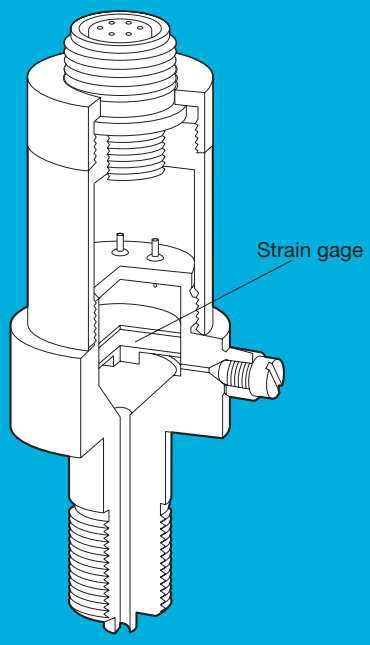
Pressure Transducers

■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

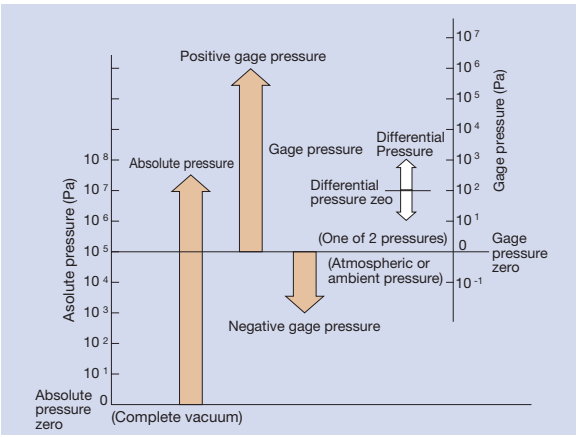
Important Notice
Pressure transducers cannot be used in hydrogen environment.
They cannot be used if the object pressure medium is hydrogen.

■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 differenciate 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

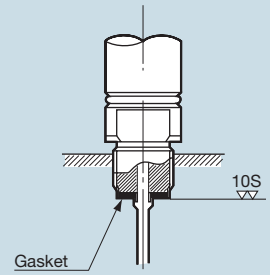
1Pa=1N/m^2
1Torr=1mmHg=1.33322×10^{2}Pa=1.33322×10^{-3}bar=1.35951×10^{-3}kgf/cm^2
=1.31579×10^{-3} atm=1.35951×10mmH$_2$O(mmAq)
1psi=6894.7Pa=7.0307×10^{-2}kgf/cm^2

To Ensure Safe Usage

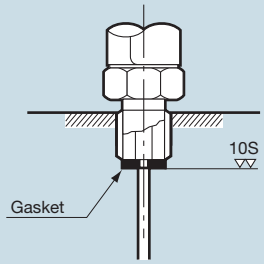
- Install each pressure transducer with the tightening torque stated in the Instruction Manual.
- Do not apply any load exceeding the safe overload rating. Excess load may break the pressure transducer.
- If pressure is applied repetitively, select a model which satisfies the following 2 requirements:
  - 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

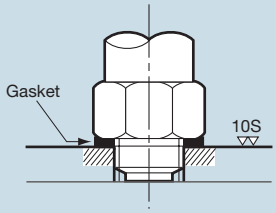
For other methods of installation, contact us.



PG-U
PHB-A

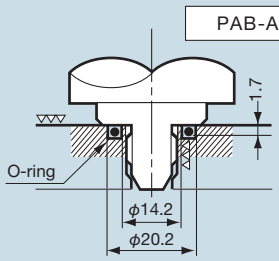


PGS-A	PAV-R,U
PG-H	PAA-R,U
PGR-A	PAG-A
PHS-A	

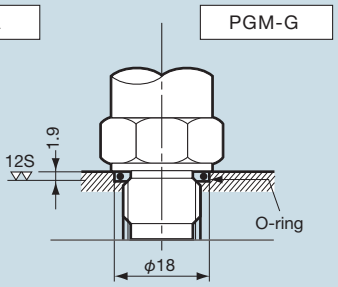


PGM-D	PHC-B
PGM-E	PVL-A,B,C,D
PGM-H	PAL-A,B
PE-RMT	PGL-A
PE-F	PHL-A

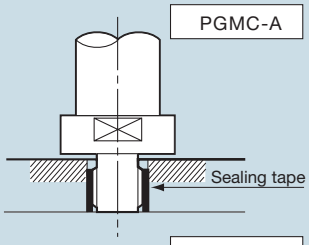
PAB-A



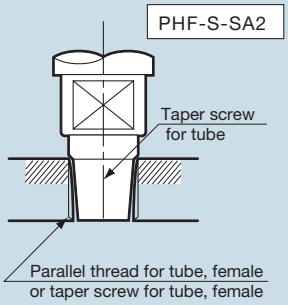
PGM-G



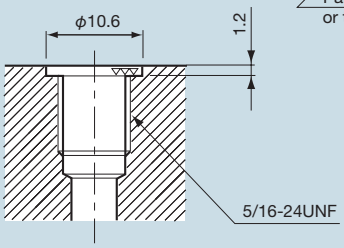
PGMC-A



PHF-S-SA2

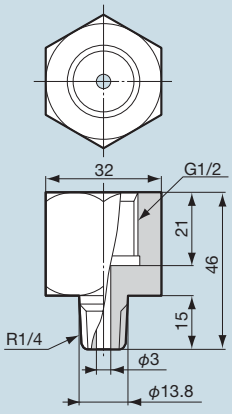


PHF-S-SA4



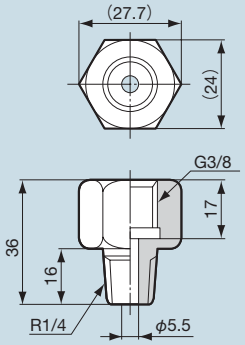
Screw Standard Conversion Adaptors (G-to-R Conversion)

