20MP	20 MPa	≈ 85 kHz

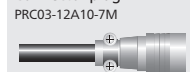
To Ensure Safe Usage

High-carrier-based dynamic strain amplifier DPM-912, 913 or 952 may not satisfy the specified rated output in some rare case. Request us to calibrate the transducer in combination with the strain amplifier. Or, if possible, use dynamic strain amplifier DPM-911 or 951 or signal conditioner CDV-900A.

Dimensions



Connector plug PRC03-12A10-7M

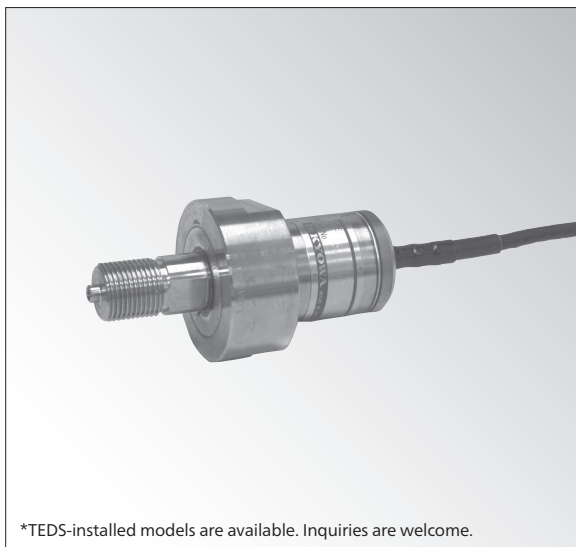


●Physical quantity indication

●Dynamic measurement



High/Low-temperature Pressure Transducer



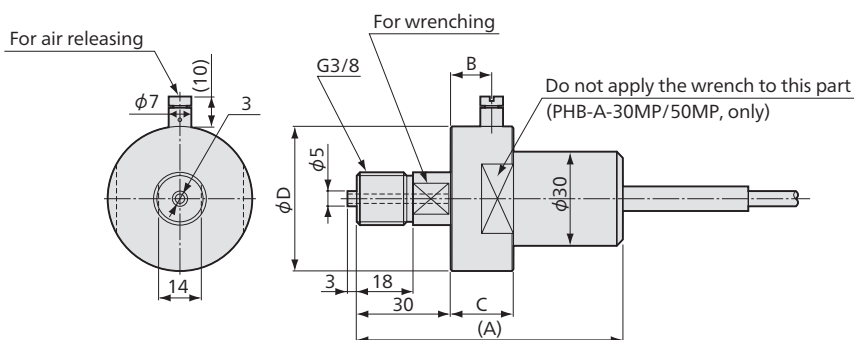
*TEDS-installed models are available. Inquiries are welcome.

Suitable for Pressure Measurement of LPG/LNG Tanks and Gas or Steam Turbines

- Usable at both high and low temperatures
- Corrosion resistant
- Hermetically-sealed structure with inert gas filled in
- Highly reliable

PHB-A series is designed for pressure measurement from low to high temperatures. The sensor surface is made by stainless steel diaphragm and inert gas is filled in to increase reliability.

■ Dimensions



Models	Rated Capacity	A	B	C	φD	Natural Frequencies	Weight*
PHB-A-1MP	1 MPa	80	10	16	36	≈ 8 kHz	≈ 230 g
PHB-A-2MP	2 MPa					≈ 13 kHz	
PHB-A-5MP	5 MPa	84	13	20	36	≈ 21 kHz	≈ 270 g
PHB-A-10MP	10 MPa					≈ 29 kHz	
PHB-A-20MP	20 MPa	84	13	20	46	≈ 40 kHz	≈ 360 g
PHB-A-30MP	30 MPa					≈ 45 kHz	
PHB-A-50MP	50 MPa					≈ 50 kHz	

*Excluding cable

Specifications

Performance

Rated Capacity	See table below.
Nonlinearity	Within ±0.4% RO
Hysteresis	Within ±0.4% RO
Rated Output	2.2 mV/V ±15%

Environmental Characteristics

Safe Temperature	-196 to 210°C (Connector plug: -25 to 80°C)
Compensated Temperature	-196 to 200°C (Connector plug: -25 to 80°C)
Temperature Effect on Zero	Within ±0.03% RO/°C
Temperature Effect on Output	Within ±0.035%/°C (1 MPa) Within ±0.03%/°C (2 to 50 MPa)

Electrical Characteristics

Safe Excitation	15 V AC or DC
Recommended Excitation	1 to 10 V AC or DC
Input Resistance	350 Ω ±2%
Output Resistance	350 Ω ±2%
Cable	4-conductor (0.3 mm ²) fluoroplastic shielded cable, 5 mm diameter by 3 m long, terminated with connector plug PRC03-12A10-7M (Shield wire is connected to the case.)

Mechanical Properties

Safe Overloads	120%
Natural Frequencies	See table below.
Material	Case: SUS metallic finish Liquid-contacting part: SUS 630
Weight	See table below.
Degree of Protection	IP51 (IEC 60529)
Mounting Screw	G3/8, male

Standard Accessories Gasket (Mild copper)

*Do not use PHB-A-20MP to PHB-A-50MP for endurance/fatigue tests.
*Avoid using for a long-term measurement of gas pressure if much importance is attached to the stability of output in a minute range.
For such application, models with no air vent are available.

- Physical quantity indication
- Static measurement
- Dynamic measurement

PHB-A
Recommended
products for
combination



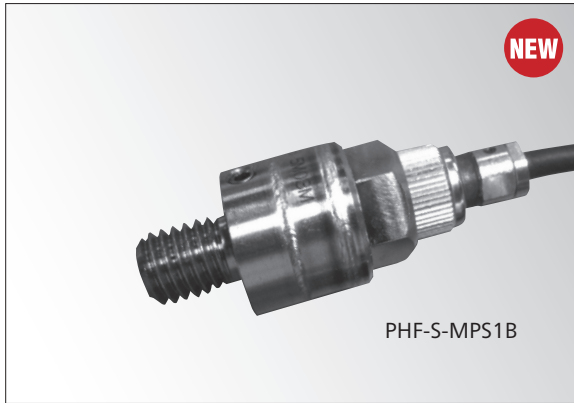
PHF-S-S1 Series

● -40 to 150°C
● 2 to 20 MPa

Small-sized High-temperature Pressure Transducer

2
-98

TRANSDUCERS



PHF-S-MPS1B

Excellent in environmental performance

- Enable to reduce weight effect on measuring objects
- After removing the connector, enables to install in a limited space by a socket wrench

Specifications

Performance

Rated Capacity	See table below.
Nonlinearity	Within $\pm 0.3\%$ RO
Hysteresis	Within $\pm 0.2\%$ RO
Rated Output	Approx. 1.75 mV/V

Environmental Characteristics

Safe Temperature	-40 to 160°C
Compensated Temperature	-40 to 150°C
Temperature Effect on Zero	Within $\pm 0.008\%$ RO/°C
Temperature Effect on Output	Within $\pm 0.01\%$ /°C

Electrical Characteristics

Safe Excitation	5 V AC or DC
Recommended Excitation	1 to 2 V AC or DC
Input Resistance	350 $\Omega \pm 5\%$
Output Resistance	350 $\Omega \pm 5\%$
Cable	4-conductor (0.08 mm ²) silicon cable, terminated with connector plug PRC03-12A10-7M (Shield wire is not connected to the case.)

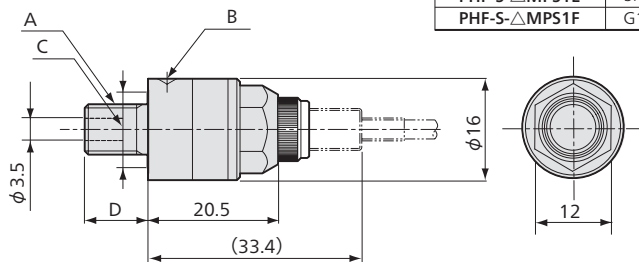
Mechanical Properties

Safe Overloads	150%
Natural Frequencies	See table below.
Material	Liquid-contact part: SUS 630
Weight	Approx. 20 g (Excluding cable)
Degree of Protection	IP45 (IEC 60529)
Mounting Screw	See table below.

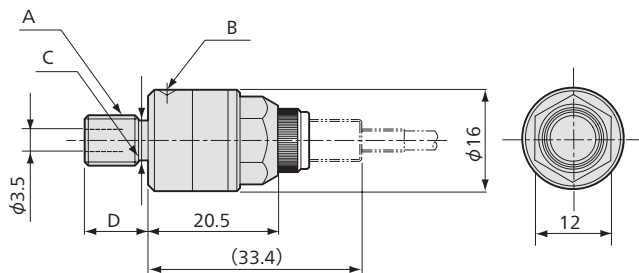
Models	Rated Capacity	Natural frequencies
PHF-S-2MPS1□	2 MPa	≈ 45 kHz
PHF-S-5MPS1□	5 MPa	≈ 60 kHz
PHF-S-10MPS1□	10 MPa	≈ 70 kHz
PHF-S-20MPS1□	20 MPa	≈ 85 kHz

The suffix comes from A to F stands different screws and cable length.

Dimensions



PHF-S-MPS1A/B/C/F



PHF-S-MPS1D/E

Models	A	B	C	D	Cable Length
PHF-S-△MPS1A	R1/8	Air-vent screw	—	7.5	4 m
PHF-S-△MPS1B	M8×1.25	Air-vent screw	φ12	10	4 m
PHF-S-△MPS1C	M10×1.25	Air-vent screw	φ14	12	4 m
PHF-S-△MPS1D	M10×1.0	Air-vent screw	φ8.2	10	5 m
PHF-S-△MPS1E	5/16-24UNF	—	φ6.3	10	4.5 m
PHF-S-△MPS1F	G1/8	Air-vent screw	—	9	4 m

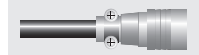
*△ means capacity of each model

Note:

These models are designed for measuring oil pressure. It is necessary to mount protection covers around the transducer for measuring air pressure.

Connector plug

PRC03-12A10-7M

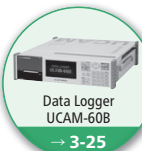


Note:

UNF and G type screws are available from size 8 to 12 mm.

- Physical quantity indication
- Static measurement
- Dynamic measurement

PHF-S-S1 Series
Recommended
products for
combination



Pressure Transducers

PHF-S-SA2

● Vibration Resistance: 490.3 m/s²
● 2 to 20 MPa

Small-sized High-temperature Pressure Transducer



Compact & Lightweight, Usable at up to 150°C

- High vibration resistance: 490.3 m/s² (50 G)
- Highly stable

PHF-S-SA2 series are small-sized strain-gage type pressure transducers which are usable in 150°C environment.

Specifications

Performance

Rated Capacity	See table below.
Nonlinearity	Within ±0.4% RO for 2 MPa Within ±0.3% RO for 5 to 20 MPa
Hysteresis	Within ±0.2% RO
Rated Output	2 mV/V

Environmental Characteristics

Safe Temperature	-40 to 170°C (Connector plug: -25 to 80°C)
Compensated Temperature	-40 to 150°C (Connector plug: -25 to 80°C)
Temperature Effect on Zero	Within ±0.008% RO/°C
Temperature Effect on Output	Within ±0.01%/°C

Electrical Characteristics

Safe Excitation	10 V AC or DC
Recommended Excitation	1 to 5 V AC or DC
Input Resistance	350 Ω±2%
Output Resistance	350 Ω±2%
Cable	4-conductor (0.09 mm ²) fluoroplastic shielded cable, 3.1 mm diameter by 4 m long, terminated with connector plug PRC03-12A10-7M

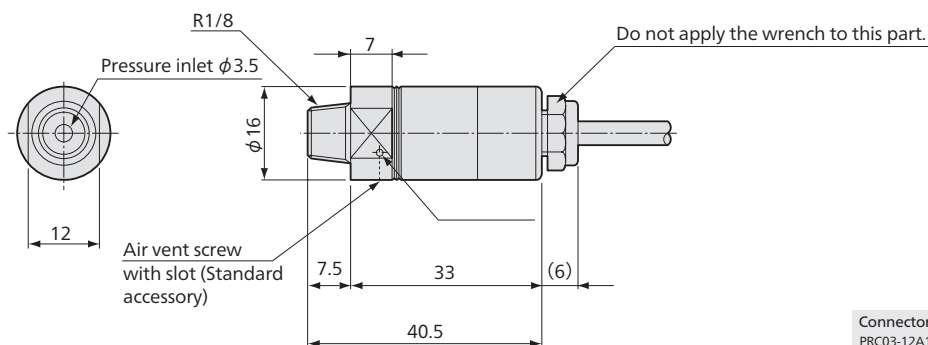
Mechanical Properties

Safe Overloads	150%
Natural Frequencies	See table below.
Material	Liquid-contacting part: SUS 630
Weight	Approx. 50 g (Excluding cable)
Mounting Screw	R1/8, male
RoHS Directive	EN50581

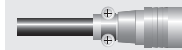
Standard Accessories Hexagon wrench for air vent screw (M3)

Models	Rated Capacity	Natural Frequencies
PHF-S-2MPSA2	2 MPa	≈ 25 kHz
PHF-S-5MPSA2	5 MPa	≈ 50 kHz
PHF-S-10MPSA2	10 MPa	≈ 70 kHz
PHF-S-20MPSA2	20 MPa	≈ 100 kHz

Dimensions



Connector plug
PRC03-12A10-7M



● Physical quantity indication ● Static measurement ● Dynamic measurement

PHF-S-SA2
Recommended
products for
combination



PHF-S-SA4

● -40 to 150°C ● 2 to 10 MPa

Small-sized High-temperature Pressure Transducer



Compact & Lightweight Usable at up to 150°C

As an upgraded version of PHF-S-SA2 series, PHF-S-SA4 series is designed to be more compact and lightweight and applicable up to 150°C.

Specifications

Performance

Rated Capacity	See table below.
Nonlinearity	Within $\pm 0.3\%$ RO
Hysteresis	Within $\pm 0.2\%$ RO
Rated Output	Approx. 0.5 mV/V

Environmental Characteristics

Safe Temperature	-40 to 170°C (Excl. connector)
Compensated Temperature	-40 to 150°C (Excl. connector)
Temperature Effect on Zero	Within $\pm 0.05\%$ RO/°C
Temperature Effect on Output	Within $\pm 0.05\%$ /°C

Electrical Characteristics

Safe Excitation	5 V AC or DC
Recommended Excitation	1 to 2 V AC or DC
Input Resistance	350 $\Omega \pm 5\%$
Output Resistance	350 $\Omega \pm 5\%$
Cable	4-conductor (0.09 mm ²) fluoroplastic shielded cable, 3.1 mm diameter by 50 cm long, terminated with R04-P5M connector plug (Shield wire is not connected to the case.)

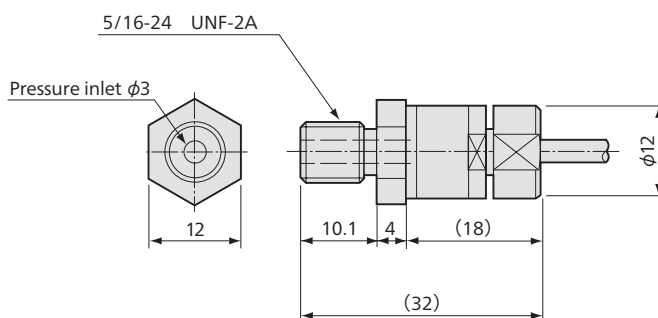
Mechanical Properties

Safe Overloads	150%
Natural Frequencies	See table below.
Material	Metallic finish
Degree of Protection	IP63 (IEC 60529)
Weight	Approx. 20 g (Excluding cable)
Mounting Screw	5/16-24UNF, male
RoHS Directive	EN50581

Standard Accessories Extension cable: 4-conductor (0.09 mm²) fluoroplastic shielded cable, 3.1 mm diameter by 4 m long, terminated with R04-J5F to the sensor and PRC03-12A10-7M to measuring instruments.
O-ring: AS568 010

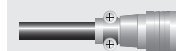
Models	Rated Capacity	Natural Frequencies
PHF-S-2MPSA4	2 MPa	≈ 110 kHz
PHF-S-5MPSA4	5 MPa	≈ 120 kHz
PHF-S-10MPSA4	10 MPa	≈ 170 kHz

Dimensions



Extension cable

Connector plug
PRC03-12A10-7M



● Physical quantity indication ● Static measurement ● Dynamic measurement

PHF-S-SA4
Recommended
products for
combination



PGH-S-100MPSA17

Large-capacity Pressure Transducer

- Small-sized Large capacity
- Usable at High-temperature
- 100 MPa



Small-sized Large-capacity Transducer Usable at High temperature

- Small $\Phi 20 \times 40$ (Including 15 long screw portion)
- Large capacity 100 MPa
- Usable at high temperature 150°C
- Safe design with just one SUS body without welded part.
- Removable cable
- Degree of protection IP64 (After connecting the connector)
- Mounting screw M12, P=1

Specifications

Performance

Rated Capacity	100 MPa
Nonlinearity	Within $\pm 0.3\%$ RO
Hysteresis	Within $\pm 0.2\%$ RO
Rated Output	Approx. 1 mV/V

Environmental Characteristics

Safe Temperature	-20 to 150°C
Compensated Temperature	-40 to 150°C
Temperature Effect on Zero	$\pm 0.03\%$ RO/°C
Temperature Effect on Output	$\pm 0.05\%$ /°C

Electrical Characteristics

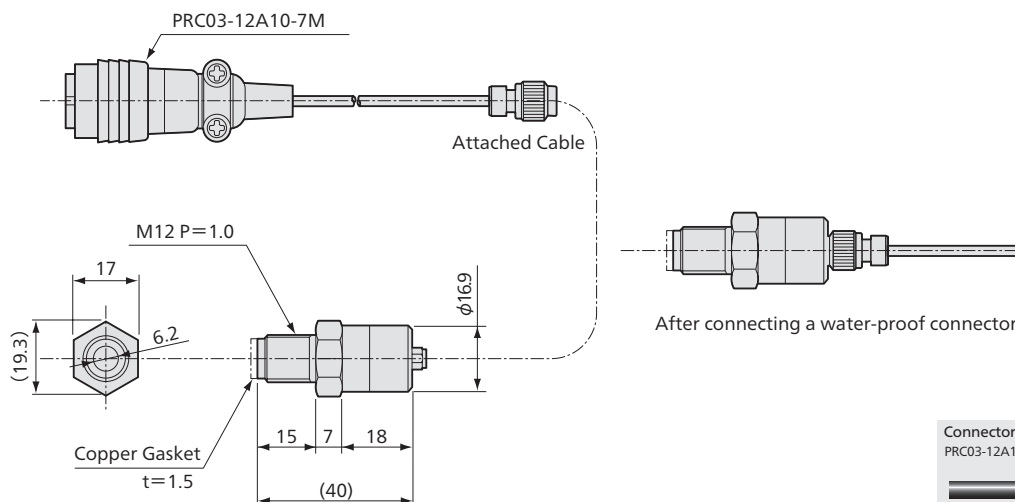
Safe Excitation	10 V AC or DC
Recommended Excitation	2 to 5 V AC or DC
Input Resistance	$550 \pm 150 \Omega$
Output Resistance	$450 \pm 100 \Omega$
Cable	4 m, $\phi 3$ mm fluoroplastic shielded cable
	Measuring instrument side: Connector plug PRC03-12A10-7M (Shield wire is not connected to the case.)