H-3832 G1/2→R1/4



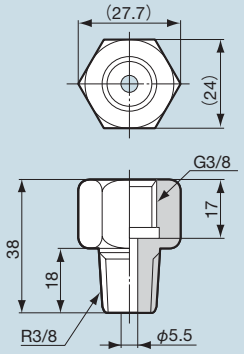
Material: SUS303

H-5237 G3/8→R1/4



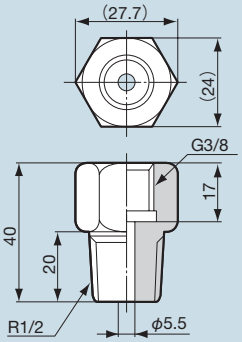
Material: SUS304

H-5238 G3/8→R3/8



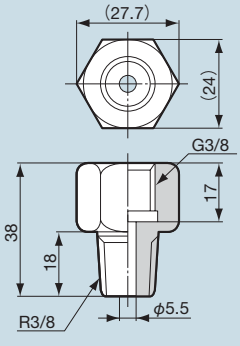
Material: SUS304

H-5239 G3/8→R1/2



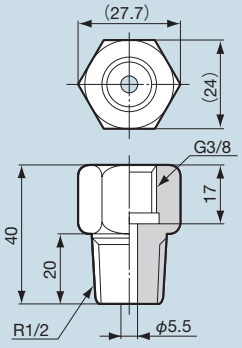
Material: SUS304

H-20109 G3/8→R3/8



Material: C3601-5B

H-20110 G3/8→R1/2

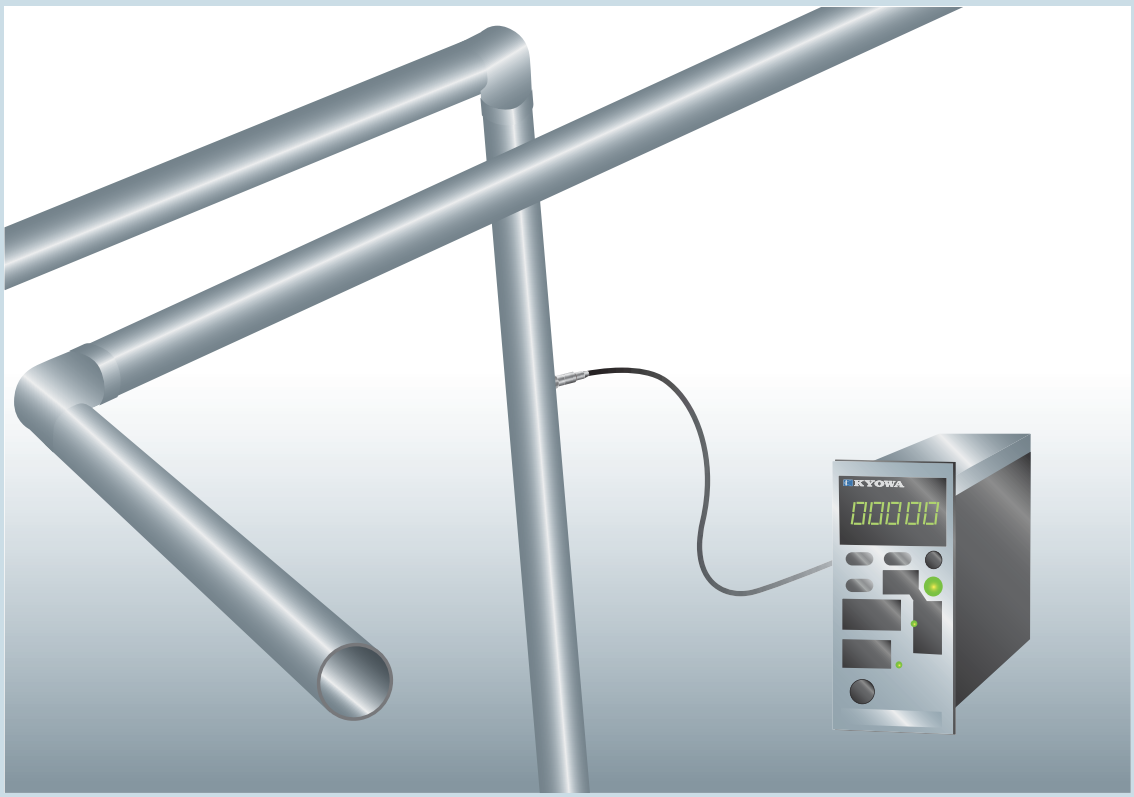


Material: C3601-5B

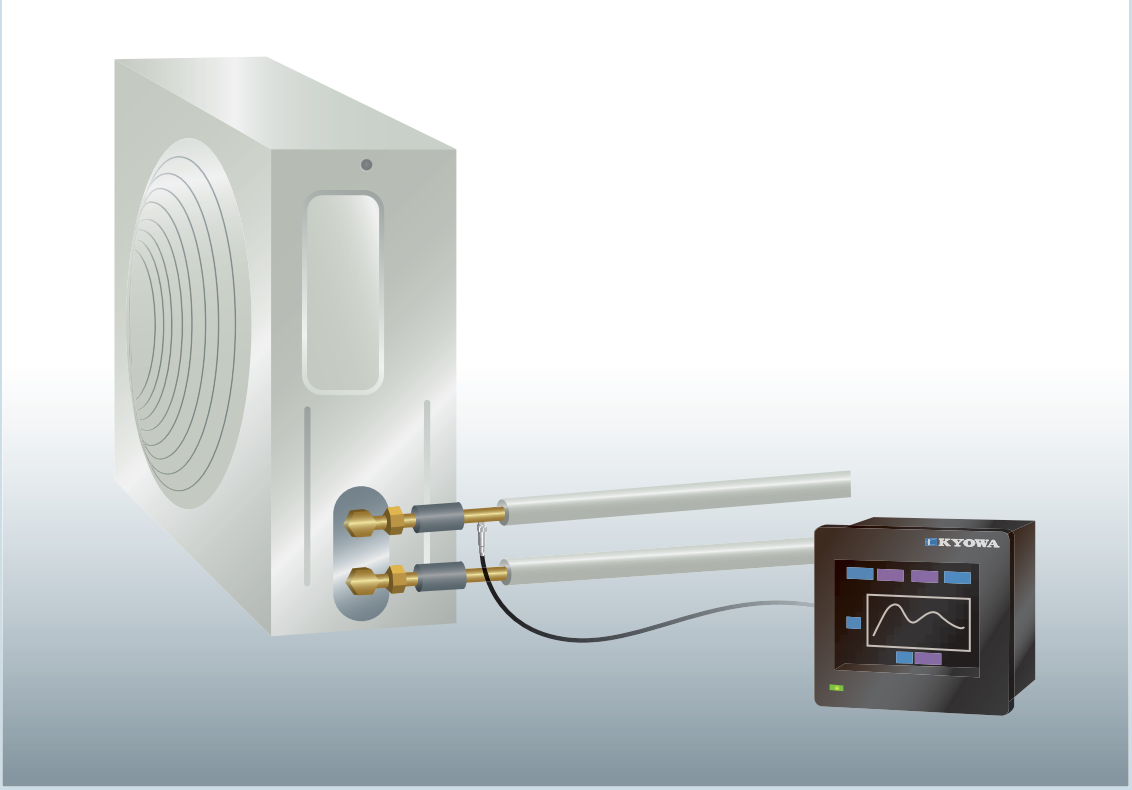
Pressure Transducers Examples of Measurement (Image)

●Hydraulic Pressure monitor/control of construction machine

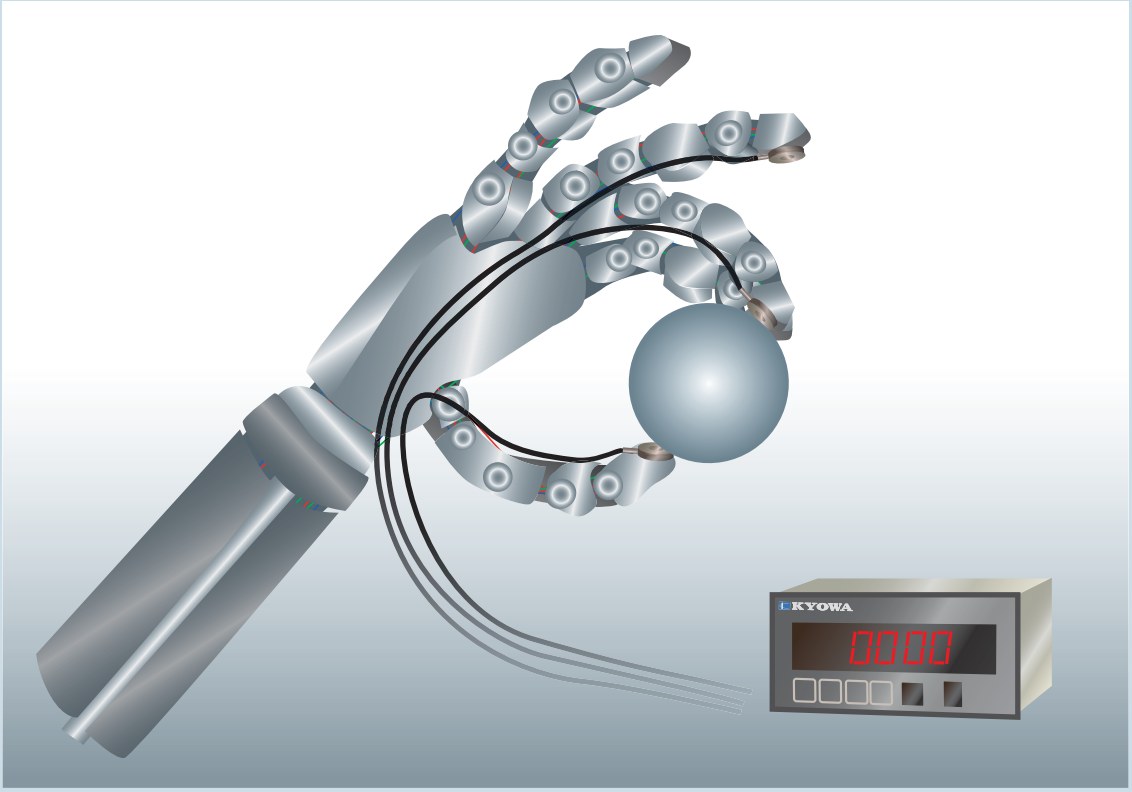
●Pressure measurement in pipe,etc.



●Refrigerant pressure monitor air conditioning facilities.



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



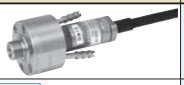
Pressure Transducer Selection Chart
Purpose & Small-sized General Purpose

General Purpose	Model	Rated Capacity kPa 20	50	100	200	500	MPa 1	2	3	5	10	20	30	50	100	200	Ref. Page
Low Prcssure	Highly Accurate **PGM-G**	●	●	●													2-86
Small-sized	Senging Surface Diameter 5.5mm **PGMC-A**				●	●	●										2-87
	Highly Reliable **PG-U**				●	●	●	●		●	●	●	●	●			2-81
	Highly Avcurat **PGM-H**					●	●	●	●	●	●	●	●	●			2-84
	Highly Avcurat **PGL-A**						●	●		●	●	●		●			2-79
	Flush diaphragm Type **PGM-E**						●	●		●	●	●		●			2-85
	Low-cost **PGS-A**						●	●		●	●	●	●	●			2-82
Stainless Small-sized	High Respanse.Flush diaphragm **PGM-D**									●	●	●		●			2-88
High Pressure	High pressure **PG-H**														●	●	2-83

High/Low Temperature	Model	Rated Capacity MPa 1	2	3	5	10	20	30	50	Ref. Page
High/Low Temperature	-196 to 210˚C **PHB-A**	●	●	●	●	●	●	●	●	2-93
High/Low Temperature Small-sized	-196 to 210˚C **PHL-A**	●	●	●	●	●	●	●	●	2-80
High/Low Temperature Small-sized	-40 to 170˚C **PHF-S-SA2**		●		●	●	●			2-94
High/Low Temperature Small-sized	-40 to 170˚C **PHF-S-SA4**		●		●	●				2-95
Flush diaphragm High Temperature	-30 to 240˚C **PHC-B**		●		●	●	●			2-92

For Absolute·High Pressure	Model	Rated Capacity kPa 200	500	MPa 1	2	5	10	20	Ref. Page
Absolute	Measurement Referring to Vacuum **PAB-A**	●	●	●	●				2-90
High Reliable (Sputter Gage Type)	-196 to 230˚C **PHS-A**	●	●	●	●	●	●	●	2-91
High Pressure Resistant	Critical Overload 117.7MPa **PGR-A** Built to order			●	●	●	●	●	2-89

Water-cooled Type

Model		Rated Capacity kPa 200	Rated Capacity kPa 500	Rated Capacity MPa 3	Ref. Page
Engine Pressure Transducers (Matsuoka Type)	300℃ or Lower **PE-RMT** 	●	●		5-9
Engine Pressure Transducers	300℃ Built to order **PE-F** 			●	5-10

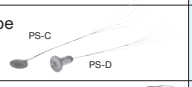
Pressure Transmitter

Model		Rated Capacity kPa 200	kPa 500	MPa 1	MPa 2	MPa 5	MPa 10	MPa 20	MPa 30	MPa 50	Ref. Page
Highly Stable Current Output	Output 4 to 20mA Highly Reliable **PAG-A** 	●									2-100
Voltage Output	Output 0 to 5V **PAV-R,U** 			●		●	●	●	●	●	2-96
Current Output	Output 4 to 20mA **PAA-R,U** 		●	●	●	●	●	●	●	●	2-97
Voltage Output	Output 0 to 5V, 1 to 5V **PVL** 		●	●	●	●	●	●	●	●	2-98
Current Output	Output 4 to 20mA **PAL** 		●	●	●	●	●	●	●	●	2-99