Mechanical Properties

Material	Case: Metallic finish
	Liquid-contacting part: SUS630
Mounting Screw	M12, P=1
Degree of Protection	IP64 (IEC 60529)
	(When connector is fastened to the transducer.
	The connector to measuring instrument is not
	waterproofness)

Standard Accessories Gasket (Mild copper)

Dimensions



- Physical quantity indication
- Static measurement
- Dynamic measurement

PGH-S-100MPSA17
Recommended
products for
combination

Instrumentation Amplifier
WGA-900A
→ 3-95

Data Logger
UCAM-60B
→ 3-25

Strain Amplifier
DPM-900 Series
→ 3-5

Universal Recorder
EDX-200A
→ 3-55

Universal Recorder
EDX-100A
→ 3-63

Sensor Interface
PCD-400A
→ 3-77

PGH-S-SA19

Large-capacity Pressure Transducer

- Large capacity
- 250, 300 MPa



Large-capacity Pressure Transducer

- High pressure 250, 300 MPa measurement
- Safe design with just one SUS body without welded part.
- Removable cable
- Mounting screw G1/2

Specifications

Performance

Rated Capacity	See table below
Nonlinearity	Within $\pm 0.2\%$ RO for 250 MPa Within $\pm 0.4\%$ RO for 300 MPa
Hysteresis	Within $\pm 0.2\%$ RO for 250 MPa Within $\pm 0.4\%$ RO for 300 MPa
Rated Output	Approx. 0.5 mV/V

Environmental Characteristics

Safe Temperature	-10 to 70°C
Compensated Temperature	0 to 60°C
Temperature Effect on Zero	$\pm 0.05\%$ RO/°C
Temperature Effect on Output	$\pm 0.05\%$ RO/°C

Electrical Characteristics

Safe Excitation	10 V AC or DC
Recommended Excitation	2 to 5 V AC or DC
Input Resistance	$550 \pm 150 \Omega$
Output Resistance	$450 \pm 100 \Omega$
Cable	5 m, $\phi 7.6$ chloroprene shielded cable Measuring instrument side: Connector plug PRC03-12A10-7M (Shield wire is not connected to the case.)

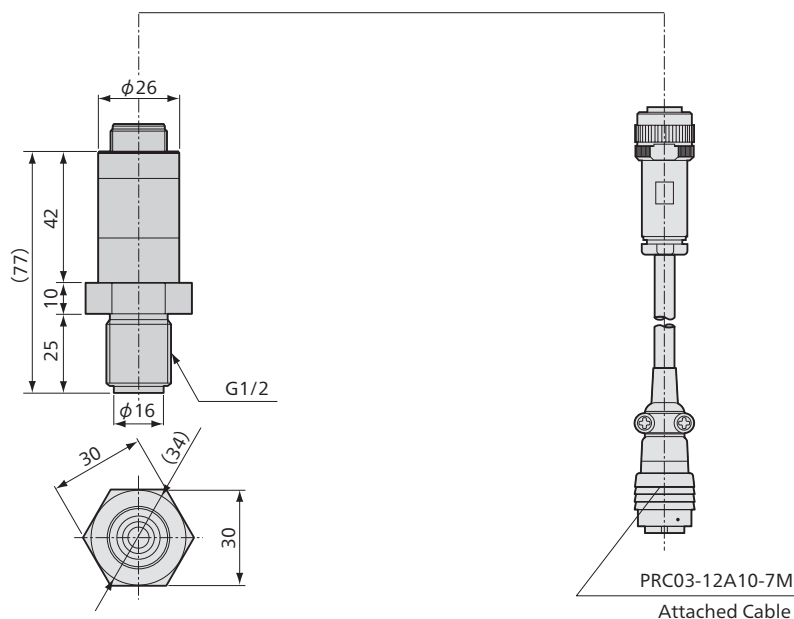
Mechanical Properties

Material	Case: Metallic finish Liquid-contacting part: SUS630
Mounting Screw	G1/2

Standard Accessories Gasket (Mild copper)

Models	Rated Capacity
PGH-S-250MPSA19	250 MPa
PGH-S-300MPSA19	300 MPa

Dimensions

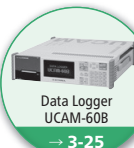


Connector plug
PRC03-12A10-7M

PRC03-12A10-7M
Attached Cable

- Physical quantity indication
- Static measurement
- Dynamic measurement

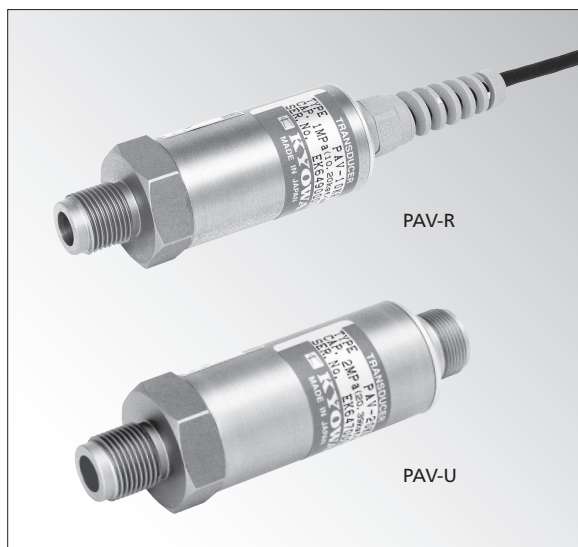
PGH-S-300MPSA19
Recommended
products for
combination



PAV-R/U

- Highly Resistant against Noise during Transmission
- 1 to 50 MPa

Voltage-output Pressure Transducer



Suitable for Pressure Measurements of Industrial Equipments and Distant Pressure Measurement by Cable Extension

- Voltage output in a range of 0 to 5 V
- Noise resistant
- High safe overload rating of 200%
- Suitable for industrial equipment/pressure control system
- Wide range of rated capacities

PAV-R/U pressure transducers have dedicated built-in amplifier and output voltage signals from 0 to 5 V. There is no connection by welding in pressure sensor section. The built-in amplifier adopts unique hybrid IC to reduce numbers of components resulting in increasing reliability. Because built-in amplifier amplifies detected slight voltage in transmission, amplified voltage signals have high resistance against noises, such as inductive interference, and ensure high accuracy.

Specifications

Performance

Rated Capacity	See table below.
Nonlinearity	Within $\pm 0.2\%$ RO
Hysteresis	Within $\pm 0.2\%$ RO
Rated Output	0 to 5 V

Environmental Characteristics

Safe Temperature	-20 to 80°C
Compensated Temperature	-20 to 70°C
Temperature Effect on Zero	Within $\pm 0.03\%$ RO/°C
Temperature Effect on Output	Within $\pm 0.02\%$ /°C

Electrical Characteristics

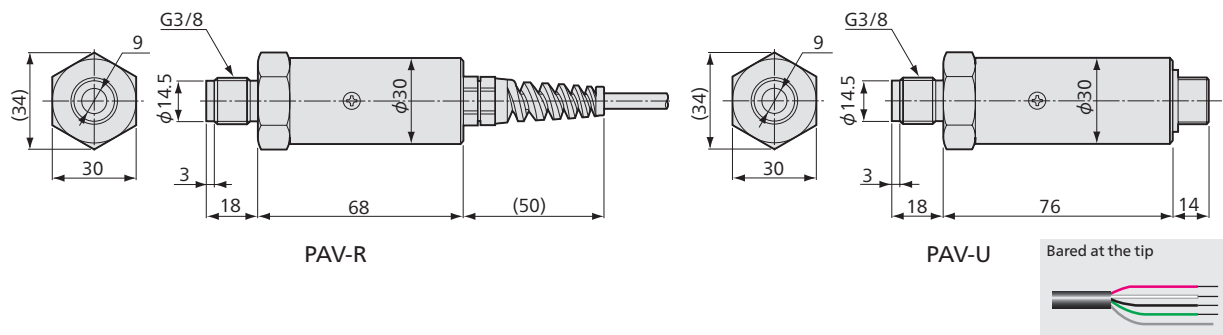
SN Ratio	50 dB or more
Load Resistance	1 k Ω or more
Cutoff Frequencies of AMP	1 kHz, amplitude ratio at cutoff point -3 ± 1 dB
Power Supply	12 VDC (10.5 to 15 V), 30 mA
Cable	PAV-R: 4-conductor (0.18 mm ²) vinyl shielded cable, 4.6 mm diameter by 3 m long, bared at the tip PAV-U: 4-conductor (0.3 mm ²) chloroprene shielded cable, 7.6 mm diameter by 3 m long, bared at the tip (Shield wire is not connected to the case.)

Mechanical Properties

Safe Overloads	200%
Materials	Case: SUS (Metallic finish) Liquid-contacting part: SUS 630
Weight	Approx. 200 g (Excluding cable)
Degree of Protection	IP52 (IEC 60529)
Mounting Screw	G3/8, male
Standard Accessories	Gasket (Mild copper)

Cable-integrated	Connector-equipped	Rated Capacity
PAV-10KR	PAV-10KU	1 MPa
PAV-50KR	PAV-50KU	5 MPa
PAV-100KR	PAV-100KU	10 MPa
PAV-200KR	PAV-200KU	20 MPa
PAV-300KR	PAV-300KU	30 MPa
PAV-500KR	PAV-500KU	50 MPa

■ Dimensions

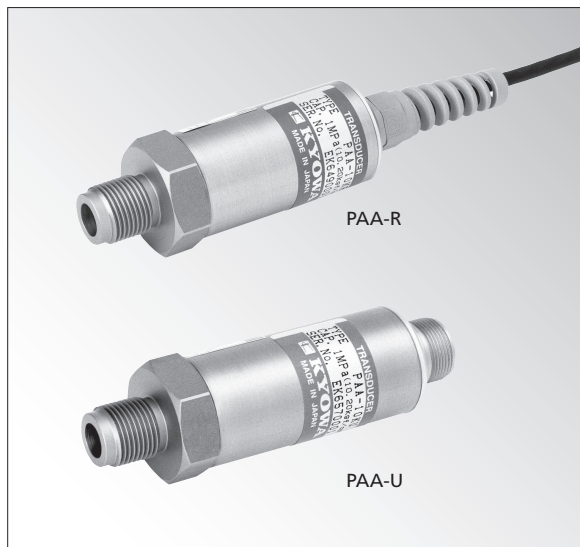


● Dynamic measurement

PAV-R/U
Recommended
products for
combination



Current-output Pressure Transducer

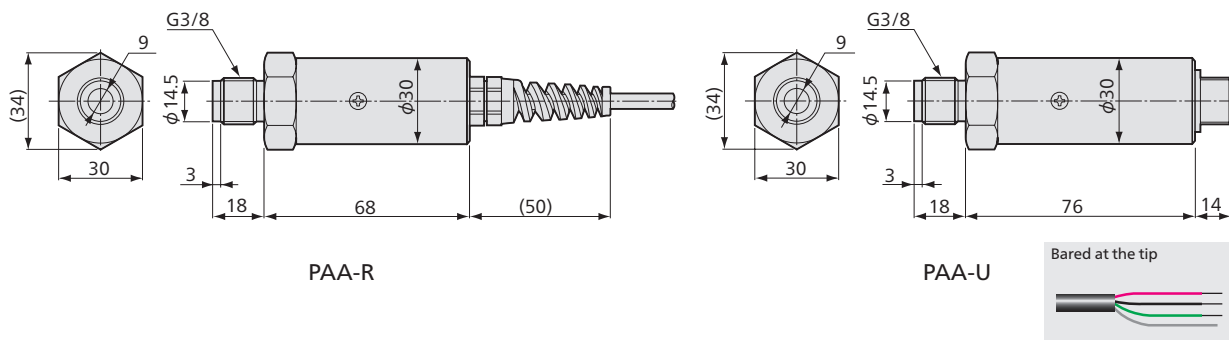


Suitable for Pressure Measurements of Industrial Equipments and Distant Pressure Measurement by Cable Extension