Differential Pressure Measurement

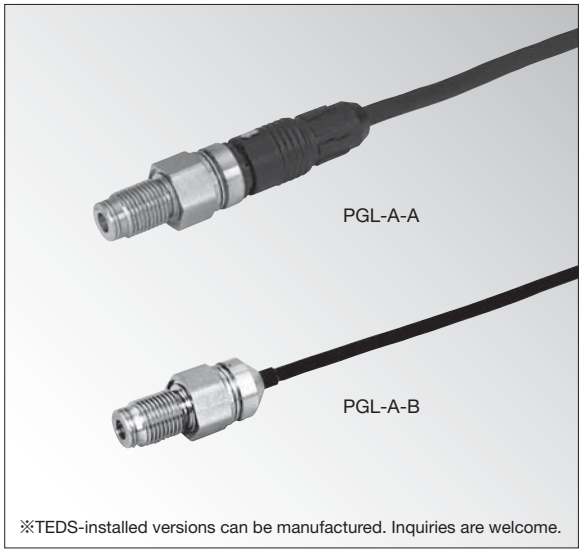
Model		Rated Capacity kPa 1	kPa 2.5	kPa 5	kPa 7	kPa 10	kPa 20	kPa 50	kPa 100	kPa 200	kPa 500	MPa 1	MPa 2	Ref. Page
Minute Differential Pressure Transducers	For Wind Pressure Measurement **PDS-A** 	●	●	●	●									2-104
	For Wind Pressure Measurement **PDV-A** 	●	●	●	●									2-105
Minute Differential Pressure	Max.Line Pressure 2.94MPa **PD-A** 					●	●	●	●	●				2-106
Stainless steel Differential Transducers	Max.Line Pressure 30MPa **PDU-A** 							●	●	●	●	●	●	2-107

Distributed Pressure Measurement

Model		Rated Capacity kPa 20	kPa 50	kPa 100	kPa 200	kPa 500	MPa 1	MPa 2	MPa 3	MPa 5	MPa 7	Ref. Page
Small -sized Type	For GAS Built to order PSS 	●	●	●								2-102
	Ultra-thin type PS-C,D 		●	●	●	●	●	●	●	●	●	2-101
	Smallest size Built to order PSM-AB 			●	●							2-103

PGL-A

Small-Sized Pressure Transducers



※TEDS-installed versions can be manufactured. Inquiries are welcome.

Compact, Lightweight, Highly Stable, and High Frequency Rcsponse

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. (Patented)

●1 to 50 MPa

Specifications

Performance

Rated Capacity :	See table below.
Nonlinearity :	Within±0.5% RO (PGL-A-1 and 2MP-A/B)
	Within ±0.3% RO (PGL-A-3 to 50MP-A/B)
Hysteresis :	Within±0.5% RO (PGL-A-1 and 2MP-A/B)
	Within ±0.2% RO (PGL-A-3 to 50MP-A/B)
Repeatability :	0.2% RO or less
Rated Output :	2 mV/V (4000μm/m) ±20% (±30% with PGL-A-1 and 2MP-A/B)

Environmental Characteristics

Safe Temperature Range :	-20 to 70˚C
Compensated Temperature Range :	-10 to 60˚C
Temperature Effect on Zero Balance :	Within±0.05% RO/˚C (PGL-A-1 to 2MP-A/B)
	Within±0.03% RO/˚C (PGL-A-5 to 50MP-A/B)
Temperature Effect on Output :	Within±0.03%/˚C

Electrical Characteristics

Safe Excitation Voltage :	6V AC or DC
Recommended Excitation Voltage :	1 to 3V AC or DC
Input Resistance :	350Ω±2%
Output Resistance :	350Ω±2%
Cable : PGL-A-A : 4-conductor (0.18 mm²) vinyl shielded cable,	
4.6 mm diameter by 3 m long, terminated with connector plug	
PGL-A-B : 4-conductor (0.08 mm²) vinyl shielded cable,	
3.2 mm diameter by 30 cm long, terminated with connector plug	
(Shield wire is not connected to mainframe.)	

Mechanical Properties

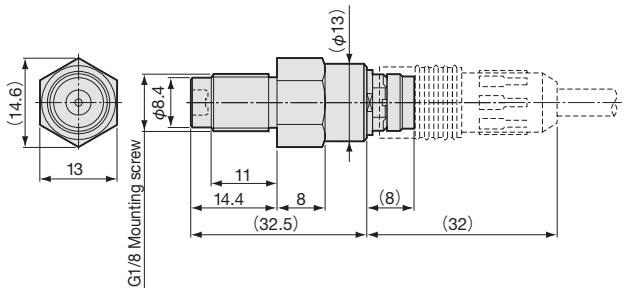
Safe Overload Rating :	150%
Natural Frequency :	See table below.
Material :	SUS 630 (liquid-contacting part)
Weight :	Approx. 20 g
Mounting Screw :	G1/8, male

Standard Accessory

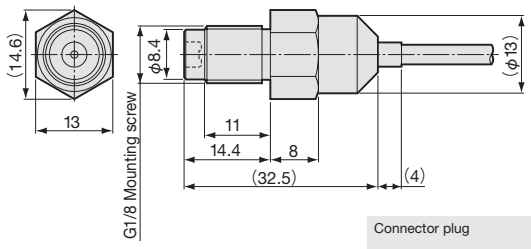
Gasket (mild copper) (SS-105 O-ring is also usable.)

Model		Rated Capacity	Natural Frequency(Approx.)
Connector Type	Cable Integrated Type		
PGL-A-1MP-A	PGL-A-1MP-B	1MPa	48kHz
PGL-A-2MP-A	PGL-A-2MP-B	2MPa	74kHz
PGL-A-5MP-A	PGL-A-5MP-B	5MPa	122kHz
PGL-A-10MP-A	PGL-A-10MP-B	10MPa	149kHz
PGL-A-20MP-A	PGL-A-20MP-B	20MPa	210kHz
PGL-A-50MP-A	PGL-A-50MP-B	50MPa	294kHz

■Dimensions

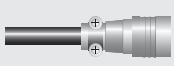


PGL-A-A



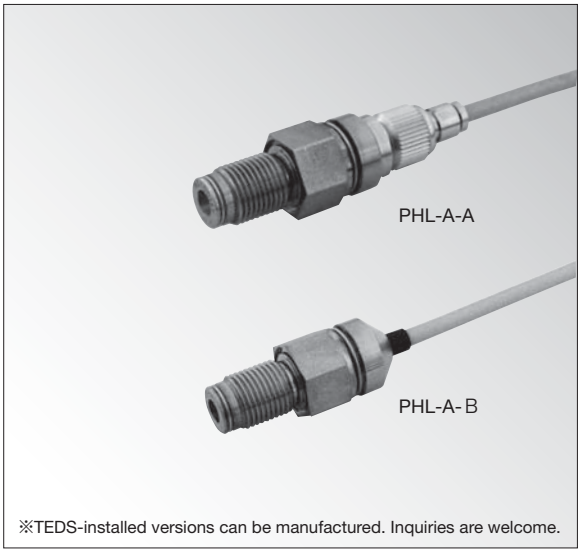
PGL-A-B

Connector plug



PHL-A

Small-Sized High/Low-Temperature Pressure Transducers



※TEDS-installed versions can be manufactured. Inquiries are welcome.

Compact, Lightweight, Usable in Both High and Low Temperatures, and 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. (Patented) Connector-equipped PHL-A-A is also available.

●1 to 50 MPa

Specifications

Performance

Rated Capacity :	See table below.
Nonlinearity :	Within±0.5% RO (PHL-A-1 and 2MP)
	Within ±0.3% RO (PHL-A-3 to 50MP)
Hysteresis :	Within±0.5% RO (PHL-A-1 and 2MP)
	Within ±0.2% RO (PHL-A-3 to 50MP)
Repeatability :	0.2% RO or less
Rated Output :	2 mV/V (4000μm/m) ±20% (±30% with PHL-A-1 and 2MP)

Environmental Characteristics

Safe Temperature Range :	-40 to 150˚C
Compensated Temperature Range :	-196 to 210˚C
Temperature Effect on Zero Balance :	Within±0.05% RO/˚C (PHL-A-1 and 2MP)
	Within±0.03% RO/˚C (PHL-A-3 to 50MP)
Temperature Effect on Output :	Within±0.03%/˚C

Electrical Characteristics

Safe Excitation Voltage :	6V AC or DC
Recommended Excitation Voltage :	1 to 3V AC or DC
Input Resistance :	350Ω±2%
Output Resistance :	350Ω±2%
Cable :	4-conductor (0.08 mm²) fluoroplastic shielded cable,
	3.1 mm diameter by 30 cm long, terminated with connector plug
	(Shield wire is not connected to mainframe.)

Mechanical Properties

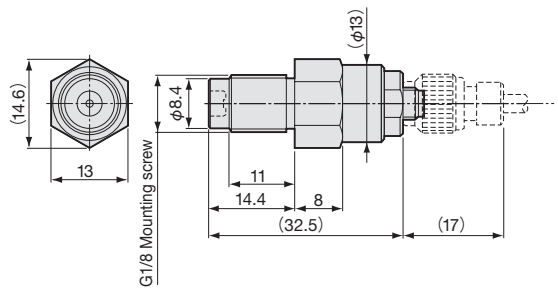
Safe Overload Rating :	150%
Natural Frequency :	See table below.
Material :	SUS 630 (liquid-contacting part)
Weight :	Approx. 20 g
Mounting Screw :	G1/8, male

Standard Accessory

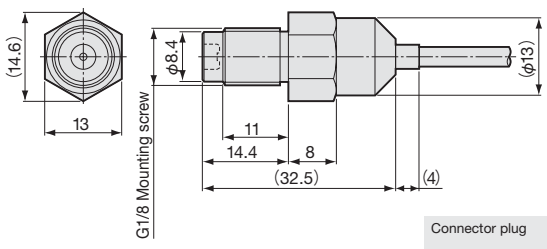
Gasket (mild copper) (SS-105 O-ring is also usable.)