- Current output in a range of 4 to 20 mA
- Noise resistant
- High safe overload rating of 200%
- Suitable for industrial equipment/pressure control system
- Wide range of rated capacities

PAA-R/U pressure transducers have dedicated built-in amplifier and output current signals from 4 to 20 mA. There is no connection by welding in pressure sensor section. The built-in amplifier adopts unique hybrid IC to reduce numbers of components resulting in increasing reliability. Because built-in amplifier amplifies detected slight voltage in transmission, amplified signals have high resistance against noises, such as inductive interference, and ensure high accuracy.

Dimensions



Specifications

Performance

Rated Capacity	See table below.
Nonlinearity	Within $\pm 0.2\%$ RO
Hysteresis	Within $\pm 0.2\%$ RO
Rated Output	4 to 20 mA

Environmental Characteristics

Safe Temperature	-20 to 80°C
Compensated Temperature	-20 to 70°C
Temperature Effect on Zero	Within $\pm 0.03\%$ RO/°C
Temperature Effect on Output	Within $\pm 0.02\%$ /°C

Electrical Characteristics

SN Ratio	50 dB or more
Load Resistance	0 to 500 Ω
Cutoff Frequencies of AMP	1 kHz, amplitude ratio at cutoff point -3 ± 1 dB
Power Supply	24 VDC (21 to 30 V), 30 mA
Cable	PAA-R: 4-conductor (0.18 mm ²) vinyl shielded cable, 4.6 mm diameter by 3 m long, bared at the tip
	PAA-U: 4-conductor (0.3 mm ²) chloroprene shielded cable, 7.6 mm diameter by 3 m long, bared at the tip
	(Shield wire is not connected to the case.)

Mechanical Properties

Safe Overloads	200%
Materials	Case: SUS (Metallic finish)
	Liquid-contacting part: SUS 630
Weight	Approx. 200 g (Excluding cable)
Degree of Protection	IP64 (IEC 60529)
Mounting Screw	G3/8, male

Standard Accessories Gasket (Mild copper)

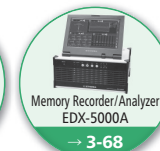
Cable-integrated	Connector-equipped	Rated Capacity
PAA-5KR	PAA-5KU	500 kPa
PAA-10KR	PAA-10KU	1 MPa
PAA-20KR	PAA-20KU	2 MPa
PAA-50KR	PAA-50KU	5 MPa
PAA-100KR	PAA-100KU	10 MPa
PAA-200KR	PAA-200KU	20 MPa
PAA-300KR	PAA-300KU	30 MPa
PAA-500KR	PAA-500KU	50 MPa

To Ensure Safe Usage

When measuring using voltage mode such as UCAM-60B, use a 250 Ω resistor to convert to voltage.

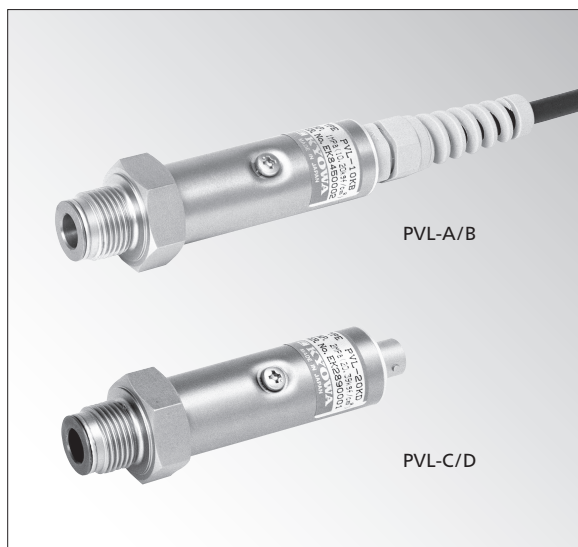
Dynamic measurement

PAA-R/U
Recommended
products for
combination



Voltage-output Pressure Transducer

●Output 0 to 5 V, 1 to 5 V ●500 kPa to 50 MPa

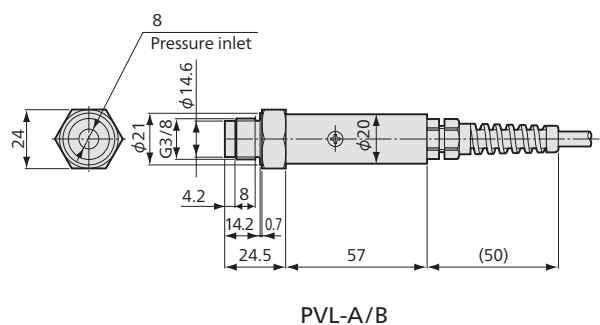


Excellent Noise Resistance Type with a Built-in Amplifier

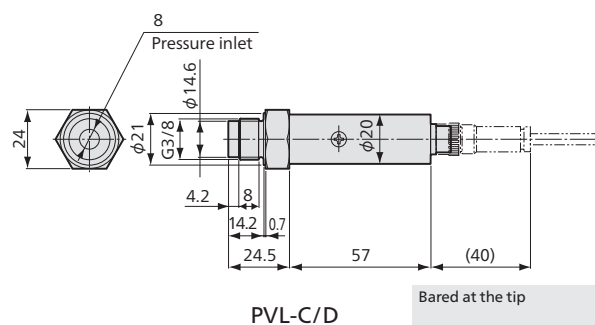
- Voltage output in a range of 0 to 5 V or 1 to 5 V
- High frequency response
- Compact and lightweight
- Applicable to highly viscous pressure medium
- Wide range of rated capacities
- Built-in negative power supply achieves to indicate 0 V output as true 0 V (PVL-B/D)

PVL series pressure transducers detect pressures by strain gage and then amplify these slight voltage signals by a built-in amplifier. The pressure sensor part is simply integrated structure and has high reliability. Also, the amplifier is fully tuned. Therefore, PVL series provide high vibration resistance, environmental resistance and stability.

■Dimensions



PVL-A/B



PVL-C/D

Bared at the tip

Specifications

Performance

Rated Capacity	See table below.
Nonlinearity	Within $\pm 0.5\%$ RO for 0.5 to 2 MPa Within $\pm 0.3\%$ RO for 5 to 50 MPa
Hysteresis	Within $\pm 0.5\%$ RO for 0.5 to 2 MPa Within $\pm 0.3\%$ RO for 5 to 50 MPa
Rated Output	PVL-A/C: 1 to 5 V PVL-B/D: 0 to 5 V

Environmental Characteristics

Safe Temperature	-20 to 70°C
Compensated Temperature	-10 to 60°C
Temperature Effect on Zero	Within $\pm 0.05\%$ RO/°C for 0.5 to 2 MPa Within $\pm 0.03\%$ RO/°C for 5 to 50 MPa
Temperature Effect on Output	Within $\pm 0.05\%$ RO/°C for 0.5 to 2 MPa Within $\pm 0.03\%$ RO/°C for 5 to 50 MPa

Electrical Characteristics

Output	See table above.
SN Ratio	50 dB or more
Load Resistance	1 kΩ or more
Frequency Response (Built-in Amplifier)	DC to 1 kHz, sensitivity Deviation $\pm 10\%$
Power Supply	12 VDC (10.5 to 15 V), 30 mA or less
Cable	PVL-A/B: 4-conductor (0.14 mm ²) chloroprene shielded cable 6 mm diameter by 30 cm long, bared at the tip PVL-C/D: 4-conductor (0.18 mm ²) vinyl shielded cable, 4.6 mm diameter by 3 m long, bared at the tip (Shield wire is not connected to the case.)

Mechanical Properties

Safe Overloads	150%
Material	Case: SUS (Metallic finish) Liquid-contacting part: SUS 630
Weight	Approx. 85 g (Excluding cable)
Degree of Protection	IP52 (IEC 60529)
Mounting Screw	G3/8, male

Standard Accessories Gasket (Mild copper)

For every rated capacity, mechanical natural frequency is the same as PGM-H (2-88).