Model		Rated Capacity	Natural Frequency(Approx.)
Connector Type	Cable Integrated Type		
PHL-A-1MP-A	PHL-A-1MP-B	1MPa	48kHz
PHL-A-2MP-A	PHL-A-2MP-B	2MPa	74kHz
———	PHL-A-3MP-B	3MPa	94kHz
PHL-A-5MP-A	PHL-A-5MP-B	5MPa	122kHz
PHL-A-10MP-A	PHL-A-10MP-B	10MPa	149kHz
PHL-A-20MP-A	PHL-A-20MP-B	20MPa	210kHz
———	PHL-A-30MP-B	30MPa	250kHz
PHL-A-50MP-A	PHL-A-50MP-B	50MPa	294kHz

■Dimensions

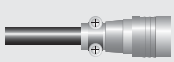


PHL-A-A

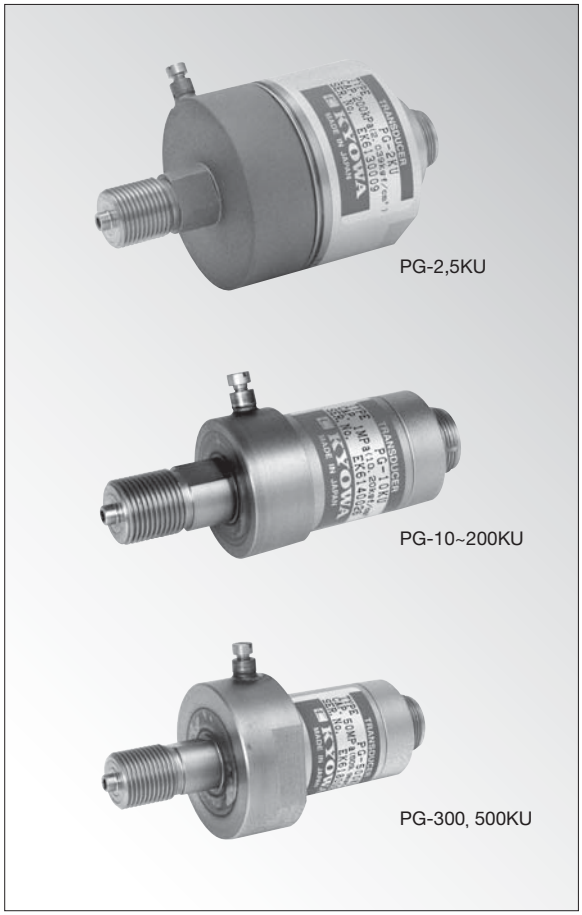


PHL-A-B

Connector plug



PG-U
Pressure Transducers



●Highly Reliable ●200 kPa to 50 MPa

Specifications

Performance

Rated Capacity :	See table below.
Nonlinearity :	Within±0.3% RO (PG-2 to 10KU)
	Within ±0.2% RO (PG-20 to 500KU)
Hysteresis :	Within±0.3% RO (PG-2 to 10KU)
	Within ±0.2% RO (PG-20 to 500KU)
Repeatability :	0.1% RO or less
Rated Output :	2 mV/V (4000μm/m) ±0.5% (±1% with PG-2 to 10KU)

Environmental Characteristics

Safe Temperature Range :	-20 to 70˚C
Compensated Temperature Range :	-10 to 60˚C
Temperature Effect on Zero Balance :	Within±0.02% RO/˚C
Temperature Effect on Output :	Within±0.02%/˚C

Electrical Characteristics

Safe Excitation Voltage :	15V AC or DC
Recommended Excitation Voltage :	1 to 10V AC or DC
Input Resistance :	350Ω±1%
Output Resistance :	350Ω±1%
Cable :	4-conductor (0.3mm^2) chloroprene shielded cable,
	7.6 mm diameter by 3 m long, terminated with connector plug
	(Shield wire is connected to mainframe.)

Mechanical Properties

Safe Overload Rating :	150%
Natural Frequency :	See table below.
Material :	Case : Anode oxide coated aluminum (PG-2 & 5KU)
	ZDC (chrome-plated) (PG-10 to 500KU)
	Liquid-contacting part: SUS 630
Weight :	Approx. 300 g (Approx. 500 g with PG-2KU & 5KU)
Mounting Screw :	G3/8, male

Standard Accessory Gasket (leather)

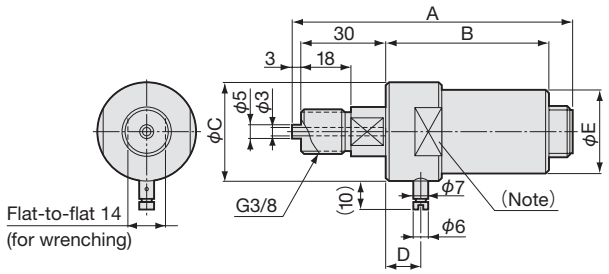
※Do not use PG-200KU to PG-500KU for endurance/fatigue tests.
※Avoid using for a long-term measurement of gas pressure if much importance is attached to the stability of output in a minute range. For such application, we can manufacture models with no air vent.

Highly Accurate and Reliablc Prcssure Transducers

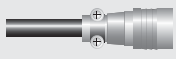
●Hermetically-sealed structure with inert gas filled in
●Wide range of rated capacities
●Abundant application achievements

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

■Dimensions



Connector plug



Note: 2 flats are provided only for PG-300 and 500KU. Do not apply a wrench to the flats.

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

PGS-A

Small-Sized Pressure Transducers

●Compact & Lightweight ●1 to 50 MPa

Specifications

Performance

Rated Capacity :	See table below.
Nonlinearity:	Within±0.4% RO (PGS-10KA)
	Within ±0.3% RO (PGS-20KA)
Hysteresis :	Within±0.2% RO (PGS-50 to 500KA)
	Within±0.2% RO
Repeatability :	0.1% RO or less
Rated Output :	2 mV/V (4000μm/m) ±0.5%

Environmental Characteristics

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

Electrical Characteristics

Safe Excitation Voltage :	15V AC or DC
Recommended Excitation Voltage :	1 to 10V AC or DC
Input Resistance :	600Ω±17.5%
Output Resistance :	500Ω±1%
Cable : 4-conductor (0.3 mm²) chloroprene shielded cable,	
4.5 mm diameter by 3 m long, terminated with connector plug	
(Shield wire is not connected to mainframe.)	

Mechanical Properties

Safe Overload Rating :	150%
Natural Frequency :	See table below.
Material :	Case : Anode oxidized aluminum
	Liquid-contacting part : SUS 630
Weight :	Approx. 120 g
Protection Rating :	IP52 (JIS C 0920)
Mounting Screw :	G3/8, male

Standard Accessory Gasket (mild copper)

※We can also manufacture models with no air vent. When ordering, suffix "M1" to model numbers stated below.

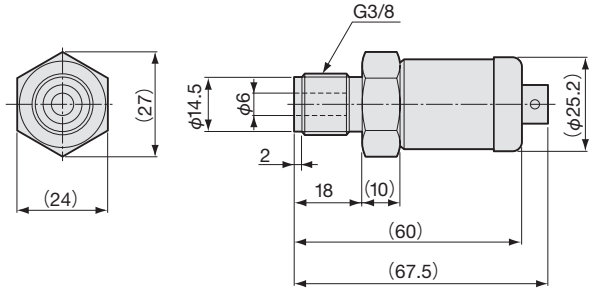
Model	Rated Capacity	Natural Frequency (Approx.)
PGS-10KA	1MPa	11kHz
PGS-20KA	2MPa	17kHz
PGS-50KA	5MPa	27kHz
PGS-100KA	10MPa	35kHz
PGS-200KA	20MPa	52kHz
PGS-300KA	30MPa	64kHz
PGS-500KA	50MPa	85kHz

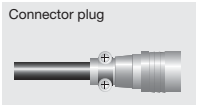
Compact and Lightweight Design and High Vibration/Impact Resistance

●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. (Patented)

■Dimensions





PG-H

High Pressure Transducers

- 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: 100MPa
	PG-2TH: 200MPa
Nonlinearity :	Within±0.2% RO
Hysteresis :	Within±0.2% RO
Rated Output :	1.5 mV/V (3000μm/m)±0.5%

Environmental Characteristics

Safe Temperature Range :	-20 to 80˚C
Compensated Temperature Range :	-10 to 70˚C
Temperature Effect on Zero Balance :	Within±0.02% RO/˚C
Temperature Effect on Output :	Within±0.01%/˚C

Electrical Characteristics

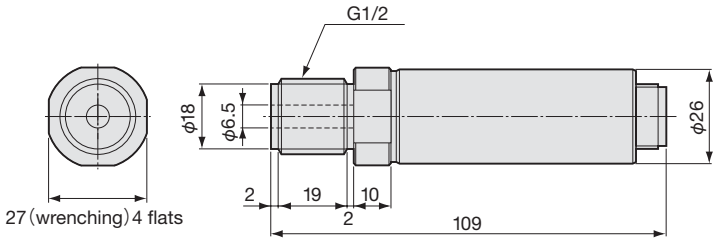
Safe Excitation Voltage :	15V AC or DC
Recommended Excitation Voltage :	1 to 10V AC or DC
Input Resistance :	350Ω±1.5%
Output Resistance :	350Ω±1.5%
Cable :	4-conductor (0.3 mm^2) chloroprene shielded cable,
	7.6 mm diameter by 3 m long, terminated with waterproof
	connector plug to transducer and connector plug to amplifier
	(Shield wire is not connected to mainframe.)

Mechanical Properties

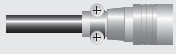
Safe Overload Rating :	150%
Natural Frequency :	Approx. 250 kHz
Material :	Case : SUS (metallic finish)
	Liquid-contacting part : SUS 630
Weight :	Approx. 220 g
Protection Rating :	IP52 (JIS C 0920)
Mounting Screw :	G1/2, male

Standard Accessory: Gasket (mild copper)

Dimensions

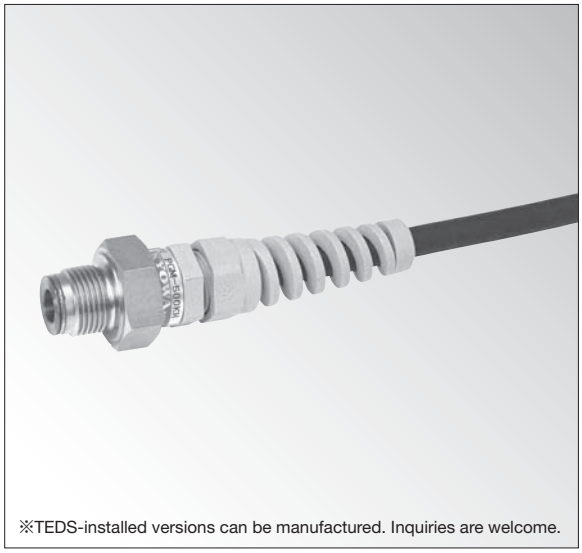


Connector plug



PGM-H

Small-Sized Pressure Transducers



※TEDS-installed versions can be manufactured. Inquiries are welcome.

●Highly Accurate ●500 kPa to 50 MPa

Specifications

Performance

Rated Capacity :	See table below.
Nonlinearity:	Within±0.5% RO (PGM-5 to 20KH)
	Within±0.3% RO (PGM-30 to 500KH)
Hysteresis :	Within±0.2% RO
Rated Output :	1.5 mV/V (3000μm/m) or more (PGM-5KH)
	2 mV/V (4000μm/m) or more (PGM-10 to 500KH)

Environmental Characteristics

Safe Temperature Range :	-20 to 70˚C
Compensated Temperature Range :	-10 to 60˚C
Temperature Effect on Zero Balance :	Within±0.05% RO/˚C(PGM-5 to 20KH)
	Within±0.03% RO/˚C(PGM-30 to 500KH)
Temperature Effect on Output :	Within±0.02%/˚C

Electrical Characteristics

Safe Excitation Voltage :	6V AC or DC
Recommended Excitation Voltage :	1 to 3V AC or DC
Input Resistance :	350Ω±2%
Output Resistance :	350Ω±2%
Cable :	4-conductor (0.3 mm²) chloroprene shielded cable,
	7.6 mm diameter by 3 m long, terminated with connector plug
	(Shield wire is not connected to mainframe.)

Mechanical Properties

Safe Overload Rating :	150%
Natural Frequency :	See table below.
Material :	Case : SUS metallic finish
	Liquid-contacting part : SUS 630
Weight :	Approx. 65 g
Mounting Screw :	G3/8, male

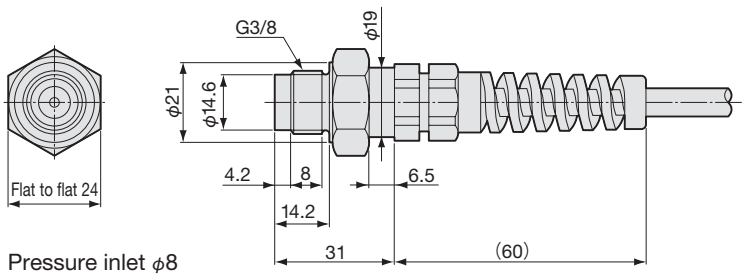
Standard Accessory Gasket (mild copper)

Model	Rated Capacity	Natural Frequency(Approx.)
PGM-5KH	500kPa	19kHz
PGM-10KH	1MPa	26kHz
PGM-20KH	2MPa	37kHz
PGM-30KH	3MPa	46kHz
PGM-50KH	5MPa	57kHz
PGM-100KH	10MPa	78kHz
PGM-200KH	20MPa	110kHz
PGM-300KH	30MPa	134kHz
PGM-500KH	50MPa	174kHz

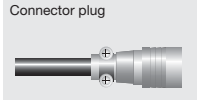
Compact Semi Flush Diaphragm Type and Available in Various Rated Capacities

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

■Dimensions

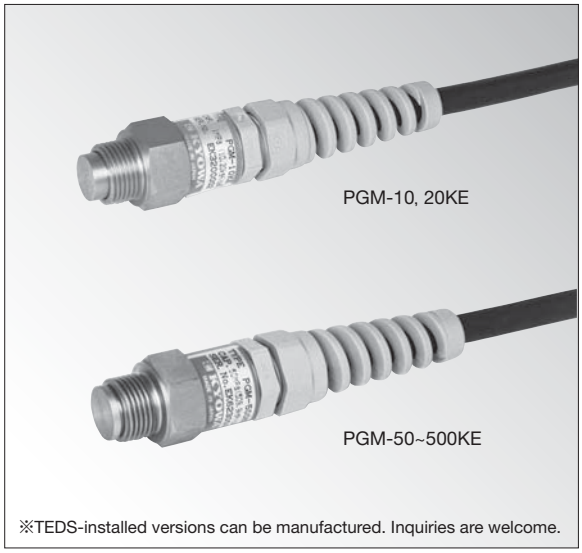


Pressure inlet ϕ8



PGM-E

Small-Sized Pressure Transducers



※TEDS-installed versions can be manufactured. Inquiries are welcome.

Compact Semi Flush Diaphragm Type and Available in Various Rated Capacities

PGM-E series pressure transducers are extremely effective for pressure measurement in limited space. A flush diaphragm ensures excellent response and dynamic characteristics. Since the pressure sensing part directly contacts the measuring object, they are applicable to highly viscous medium.

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

Specifications

Performance

Rated Capacity :	See table below.
Nonlinearity :	Within±1% RO
Hysteresis :	Within±1% RO
Rated Output :	1 mV/V (2000μm/m) or more (PGM-10 to 200KE)
	1.4 mV/V (2800μm/m) or more (PGM-500KE)

Environmental Characteristics

Safe Temperature Range :	0 to 80˚C
Compensated Temperature Range :	0 to 60˚C

Electrical Characteristics

Safe Excitation Voltage :	5V AC or DC
Recommended Excitation Voltage :	1 to 3V AC or DC
Input Resistance :	120Ω±2%
Output Resistance :	120Ω±2%
Cable : 4-conductor (0.3 mm²) chloroprene shielded cable,	
7.6 mm diameter by 3 m long, terminated with connector plug	
(Shield wire is connected to mainframe.)	

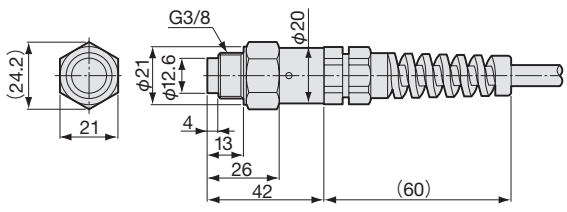
Mechanical Properties

Safe Overload Rating :	150%
Natural Frequency :	See table below.
Material :	Case: SUS metallic finish
	SUS 630(SUS 630, SUS 304 with PGM-10 & 20KE)
Weight :	Approx. 200 g (including cable)
Mounting Screw :	G3/8, male

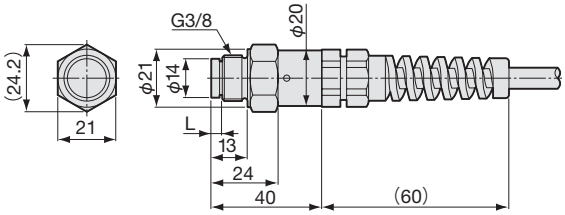
Standard Accessory Gasket (mild copper)

Model	Rated Capacity	L	Natural Frequency (Approx.)
PGM-10KE	1MPa	—	22kHz
PGM-20KE	2MPa	—	23kHz
PGM-50KE	5MPa	5	46kHz
PGM-100KE	10MPa	5	60kHz
PGM-200KE	20MPa	4	73kHz
PGM-500KE	50MPa	3	80kHz

Dimensions

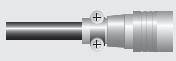


PGM-10 to 20KE



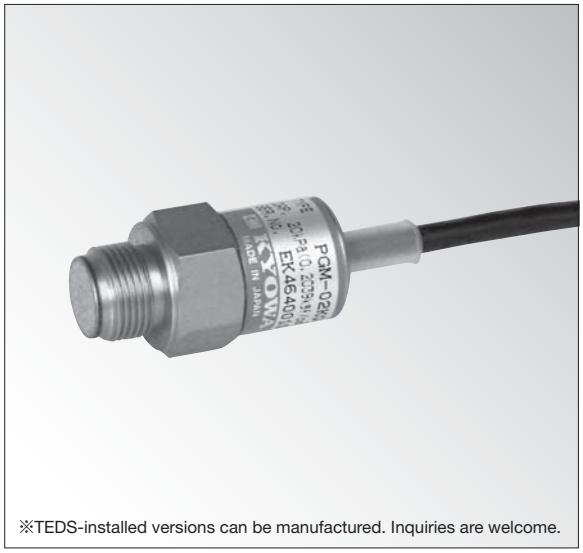
PGM-50 to 500KE

Connector plug



PGM-G

Low Pressure Transducers



※TEDS-installed versions can be manufactured. Inquiries are welcome.

●Low Pressure Measurement with High Accuracy
●20 to 100 kPa

Specifications

Performance

Rated Capacity :	See table below.	
Nonlinearity :	Within±0.5% RO	
Hysteresis :	Within±0.3% RO	
Rated Output :	PGM-02KG	0.75 mV/V (1500μm/m) or more
	PGM-05KG	1.25 mV/V (2500μm/m) or more
	PGM-1KG	1.4 mV/V (2800μm/m) or more

Environmental Characteristics

Safe Temperature Range :	-20 to 70℃
Compensated Temperature Range :	-20 to 60℃
Temperature Effect on Zero Balance :	Within±0.02% RO/℃
Temperature Effect on Output :	Within±0.03%/℃

Electrical Characteristics

Safe Excitation Voltage :	5V AC or DC
Recommended Excitation Voltage :	1 to 3V AC or DC
Input Resistance :	350Ω±10%
Output Resistance :	350Ω±10%
Cable : 4-conductor (0.08 mm²) horizontal vinyl shielded cable in fluoroplastic tube, 4.2 mm diameter by 3 m long, terminated with connector plug (Shield wire is not connected to mainframe.)	