Models				Rated Capacity
Cable-integrated		Connector-equipped		
1 to 5V output	0 to 5V output	1 to 5V output	0 to 5V output	
PVL-5KA	PVL-5KB	PVL-5KC	PVL-5KD	500 kPa
PVL-10KA	PVL-10KB	PVL-10KC	PVL-10KD	1 MPa
PVL-20KA	PVL-20KB	PVL-20KC	PVL-20KD	2 MPa
PVL-50KA	PVL-50KB	PVL-50KC	PVL-50KD	5 MPa
PVL-100KA	PVL-100KB	PVL-100KC	PVL-100KD	10 MPa
PVL-200KA	PVL-200KB	PVL-200KC	PVL-200KD	20 MPa
PVL-300KA	PVL-300KB	PVL-300KC	PVL-300KD	30 MPa
PVL-500KA	PVL-500KB	PVL-500KC	PVL-500KD	50 MPa

●Dynamic measurement

PVL
Recommended
products for
combination

Universal Recorder
EDX-200A
→ 3-55

Universal Recorder
EDX-100A
→ 3-63

Memory Recorder/Analyzer
EDX-5000A
→ 3-68

Current-output Pressure Transducer



Excellent Noise Resistance Type with a Built-in Amplifier

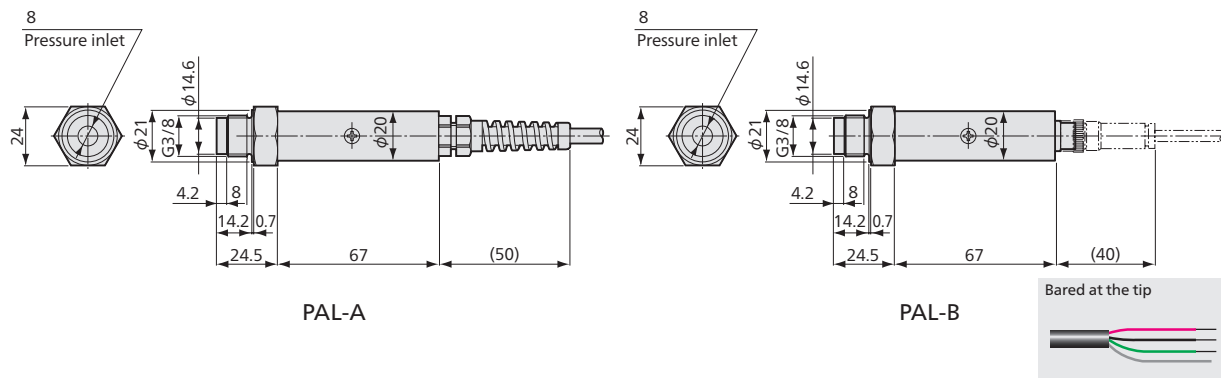
- Current output in a range from 4 to 20 mA
- High frequency response
- Small-sized and lightweight
- Applicable to highly viscous pressure medium
- Various capacity range

PAL series pressure transducers amplify detected slight signals by a built-in amplifier and then transmit amplified signals in current. The pressure sensor part is simply integrated structure and has high reliability. Also, the amplifier is fully tuned. Therefore, PAL series not only provide high vibration resistance, environmental resistance and stability but also measure without adjustment.

To Ensure Safe Usage

When measuring using voltage mode such as UCAM-60B, use a 250 Ω resistor to convert to voltage.

Dimensions



Specifications

Performance

Rated Capacity	See table below.
Nonlinearity	Within $\pm 0.5\%$ RO for 0.5 to 2 MPa Within $\pm 0.3\%$ RO for 5 to 50 MPa
Hysteresis	Within $\pm 0.5\%$ RO for 0.5 to 2 MPa Within $\pm 0.3\%$ RO for 5 to 50 MPa
Rated Output	4 to 20 mA

Environmental Characteristics

Safe Temperature	-20 to 70°C
Compensated Temperature	-10 to 60°C
Temperature Effect on Zero	Within $\pm 0.05\%$ RO/°C for 0.5 to 2 MPa Within $\pm 0.03\%$ RO/°C for 5 to 50 MPa
Temperature Effect on Output	Within $\pm 0.05\%$ °C for 0.5 to 2 MPa Within $\pm 0.03\%$ °C for 5 to 50 MPa

Electrical Characteristics

SN Ratio	50 dB or more
Load Resistance	0 to 500 Ω
Frequency Response (Built-in Amplifier)	DC to 1 kHz, sensitivity Deviation $\pm 10\%$
Power Supply	24 VDC (21 to 30 V), 30 mA or less
Cable	PAL-A: 4-conductor (0.14 mm ²) chloroprene shielded cable, 6 mm diameter by 30 cm long, bared at the tip PAL-B: 4-conductor (0.18 mm ²) vinyl shielded cable, 4.6 mm diameter by 3 m long, bared at the tip (Shield wire is not connected to the case.)

Mechanical Properties

Safe Overloads	150%
Material	Case: SUS (Metallic finish) Liquid-contacting part: SUS 630
Weight	Approx. 85 g (Excluding cable)
Degree of Protection	IP52 (IEC 60529)
Mounting Screw	G3/8, male

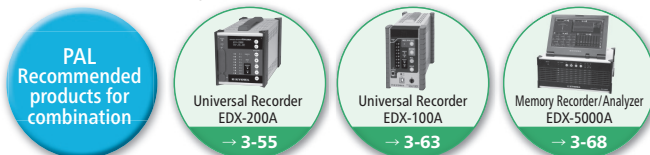
Standard Accessories Gasket (Mild copper)

For every rated capacity, mechanical natural frequency is the same as PGM-H (2-88).

Models		Rated Capacity
Cable-integrated	Connector-equipped	
PAL-5KA	PAL-5KB	500 kPa
PAL-10KA	PAL-10KB	1 MPa
PAL-20KA	PAL-20KB	2 MPa
PAL-50KA	PAL-50KB	5 MPa
PAL-100KA	PAL-100KB	10 MPa
PAL-200KA	PAL-200KB	20 MPa
PAL-300KA	PAL-300KB	30 MPa
PAL-500KA	PAL-500KB	50 MPa



●Dynamic measurement



PAG-2KA

- Excellent in Reliability & Stability
- 200 kPa

Highly Stable Current-output Pressure Transducer



Excellent Reliability & Stability Fine Resolution

- Current output in a range from 4 to 20 mA
- Noise resistant

PAG-A series pressure transducers are stable and their sensor part is designed to be highly stable. Also, inert gas is sealed hermetically in sensor part, ensuring excellent reliability and stability for long-term. The built-in amplifier is composed of highly-selected reliable components and be fully tuned to provide high-frequency radio noise resistance. Therefore, PAG-A series achieves reliable, stable, and high noise resistant measurements.

Specifications

Performance

Rated Capacity	200 kPa
Nonlinearity	Within $\pm 0.1\%$ RO
Hysteresis	Within $\pm 0.2\%$ RO
Rated Output	4 to 20 mA

Environmental Characteristics

Safe Temperature	-20 to 75°C
Compensated Temperature	-20 to 70°C
Temperature Effect on Zero	Within $\pm 0.03\%$ RO/°C
Temperature Effect on Output	Within $\pm 0.01\%$ /°C
Zero Stability	$\pm 0.5\%$ RO/year

Electrical Characteristics

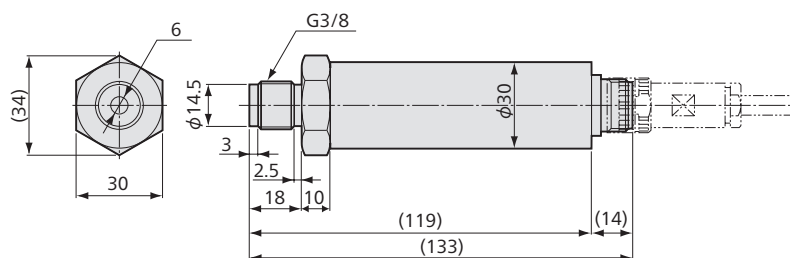
SN Ratio	60 dB or more
Load Resistance	0 to 500 Ω
Cutoff Frequencies of AMP	650 Hz, amplitude ratio at cutoff point -3 ± 1 dB
Power Supply	24 V DC (21 to 30 V), 30 mA or less
Cable	4-conductor (0.3 mm ²) chloroprene shielded cable, 7.6 mm diameter by 5 m long, bared at the tip (3-wire) (Shield wire is not connected to the case.)

Mechanical Properties

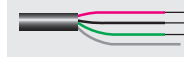
Safe Overloads	150%
Material	Case: SUS (Metallic finish), SUS 630
Weight	Approx. 270 g (Excluding cable)
Degree of Protection	IP62 (IEC 60529)
Mounting Screw	G3/8, male

Standard Accessories Gasket (Mild copper)

■ Dimensions



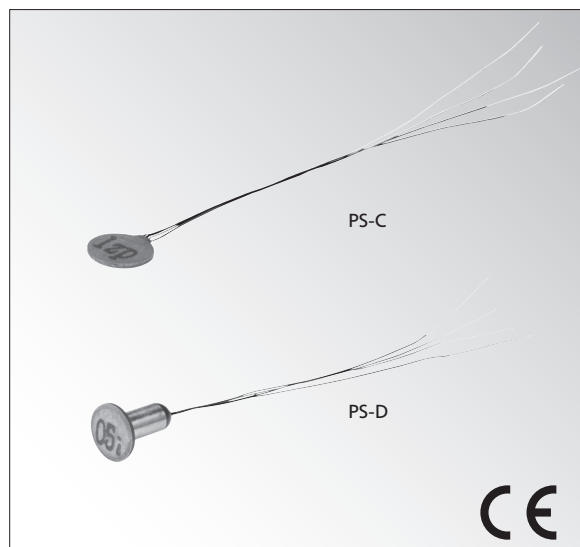
Bared at the tip



● Dynamic measurement

PAG-2KA
Recommended
products for
combination





Ultra-thin & Compact Design Wide Range of Rated Capacity

PS series pressure transducers have a bridge of strain gages inside, achieving ultra-thin compact structure. They are installed by adhesives. They are suitable for distributed pressure measurement by using multiple units.

Note

- (1) Copper alloy is used for sensing element. Avoid measuring corrosive liquid or gas.
- (2) Epoxy adhesive has been used to assemble the liquid contacting section. Measuring liquids of PS-20 to 70KC/D M2 are limited to oil.

Specifications

Performance

Rated Capacity	See table below.
Nonlinearity	Within $\pm 1\%$ RO
Hysteresis	Within $\pm 1\%$ RO
Rated Output	0.25 mV/V or more for 50 kPa 0.5 mV/V or more for 100 kPa 0.85 mV/V $\pm 30\%$ for 200 kPa 1 mV/V $\pm 20\%$ for 0.5 to 7 MPa
Note: Rated output is sorted to one of the classes divided by every 2% difference in output value. Since the rated output stated in the Test Data Sheet is the center value of the class, it may have a maximum error of $\pm 1\%$.	