Mechanical Properties

Safe Overload Rating :	150%
Natural Frequency :	See table below.
Material :	Case : SUS metallic finish
	Liquid-contacting part : SUS 304
Weight :	Approx. 40 g (including cable)
Mounting Screw :	M14 P=1, male

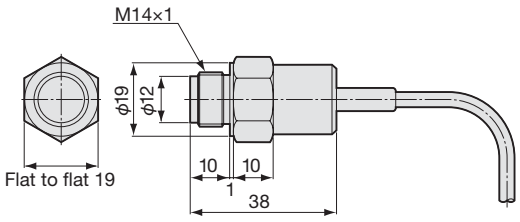
Standard Accessories: O-ring (JIS B 2401-P14)

Model	Rated Capacity	Natural Frequency (Approx.)
PGM-02KG	20kPa	2kHz
PGM-05KG	50kPa	3kHz
PGM-1KG	100kPa	4kHz

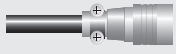
Enable Highly Accurate and Stable Measurement of Low Pressures

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 pressures.

■Dimensions



Connector plug



PGMC-A

Small-Sized Pressure Transducers

※TEDS-installed versions can be manufactured. Inquiries are welcome.

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

Compact, lightweight, and 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±1.5% RO	
Hysteresis :	Within±1.5% RO	
Rated Output :	PGMC-A-200KP	0.6 mV/V (1200μm/m) or more
	PGMC-A-500KP & 1MP	1 mV/V (2000μm/m)±20%

Environmental Characteristics

Safe Temperature Range :	0 to 50°C
Temperature Effect on Zero Balance :	Within±0.3% RO/°C (PGMC-A-200KP)
	Within±0.2% RO/°C (PGMC-A-500KP & 1MP)
Temperature Effect on Output :	Within±0.3%/°C (PGMC-A-200KP)
	Within±0.2%/°C (PGMC-A-500KP & 1MP)

Electrical Characteristics

Safe Excitation Voltage :	3V AC or DC
Recommended Excitation Voltage :	1 to 2V AC or DC
Input Resistance :	350Ω±10%
Output Resistance :	350Ω±10%
Cable :	4-conductor (0.065 mm²) vinyl shielded cable, 4 mm diameter by 3 m long, terminated with connector plug (Shield wire is connected to mainframe.)

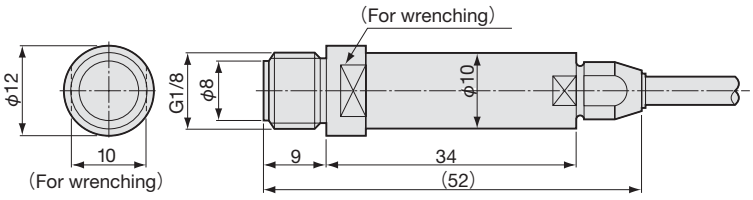
Mechanical Properties

Safe Overload Rating :	150%
Natural Frequency :	See table below.
Material :	Liquid-contacting part: C1720
	Screw: SUS 303
Weight :	Approx. 20 g
Mounting Screw :	G1/8, male

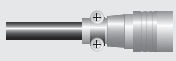
Standard Accessory: Fluoroplastic sealing tape

Model	Rated Capacity	Natural Frequency (Approx.)
PGMC-A-200KP	200kPa	24kHz
PGMC-A-500KP	500kPa	34kHz
PGMC-A-1MP	1MPa	40kHz

Dimensions

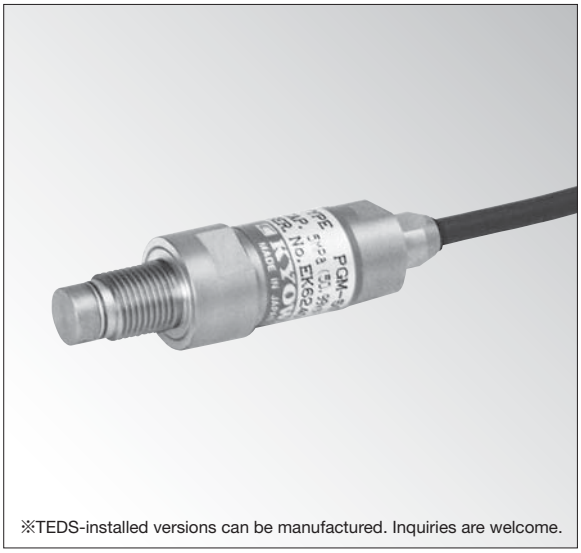


Connector plug



PGM-D

Small-Sized Stainless Steel Pressure Transducers



※TEDS-installed versions can be manufactured. Inquiries are welcome.

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

●High Frequency Response ●5 to 50 MPa

Specifications

Performance

Rated Capacity :	See table below.
Nonlinearity :	Within±0.5% RO
Hysteresis :	Within±0.5% RO
Rated Output :	1.5 mV/V (3000μm/m) ±20%

Environmental Characteristics

Safe Temperature Range :	-10 to 70℃
Compensated Temperature Range :	0 to 60C
Temperature Effect on Zero Balance :	Within±0.1% RO/℃
Temperature Effect on Output :	Within±0.1%/℃

Electrical Characteristics

Safe Excitation Voltage :	3V AC or DC
Recommended Excitation Voltage :	1 to 2V AC or DC
Input Resistance :	120Ω±2%
Output Resistance :	120Ω±2%
Cable :	4-conductor (0.065 mm²) vinyl shielded cable, 4 mm diameter by 3 m long, terminated with connector plug (Shield wire is connected to mainframe.)

Mechanical Properties

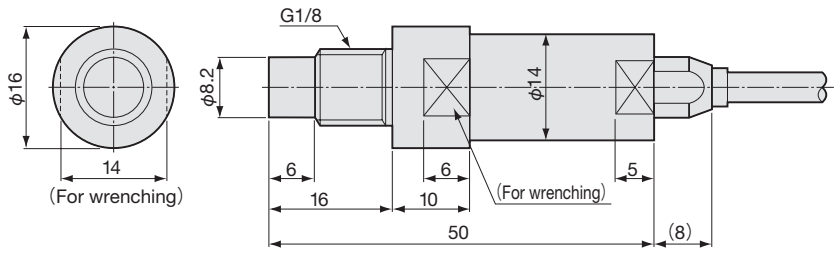
Safe Overload Rating :	150%
Natural Frequency :	See table below.
Material :	Case : SUS metallic finish
	Liquid-contacting part : SUS 630
Weight :	Approx. 40 g
Mounting Screw :	G1/8, male

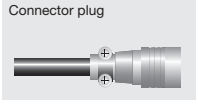
Standard Accessory Gasket (mild copper)

※We can also manufacture PGM-10KD M156 with the rated capacity of 1 MPa and PGM-20KD M156 with the rated capacity of 2 MPa.

Model	Rated Capacity	Natural Frequency (Approx.)
PGM-50KD	5MPa	83kHz
PGM-100KD	10MPa	113kHz
PGM-200KD	20MPa	150kHz
PGM-500KD	50MPa	250kHz

■Dimensions





PGR-A

High-Pressure-Resistant Pressure Transducers

※TEDS-installed versions can be manufactured. Inquiries are welcome.

Usable at High Temperatures up to 100°C, High Pressure Withstanding, and Highly Accurate

- Critical Overload: 117.7 MPa (1200 kgf/cm²)
- 1 to 20 MPa

Specifications

Performance

Rated Capacity :	See table below.
Nonlinearity :	Within±0.1% RO
Hysteresis :	Within±0.1% RO
Rated Output :	1.5 mV/V (3000μm/m) ±5%

Environmental Characteristics

Safe Temperature Range :	-30 to 110℃
Compensated Temperature Range :	-10 to 100℃
Temperature Effect on Zero Balance :	Within±0.01% RO/℃
Temperature Effect on Output :	Within±0.01%/℃

Electrical Characteristics

Safe Excitation Voltage :	12V AC or DC
Recommended Excitation Voltage :	1 to 8V AC or DC
Input Resistance :	350Ω±1.4%
Output Resistance :	350Ω±1.4%
Cable : 4-conductor (0.75 mm²) fluonlex shielded cable,	
8 mm diameter by 5 m long, bared at the tip	
(Shield wire is not connected to mainframe.)	

Mechanical Properties

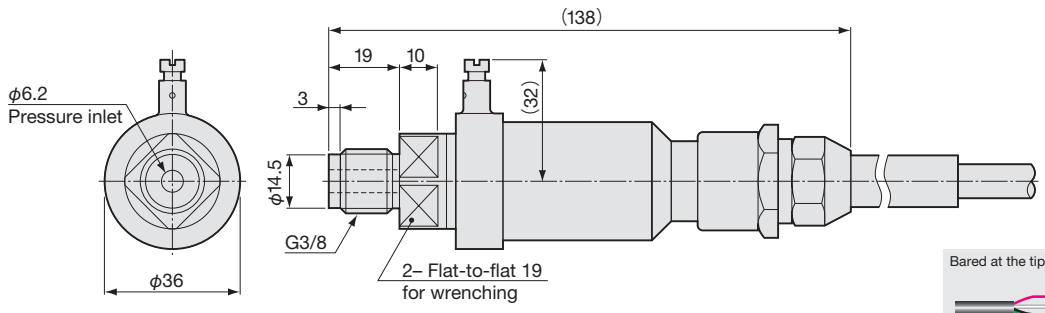
Safe Overload Rating(※1) :	300%
Critical Overload(※2) :	117.7 MPa (PGR-10 to 50KA)
	196.1 MPa (PGR-100 & 200KA)
Natural Frequency :	See table below.
Material :	Case : SUS metallic finish
	Liquid-contacting part : SUS 630
Weight :	Approx. 400 g
Mounting Screw :	G3/8, male

Standard Accessory Gasket (mild copper)

Model	Rated Capacity	Natural Frequency (Approx.)
PGR-10KA	1MPa	12kHz
PGR-20KA	2MPa	17kHz
PGR-50KA	5MPa	29kHz
PGR-100KA	10MPa	42kHz
PGR-200KA	20MPa	60kHz

※1. Maximum overload which can be applied without causing any permanent change in specified characteristics
※2. Maximum overload which can be applied without causing any structural damage.

Dimensions



PAB-A

Absolute Pressure Transducers

●Measurement from Absolute Pressure Zero (Vacuum)
●200 kPa$_{abs.}$ to 2 MPa$_{abs.}$

Specifications

Performance

Rated Capacity :	See table below.
Nonlinearity :	Within±0.1% RO
Hysteresis :	Within±0.1% RO
Rated Output :	2 mV/V (4000μm/m) or more

Environmental Characteristics

Safe Temperature Range :	-30 to 80˚C
Compensated Temperature Range :	-20 to 70˚C
Temperature Effect on Zero Balance :	Within±0.01% RO/˚C
Temperature Effect on Output :	Within±0.01%/˚C

Electrical Characteristics

Safe Excitation Voltage :	8V AC or DC
Recommended Excitation Voltage :	1 to 3V AC or DC
Input Resistance :	367Ω±2%
Output Resistance :	350Ω±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 mainframe.)	

Mechanical Properties

Safe Overload Rating :	150%
Natural Frequency :	See table below.
Material :	SUS 630 (Liquid-contacting part)
Weight :	Approx. 130 g
Mounting Screw :	7/16-20UNF

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

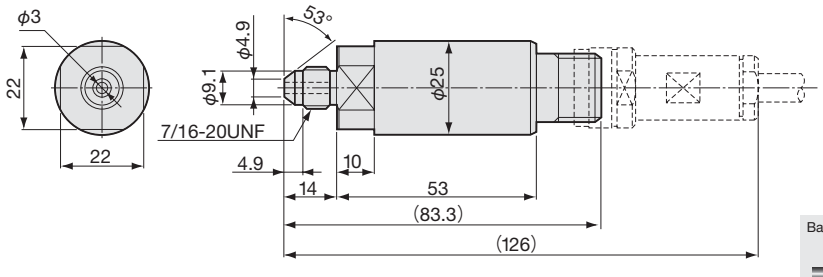
Model	Rated Capacity	Natural Frequency (Approx.)
PAB-A-200KP	200kPa$_{abs.}$	5kHz
PAB-A-500KP	500kPa$_{abs.}$	8kHz
PAB-A-1MP	1MPa$_{abs.}$.	10kHz
PAB-A-2MP	2MPa$_{abs.}$.	12kHz

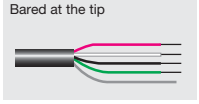
Compact, Lightweight, and Highly Stable

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

PAB-A series pressure transducers can measure absolute pressures from zero to 2MPa 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 can widely be used in various industrial and engineering fields.

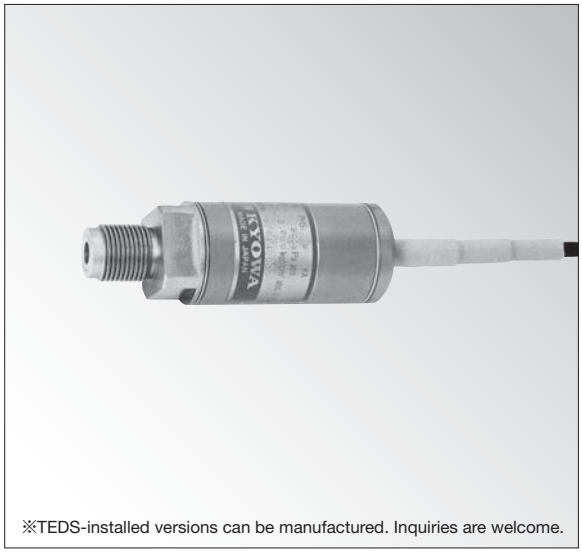
■Dimensions





PHS-A

Highly Reliable Pressure Transducers(Sputter Gage Method)



※TEDS-installed versions can be manufactured. Inquiries are welcome.

- Long-Term Stability at 200˚C
- 200 kPa$_{abs.}$ to 20 MPa$_{abs.}$

Specifications

Performance

Rated Capacity :	See table below.
Nonlinearity :	Within±0.2% RO
Hysteresis :	Within±0.2% RO
Rated Output :	1.5 mV/V (3000μm/m) or more

Environmental Characteristics

Safe Temperature Range :	-196 to 230˚C
Compensated Temperature Range :	-30 to 200˚C
Temperature Effect on Zero Balance :	Within±0.02% RO/˚C
Temperature Effect on Output :	Within±0.015%/˚C

Electrical Characteristics

Safe Excitation Voltage :	15V AC or DC
Recommended Excitation Voltage :	1 to 10V AC or DC
Input Resistance :	750Ω to 1000Ω
Output Resistance :	750Ω to 1000Ω
Cable : 4-conductor (0.3mm^2) fluoroplastic shielded cable,	
5 mm diameter by 5 m long, bared at the tip	
(Shield wire is not connected to mainframe.)	

Mechanical Properties

Safe Overload Rating :	150%
Natural Frequency :	See table below.
Materials :	Case : SUS (metallic finish)
	Liquid-contacting part : SUS 630
Weight :	Approx. 150 g
Mounting Screw :	G3/8, male

Standard Accessory Gasket (mild copper)

Model	Rated Capacity	Natural Frequency (Approx.)
PHS-2KA	200kPa$_{abs.}$	5kHz
PHS-5KA	500kPa$_{abs.}$	7kHz
PHS-10KA	1MPa$_{abs.}$	20kHz
PHS-20KA	2MPa$_{abs.}$	30kHz
PHS-50KA	5MPa$_{abs.}$	50kHz
PHS-100KA	10MPa$_{abs.}$	70kHz
PHS-200KA	20MPa$_{abs.}$	100kHz

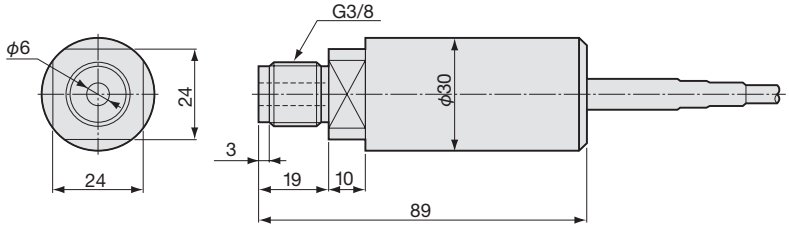
Usable at Both High and Low Temperatures, Possible to Measure Absolute Pressure, and Excellent High-Temperature

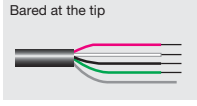
PHS-A series pressure transducers have the thin-film strain gage and temperature-compensating resistive membrane formed directly on the diaphragm by sputtering and photo-lithography, thereby enabling accurate temperature compensation even at high temperatures.

To Ensure Safe Usage

High-carrier-based dynamic strain amplifier DPM-602, 603, 612, 613, 712, 713, 752, 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-601, 611, 711, 751, 911 or 951or signal conditioner CDV-700A.

Dimensions





PHC-B

Flush Diaphragm Type High-Temperature Pressure Transducers

※TEDS-installed versions can be manufactured. Inquiries are welcome.

●Excellent Heat Resistance ●2 to 20 MPa

Specifications

Performance

Rated Capacity :	See table below.
Nonlinearity :	Within±0.5% RO
Hysteresis :	Within±0.3% RO
Repeatability :	0.2% RO or less
Rated Output :	0.6 mV/V (1200μm/m) or more

Environmental Characteristics

Safe Temperature Range :	-30 to 240˚C (200˚C with cable, -25 to 80˚C with connector plug)
Compensated Temperature Range :	23 to 230˚C
Temperature Effect on Zero Balance :	Within±0.03% RO/˚C
Temperature Effect on Output :	Within±0.03%/˚C

Electrical Characteristics

Safe Excitation Voltage :	12V AC or DC
Recommended Excitation Voltage :	1 to 10V AC or DC
Input Resistance :	380 to 650Ω
Output Resistance :	380 to 650Ω
Cable :	4-conductor (0.08 mm²) fluoroplastic shielded cable, 3.1 mm diameter by 3 m long, terminated with connector plug (Shield wire is not connected to mainframe.)

Mechanical Properties

Safe Overload Rating :	150%
Natural Frequency :	See table below.
Materia :	Case: SUS metallic finish
	Liquid-contacting part: SUS 630
Weight :	Approx. 70 g
Mounting Screw :	G1/8, male

Standard Accessories Gasket (mild copper)

Model	Rated Capacity	Natural Frequency (Approx.)
PHC-B-2MP	2MPa	45kHz
PHC-B-5MP	5MPa	75kHz
PHC-B-10MP	10MPa	85kHz
PHC-B-20MP	20MPa	85kHz

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

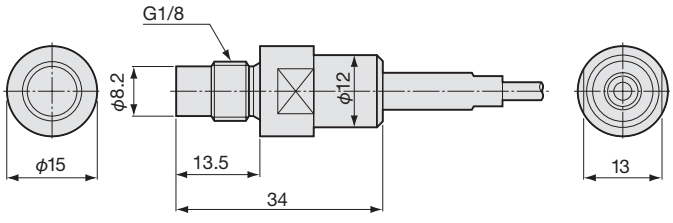
●Safe temperature range from -30 to 240˚C
●Flush diaphram ensuring high frequency response
●Compact, flexible, and heat-resistant cable ensuring ease of use

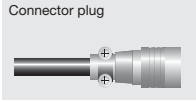
To enable pressure measurement at high temperature, PHC-B series pressure transducers adopt thin-film strain gage formed by sputtering.
The sensor part is a flush, diaphragm detecting pressure directly on a flat surface without pressure medium, thus enabling pressure measurement without missing momentary 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.

To Ensure Safe Usage

High-carrier-based dynamic strain amplifier DPM-602, 603, 612, 613, 712, 713, 752, 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-601, 611, 711, 751, 911 or 951or signal conditioner CDV-700A.