Environmental Characteristics

Safe Temperature	-20 to 70°C
Compensated Temperature	0 to 50°C
Temperature Effect on Zero	Within $\pm 0.8\%$ RO/°C for 50 kPa Within $\pm 0.4\%$ RO/°C for 100 kPa Within $\pm 0.3\%$ RO/°C for 200 kPa Within $\pm 0.2\%$ RO/°C for 0.5 to 7 MPa
Temperature Effect on Output	Within $\pm 0.3\%$ /°C for 50 to 200 kPa Within $\pm 0.2\%$ /°C for 0.5 to 7 MPa

Electrical Characteristics

Safe Excitation	3 V AC or DC
Recommended Excitation	1 to 2 V AC or DC
Input Resistance	350 $\Omega \pm 10\%$
Output Resistance	350 $\Omega \pm 10\%$
Cable	Polyurethane coated copper wires, 0.1 mm diameter (0.08 mm diameter with PS-05KD & 1KD) by 5 cm long, soldering finish at each tip (Shield wire is not connected to the case.)

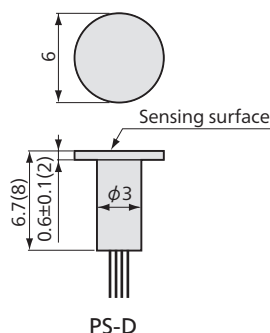
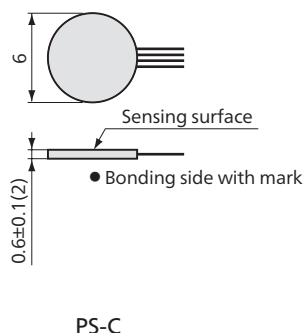
Mechanical Properties

Safe Overloads	150% (100% with 7 MPa)
Materials	Metallic finish
Weight	Approx. 0.5 g (Excluding cable)

Models		Rated Capacity	Natural Frequencies
Cable Direction to Sensing Surface			
Horizontal	Vertical		
PS-05KC	PS-05KD	50 kPa	≈ 10 kHz
PS-1KC	PS-1KD	100 kPa	≈ 10 kHz
PS-2KC	PS-2KD	200 kPa	≈ 14 kHz
PS-5KC	PS-5KD	500 kPa	≈ 20 kHz
PS-10KC	PS-10KD	1 MPa	≈ 37 kHz
PS-20KC M2	PS-20KD M2	2 MPa	≈ 46 kHz
PS-30KC M2	PS-30KD M2	3 MPa	≈ 58 kHz
PS-50KC M2	PS-50KD M2	5 MPa	≈ 71 kHz
PS-70KC M2	PS-70KD M2	7 MPa	≈ 86 kHz

Measuring liquids of PS-20 to 70KC/D M2 are limited to oils.

Dimensions



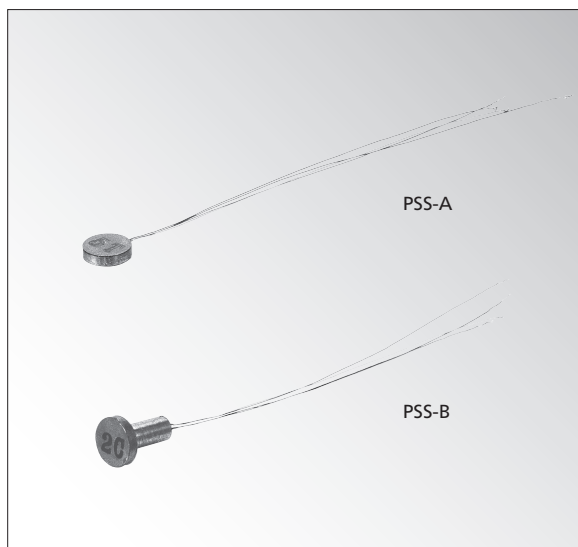
Figures in parentheses are for 2 to 7 MPa.

● Physical quantity indication ● Static measurement ● Dynamic measurement



Miniature Pressure Sensor

- For Distributed Pressure Measurement
- 20 to 100 kPa



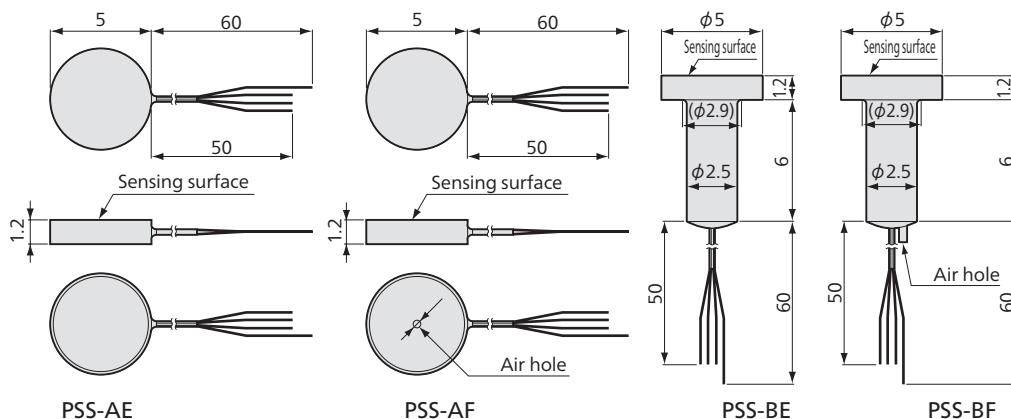
Ultra-Small and Lightweight Design with Small Rated Capacities and Suitable for Gas Pressure Measurement

PSS series pressure transducers have a bridge of strain gages inside, achieving ultra-thin compact structure. A thin-film strain gage is directly formed on a diaphragm by sputtering and photo lithography. PSS transducers are installed by adhesives and developed mainly for gas pressure measurement.

Note

- (1) Copper alloy is used for sensing element. Avoid measuring corrosive liquid or gas.
- (2) An epoxy adhesive is used to assemble the sensing element. Therefore, avoid using the sensor to measure organic solvents (Toluene, ketone, etc.)
- (3) It should not be used under high temperature and high humidity environments for a long time.
- (4) It should not be used under water.

Dimensions



● Static measurement ● Dynamic measurement

Specifications

Performance

Rated Capacity	See table below.
Nonlinearity	Within $\pm 3\%$ RO for 20 kPa, $\pm 1\%$ RO for 50, 100 kPa
Hysteresis	Within $\pm 3\%$ RO for 20 kPa, $\pm 1\%$ RO for 50, 100 kPa
Rated Output	1 mV/V or more for 50 to 100 kPa 0.75 mV/V or more for 20 kPa

Note: Rated output is sorted to one of the classes divided by every 2% difference in output value. Since the rated output stated in the Test Data Sheet is the center value of the class, it may have a maximum error of $\pm 1\%$.

Environmental Characteristics

Safe Temperature	-20 to 70°C
Compensated Temperature	0 to 50°C (Non-condensing)
Temperature Effect on Zero	Within $\pm 0.8\%$ RO/°C for 50, 100 kPa Within $\pm 0.6\%$ RO/°C for 20 kPa
Temperature Effect on Output	Within $\pm 0.3\%$ /°C Within $\pm 0.5\%$ /°C for 20 kPa

Electrical Characteristics

Safe Excitation	4 V AC or DC
Recommended Excitation	1 to 2 V AC or DC
Input Resistance	350 to 1000 Ω
Output Resistance	350 to 1000 Ω
Cable	Polyurethane coated copper wires, 0.08 mm diameter by 5 cm long, soldering finish at each tip (Shield wire is not connected to the case.)

Mechanical Properties

Safe Overloads	150%
Weight	PSS-A: Approx. 0.15 g (Excluding cable) PSS-B: Approx. 0.3 g (Excluding cable)

Models		Rated Capacity	Natural Frequencies	Remarks
Cable Direction to Sensing Surface				
Horizontal	Vertical			
PSS-05KAE	PSS-05KBE	50 kPa	≈ 18 kHz	Sealed type
PSS-1KAE	PSS-1KBE	100 kPa	≈ 31 kHz	
PSS-02KAF	PSS-02KBF	20 kPa	≈ 6 kHz	Atmospheric

To Ensure Safe Usage

High-carrier-based dynamic strain amplifier DPM-912, 913 or 952 may not satisfy the specified rated output in some rare case. Request us to calibrate the transducer in combination with the strain amplifier. Or, if possible, use dynamic strain amplifier DPM-911 or 951 or signal conditioner CDV-900A.

PSS
Recommended
products for
combination

Fast Data Logger
UCAM-550A
→ 3-31

Signal Conditioner
CDV-900A
→ 3-9

Medium Speed Network Terminal Box
NTB-500A
→ 3-35

Universal Recorder
EDX-200A
→ 3-55

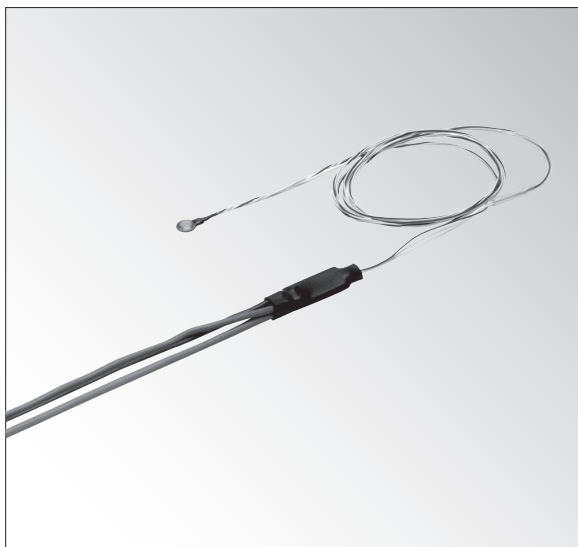
PSM-AB

Miniature Pressure Sensor

- Kyowa's Smallest Pressure Sensors
- 100 & 200 kPa

2
-110

TRANSDUCERS



Ultra-small Sized Pressure Transducers with Strong Fluorocarbon Resin Cable

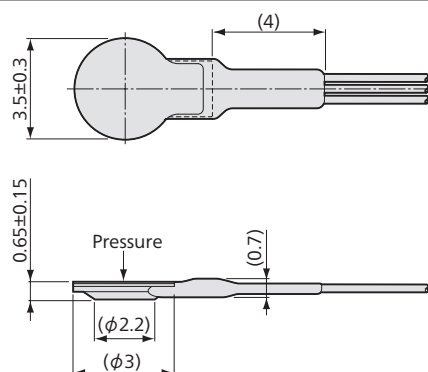
- The bridge adapter is provided.

PSM-AB series are the smallest pressure sensors in Kyowa's products designed based on integration of sensor element and diaphragm. This sensor adopts quarter-bridge 3-wire system and configures a full bridge in a bridge adapter. In addition, this sensor is installed by adhesives. Developed mainly for gas pressure measurement, PSM-AB series allow denser points than conventional transducers to be measured.

Note

- (1) Copper alloy is used for sensing element. Avoid measuring corrosive liquid or gas.
- (2) The mainframe has been assembled using an epoxy adhesive. Do not therefore use the transducer to measure organic solvent. (e.g. Toluene, ketone and others)

Dimensions



Specifications

Performance

Rated Capacity	See table below.
Nonlinearity	Within $\pm 1\%$ RO
Hysteresis	Within $\pm 1\%$ RO
Rated Output	0.275 mV/V $\pm 25\%$ for 100 kPa 0.38 mV/V $\pm 25\%$ for 200 kPa

Note: Rated output is sorted to one of the classes divided by every 0.007 mV/V difference in output value. Since the rated output stated in the Test Data Sheet is the center value of the class, it may have a maximum error of ± 0.0035 mV/V.

Environmental Characteristics

Safe Temperature	-20 to 70°C
Compensated Temperature	0 to 50°C
Temperature Effect on Zero	Within $\pm 1\%$ RO/°C for 100 kPa Within $\pm 0.5\%$ RO/°C for 200 kPa
Temperature Effect on Output	Within $\pm 0.3\%$ /°C

Electrical Characteristics

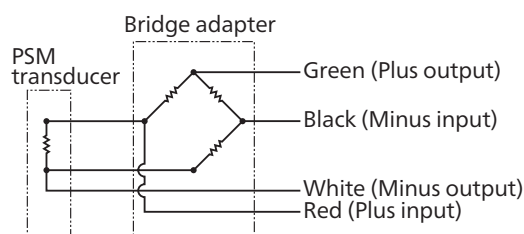
Safe Excitation	5 V AC or DC
Recommended Excitation	2 V AC or DC
Input Resistance	350 $\Omega \pm 1\%$
Output Resistance	350 $\Omega \pm 1\%$
Cable	Transducer: 3-conductor fluoroplastic coated cable, 0.3 mm diameter by 50 cm long Bridge adapter: 4-conductor vinyl coated cable, 1.3 mm diameter by 15 cm long, bared at the tip (Shield wire is not connected to the case.)

Mechanical Properties

Safe Overloads	150%
Weight	Approx. 0.5 g (Including cable but not bridge adapter)
Degree of Protection	IP61 (IEC 60529) (Excluding bridge adapters)

Models	Rated Capacity	Natural Frequencies	Remarks
PSM-1KAB	100 kPa	≈ 3 kHz	Bridge adapter Attached standard
PSM-2KAB	200 kPa	≈ 3 kHz	

Circuit Diagram



PSM-AB (Full bridge system)



Pressure Transducers

- Physical quantity indication
- Static measurement
- Dynamic measurement

PSM-AB
Recommended
products for
combination



PDS-A

●For Wind Pressure Measurement ●1 to 7 kPa

Minute Differential Pressure Transducer



For Wind Pressure Measurement

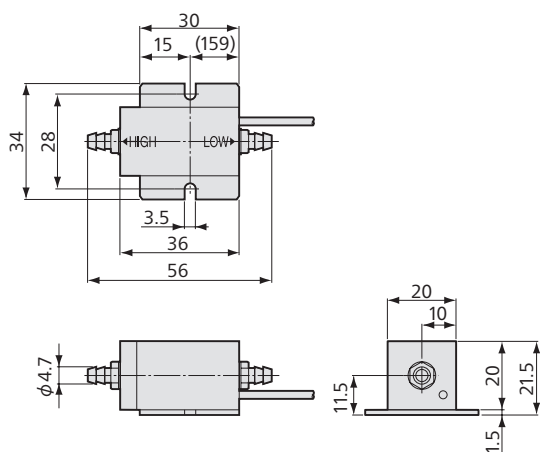
- High frequency response
- Highly accurate
- High sensitivity
- Noise resistant
- Compact & lightweight

PDS-A series pressure transducers have diffusional semiconductor strain gages on a silicon diaphragm. PDS-A transducers detect pressures as resistance variation and then convert this variation to electrical signals. These signals are indicated by Kyowa's signal conditioners.

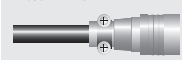
Note

- (1) Use the transducer with general air
- (2) If water or any other liquid enters the low side, the transducer gets out of order.

■Dimensions



Connector plug
PRC03-12A10-7M



Specifications

Performance

Rated Capacity	See table below.
Nonlinearity	Within $\pm 0.5\%$ RO but $\pm 0.7\%$ for 2.5 kPa
Hysteresis	Within $\pm 0.3\%$ RO
Rated Output	± 7 to 23 mV for 1 kPa ± 13 to 23 mV for 2.5 to 7 kPa
Rated Output Accuracy	$\pm 1.0\%$ RO for 1, 2.5 kPa $\pm 1.5\%$ RO for 5 kPa, $\pm 2.0\%$ RO for 7 kPa

Environmental Characteristics

Safe Temperature	-20 to 70°C
Safe Humidity	20 to 85% RH (At 0 to 50°C)
Compensated Temperature	0 to 50°C
Temperature Effect on Zero	Within $\pm 0.1\%$ RO/°C for 1 kPa Within $\pm 0.08\%$ RO/°C for 2.5 to 7 kPa
Temperature Effect on Output	Within $\pm 0.1\%$ /°C for 1 kPa Within $\pm 0.08\%$ /°C for 2.5 to 7 kPa
Pressure Medium	General air (Non-corrosive gas)

Electrical Characteristics

Initial Unbalance	Within ± 10 mV
Bridge Output Resistance	2 to 6 kΩ
Recommended Excitation	10 VDC (9.5 to 15 V), 5 mA or less (Bridge power supply of signal conditioner may be used.)
Cable	PDS-A: 4-conductor (0.05 mm ²) chloroprene shielded cable, 3 mm diameter by 3 m long, terminated with connector plug PRC03-12A10-7M (Shield wire is not connected to the case.)

Mechanical Properties

Safe Overloads	300% but 600% for 1 kPa
Maximum Line Pressure	100 kPa
Natural Frequencies	Approx. 1.7 kHz
Weight	Approx. 40 g (Excluding cable)
Posture Effect	Zero drift within $\pm 0.3\%$, but $\pm 0.8\%$ for 1 kPa, when inclined by 90° referring to horizontal condition
Internal Volume	High side: Approx. 0.2×10^{-6} m ³ (0.2 ml) Low side: Approx. 1×10^{-6} m ³ (1 ml)
Pressure Connection	4.7 mm diameter barb fitting

Models	Rated Capacity
PDS-10GA	1 kPa
PDS-25GA	2.5 kPa
PDS-50GA	5 kPa
PDS-70GA	7 kPa

To Ensure Safe Usage

- Avoid dew condensation or freeze, because these transducers are designed for general indoor use.
 - If using as a gage pressure meter, apply pressure to the HIGH side, and open the LOW side to the atmosphere.
 - For atmospheric observation, prepare piping to prevent rainwater from entering the pressure inlet.
 - Signal conditioners CDV-900A and instrumentation amplifiers WGA-900A, 650B/710C with built-in bridge power supply of 10 VDC are available for PDS-A series. In the case of WGA-650B or 710C, connection cable N-70 is required.
 - Use a series type power supply.
- *If dimensions of the pressure connection are desired to change, contact us.

●Dynamic measurement

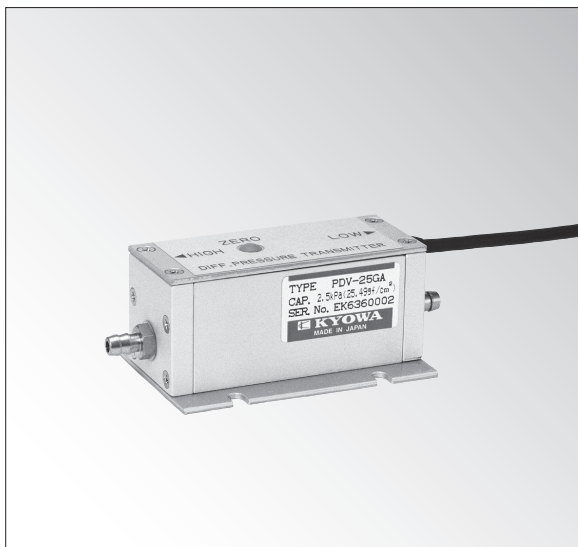
PDS-A
Recommended
products for
combination



Signal Conditioner
CDV/CDA-900A

→ 3-9

Minute Differential Pressure Transducer



Corrosion Resistance with Built-in Variable Damping Mechanism

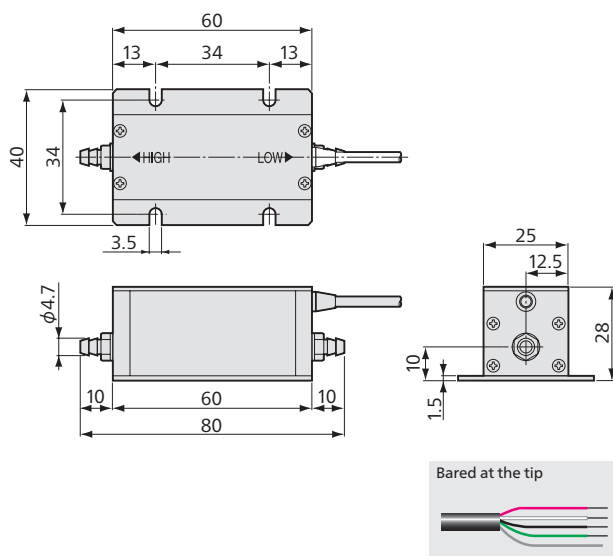
- High frequency response
- Highly accurate
- High sensitivity
- Noise resistant
- Voltage output of 5 V
- Compact & lightweight

PDV-A series pressure transducers have diffusional semiconductor strain gages on a silicon diaphragm. PDV-A transducers detect pressures as resistance variation and then amplify this signal by built-in amplifier.

Note

- (1) Use the transducer with general air.
- (2) If water or any other liquid enters the low-pressure line the transducer gets out of order.

■ Dimensions



Specifications

Performance

Rated Capacity	See table below.
Nonlinearity	Within $\pm 0.5\%$ RO but $\pm 0.7\%$ for 2.5 kPa
Hysteresis	Within $\pm 0.3\%$ RO
Rated Output	± 5 V
Rated Output Accuracy	$\pm 1.0\%$ RO for 1 to 2.5 kPa $\pm 1.5\%$ RO for 5 kPa $\pm 2.0\%$ RO for 7 kPa

Environmental Characteristics

Safe Temperature	-20 to 70°C
Safe Humidity	20 to 85% RH (0 to 50°C)
Compensated Temperature	0 to 50°C
Temperature Effect on Zero	Within $\pm 0.1\%$ RO/°C for 1 kPa Within $\pm 0.08\%$ RO/°C for 2.5 to 7 kPa
Temperature Effect on Output	Within $\pm 0.1\%$ RO/°C for 1 kPa Within $\pm 0.08\%$ RO/°C for 2.5 to 7 kPa
Pressure Medium	General air (Non-corrosive gas)

Electrical Characteristics

Load Resistance	5 k Ω or more
Bridge Output Resistance	2 to 6 k Ω
Power Supply	12 VDC (11 to 15 V), 30 mA or less
Cable	PDV-A: 4-conductor (0.05 mm ²) chloroprene shielded cable, 3 mm diameter by 3 m long, bared at the tip

Mechanical Properties

Safe Overloads	300% but 600% for 1 kPa
Maximum Line Pressure	100 kPa
Natural Frequencies	Approx. 1.7 kHz
Weight	Approx. 100 g (Excluding cable)
Posture Effect	Zero drift within $\pm 0.3\%$ but $\pm 0.8\%$ for 1 kPa when inclined by 90° referring to horizontal
Internal Volume High side	Approx. 0.2×10^{-6} m ³ (0.2 ml)
Low side	Approx. 1×10^{-6} m ³ (1 ml)
Pressure Connection	4.7 mm diameter barb fitting

Models	Rated Capacity
PDV-10GA	1 kPa
PDV-25GA	2.5 kPa
PDV-50GA	5 kPa
PDV-70GA	7 kPa

To Ensure Safe Usage

- Avoid dew condensation or freeze, because these transducers are designed for general indoor use.
 - When using for a pressure meter, apply pressure to the high side and open the low side to the atmosphere.
 - For atmospheric observation, prepare piping to prevent rainwater from entering the pressure inlet.
- *If dimensions of the pressure connection are desired to change, contact us.

● Static measurement

● Dynamic measurement

PDV-A
Recommended
products for
combination

Data Logger
UCAM-608
→ 3-25

Sensor Interface
PCD-430A
→ 3-77



Differential Pressure Transducer



*TEDS-installed models are available. Inquiries are welcome.

Wide Line Pressure Margin and Highly Accurate

PD-A series pressure transducers allow slight differential pressure to be accurately measured. They are suitable for long-term measurements and measurements requiring high accuracy. Furthermore, they are for not only differential pressure measurement but also indication and control of automation systems based on characteristics of differential pressure sensor like flow rate measurement.

Note: Copper alloy is used for sensing element. Avoid measuring corrosive liquid or gas.

Specifications

Performance

Rated Capacity	See table below.
Nonlinearity	Within $\pm 0.3\%$ RO
Hysteresis	Within $\pm 0.2\%$ RO
Rated Output	1.5 mV/V $\pm 1\%$

Environmental Characteristics

Safe Temperature	-10 to 70°C
Compensated Temperature	0 to 60°C
Temperature Effect on Zero	Within $\pm 0.05\%$ RO/°C for 10 kPa Within $\pm 0.01\%$ RO/°C for 20 to 200 kPa
Temperature Effect on Output	Within $\pm 0.5\%$ /°C for 10 kPa Within $\pm 0.03\%$ /°C for 20 to 200 kPa

Electrical Characteristics

Safe Excitation	15 V AC or DC
Recommended Excitation	1 to 10 V AC or DC
Input Resistance	350 $\Omega \pm 1\%$
Output Resistance	350 $\Omega \pm 1\%$
Cable	4-conductor (0.3 mm ²) chloroprene shielded cable, 7.6 mm diameter by 5 m long, terminated with connector plug PRC03-12A10-7M (Shield wire is connected to the case.)

Mechanical Properties

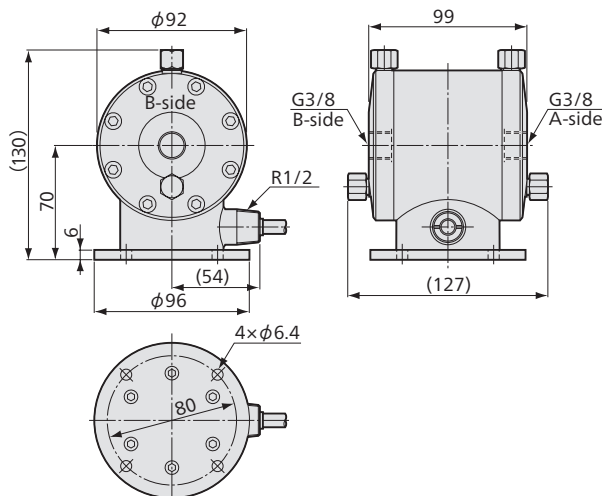
Safe Overloads	Differential Pressure 200% for 10, 20 kPa 150% for 50, 100 kPa 125% for 200 kPa
Maximum Line Pressure	2.94 MPa
Natural Frequencies	See table below.
Weight	Approx. 5 kg (Excluding cable)

*To use for gas, contact us.

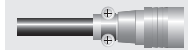
When A side is a high pressure plus output
B side is a high pressure minus output.
For A-side, B-side see the dimension below.

Models	Rated Capacity	Natural Frequencies
PD-100GA	10 kPa	≈ 60 Hz
PD-200GA	20 kPa	≈ 110 Hz
PD-500GA	50 kPa	≈ 230 Hz
PD-1KA	100 kPa	≈ 400 Hz
PD-2KA	200 kPa	≈ 700 Hz

Dimensions



Connector plug
PRC03-12A10-7M

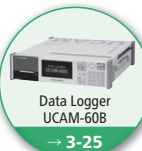


● Physical quantity indication

● Static measurement

● Dynamic measurement

PD-A
Recommended
products for
combination



Stainless Steel Differential Pressure Transducer



*TEDS-installed models are available. Inquiries are welcome.

Corrosion Resistant Built-in Variable Damping Mechanism

- Overload protection mechanism

Note: Copper alloy is used for sensing element. Avoid measuring corrosive liquid or gas.

Specifications

Performance

Rated Capacity	See table below.
Nonlinearity	Within $\pm 0.2\%$ RO for 50 to 500 kPa Within $\pm 0.25\%$ RO for 1, 2 MPa
Hysteresis	Within $\pm 0.2\%$ RO for 50 to 500 kPa Within $\pm 0.25\%$ RO for 1, 2 MPa
Repeatability	0.1% RO or less
Rated Output	1.5 mV/V $\pm 0.5\%$

Environmental Characteristics

Safe Temperature	-30 to 90°C
Compensated Temperature	-20 to 80°C
Temperature Effect on Zero	Within $\pm 0.01\%$ RO/°C for 0.2 to 2 MPa Within $\pm 0.02\%$ RO/°C for 50, 100 kPa
Temperature Effect on Output	Within $\pm 0.01\%$ RO/°C for 0.2 to 2 MPa Within $\pm 0.02\%$ RO/°C for 50, 100 kPa

Electrical Characteristics

Safe Excitation	15 V AC or DC
Recommended Excitation	1 to 10 V AC or DC
Input Resistance	350 $\Omega \pm 1\%$
Output Resistance	350 $\Omega \pm 1\%$
Cable	4-conductor (0.3 mm ²) chloroprene shielded cable, 7.6 mm diameter by 5 m long, terminated with connector plug PRC03-12A10-7M (Shield wire is connected to the case.)

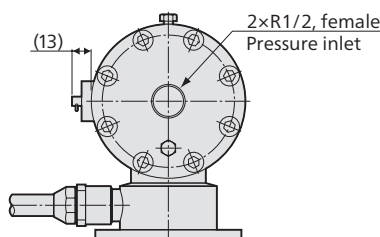
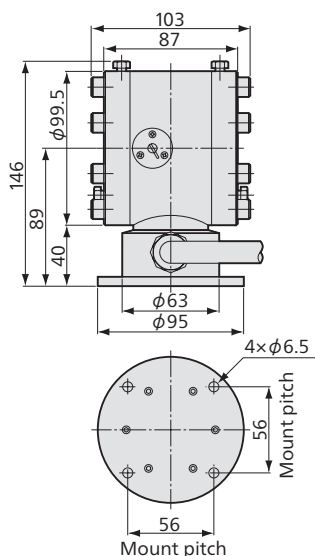
Mechanical Properties

Safe Overloads	150% (If an overload of 30 MPa is applied to either high or low pressure side, the transducer is not damaged.)
Frequency Response	DC to 30 Hz
Maximum Line Pressure	30 MPa
Weight	Approx. 6 kg (Excluding cable)

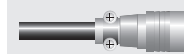
*To use for gases, contact us.

Models	Rated Capacity
PDU-A-50KP	50 kPa
PDU-A-100KP	100 kPa
PDU-A-200KP	200 kPa
PDU-A-500KP	500 kPa
PDU-A-1MP	1 MPa
PDU-A-2MP	2 MPa

Dimensions



Connector plug
PRC03-12A10-7M



- Physical quantity indication

- Static measurement

- Dynamic measurement

PDU-A
Recommended
products for
combination

Instrumentation Amplifier
WGA-680A
→ 3-97

Instrumentation Amplifier
WGA-710C
→ 3-100

Data Logger
UCAM-60B
→ 3-25

Strain Amplifier
DPM-900 Series
→ 3-5

Universal Recorder
EDX-100A
→ 3-63

Sensor Interface
PCD-430A
→ 3-77