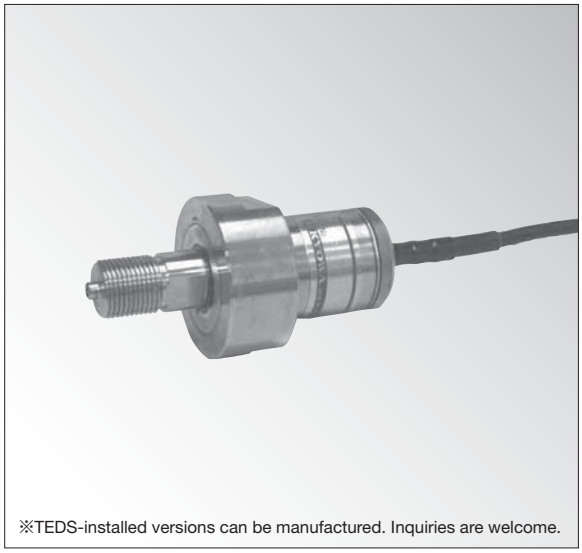
Dimensions





PHB-A

High/Low-Temperature Pressure Transducers



※TEDS-installed versions can be manufactured. Inquiries are welcome.

●-196 to 210˚C ●1 to 50 MPa

Specifications

Performance

Rated Capacity :	See table below.
Nonlinearity :	Within±0.4% RO
Hysteresis :	Within±0.4% RO
Rated Output :	2.2 mV/V (4400μm/m)±15%

Environmental Characteristics

Safe Temperature Range :	-196 to 210˚C
	(-25 to 80˚C with connector plug)
Compensated Temperature Range :	-196 to 200˚C
	(-25 to 80˚C with connector plug)
Temperature Effect on Zero Balance :	Within±0.03% RO/˚C
Temperature Effect on Output :	Within±0.035%/˚C (PHB-A-1MP)
	Within±0.03%/˚C (PHB-A-2 to 50MP)

Electrical Characteristics

Safe Excitation Voltage :	15V AC or DC
Recommended Excitation Voltage :	1 to 10V AC or DC
Input Resistance :	350Ω±2%
Output Resistance :	350Ω±2%
Cable :	4-conductor (0.3 mm²) fluoroplastic shielded cable,
	5 mm diameter by 3 m long, terminated with connector plug
	(Shield wire is connected to mainframe.)

Mechanical Properties

Safe Overload Rating :	120%
Natural Frequency :	See table below.
Material :	Case : SUS metallic finish
	Liquid-contacting part : SUS 630
Weight :	Approx. 230 g
Mounting Screw :	G3/8, male

Standard Accessory Gasket (mild copper)

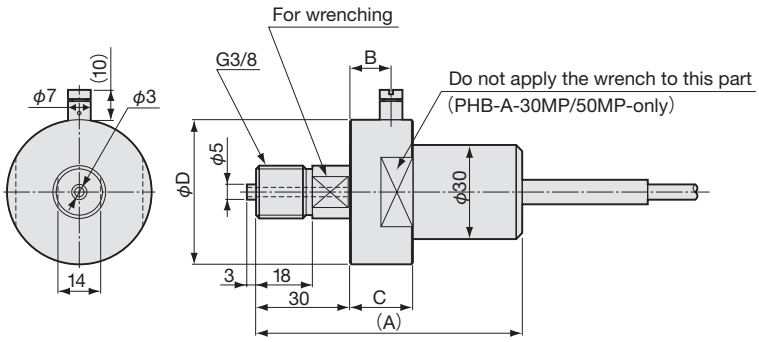
※Do not use PHB-A-20MP to PHB-A-50MP for endurace/fatigue tests.
※Avoid using for a long-term measurement of gas pressure if much importance is attached to the stability of output in a minute range. For such application, we can manufacture models with no air vent.

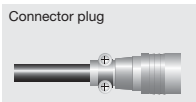
Suitable for Pressure Measurement of LPG/LNG Tanks and Gas or Steam Turbines

●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





Model	Rated Capacity	A	B	C	ϕD	Natural Frequency(Approx.)
PHB-A-1MP	1MPa	80	10	16	36	8kHz
PHB-A-2MP	2MPa					13kHz
PHB-A-5MP	5MPa	84	13	20	36	21kHz
PHB-A-10MP	10MPa					29kHz
PHB-A-20MP	20MPa					40kHz
PHB-A-30MP	30MPa	84	13	20	46	45kHz
PHB-A-50MP	50MPa					50kHz

PHF-S-SA2

Small-Sized High-Temperature. Pressure Transducers

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

Specifications

Performance

Rated Capacity :	See table below.
Nonlinearity :	Within±0.4% RO (PHF-S-2MPSA2)
	Within±0.3% RO (PHF-S-5 to 20MSA2)
Hysteresis :	Within±0.2% RO
Rated Output :	2 mV/V (4000μm/m)

Environmental Characteristics

Safe Temperature Range :	-40 to 170˚C
	(-25 to 80˚C with connector plug)
Compensated Temperature Range :	-40 to 150˚C
	(-25 to 80˚C with connector plug)
Temperature Effect on Zero Balance :	Within±0.008% RO/˚C
Temperature Effect on Output :	Within±0.01%/˚C

Electrical Characteristics

Safe Excitation Voltage :	10V AC or DC
Recommended Excitation Voltage :	1 to 5V AC or DC
Input Resistance :	350Ω±2%
Output Resistance :	350Ω±2%
Cable :	4-conductor (0.09 mm²) fluoroplastic shielded cable,
	3 mm diameter by 4 m long, terminated with connector plug

Mechanical Properties

Safe Overload Rating :	150%
Natural Frequency :	See table below.
Material :	SUS 630 (liquid-contacting part)
Weight :	Approx. 50 g
Mounting Screw :	R1/8, male

Standard Accessories: Air vent screw with slot
Hexagon wrench for air vent screw (M3)

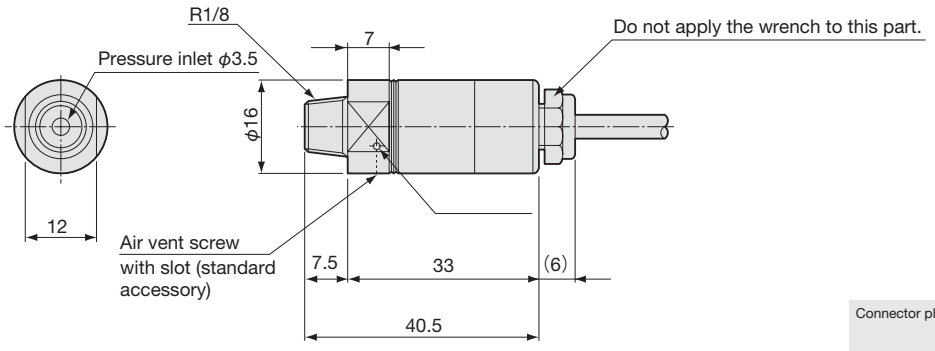
Model	Rated Capacity	Natural Frequency (Approx.)
PHF-S-2MPSA2	2MPa	25kHz
PHF-S-5MPSA2	5MPa	50kHz
PHF-S-10MPSA2	10MPa	70kHz
PHF-S-20MPSA2	20MPa	100kHz

Compact and Lightweight, and Usable at 150°C at Maximum

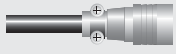
●High vibration resistance: 490.3 m/s² (50 G)
●Highly stable

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

■Dimensions



Connector plug



PHF-S-SA4

Small-Sized High-Temperature. Pressure Transducers

●-40 to 150˚C ●2 to 10 MPa

Specifications

Performance

Rated Capacity :	See table below.
Nonlinearity :	Within±0.3% RO
Hysteresis :	Within±0.2% RO
Rated Output :	Approx. 0.5 mV/V (1000μm/m)

Environmental Characteristics

Safe Temperature Range :	-40 to 170˚C (excl. connector)
Compensated Temperature Range :	-40 to 150˚C (excl. connector)
Temperature Effect on Zero Balance :	Within±0.05% RO/˚C
Temperature Effect on Output :	Within±0.05%/˚C

Electrical Characteristics

Safe Excitation Voltage :	5V AC or DC
Recommended Excitation Voltage :	1 to 2V AC or DC
Input Resistance :	350Ω±5%
Output Resistance :	350Ω±5%
Cable :	4-conductor (0.09 mm²) fluoroplastic shielded cable, 3 mm diameter by 50 cm long, terminated with R04-P5M connector plug

Mechanical Properties

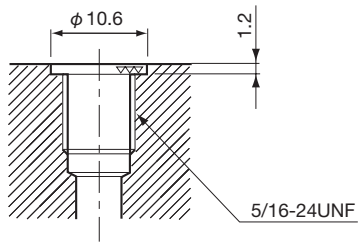
Safe Overload Rating :	150%
Natural Frequency :	See table below.
Material :	Metallic finish
Protection Rating :	IP63
Weight :	Approx. 20 g
Mounting Screw :	5/16-24UNF, male

Standard Accessories: Extension cable (4-conductor (0.09 mm²) fluoroplastic shielded cable, 3 mm diameter by 4 m long, terminated with connector plug)
O-ring (AS568 010)

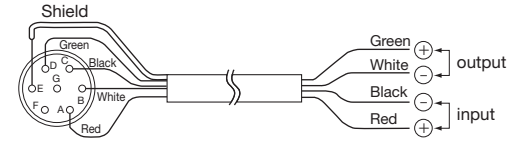
Model	Rated Capacity	Natural Frequency (Approx.)
PHF-S-2MPSA4	2MPa	110kHz
PHF-S-5MPSA4	5MPa	120kHz
PHF-S-10MPSA4	10MPa	170kHz

Compact, Lightweight, and Usable at 150°C at Maximum

As an upgraded version of PHF-S-SA2 series, PHF-S-SA4 series is designed to be more compact and lightweight and applicable up to150˚C .



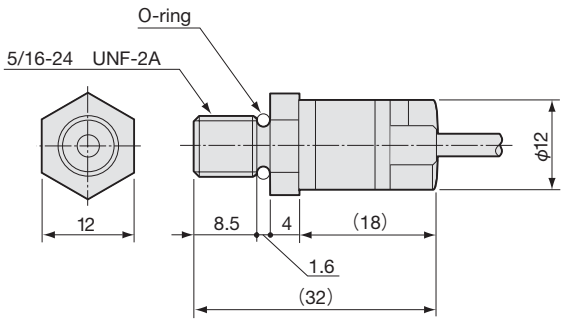
Installation Example



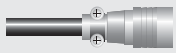
Not connected to mainframe

Input/Output Wiring

■Dimensions

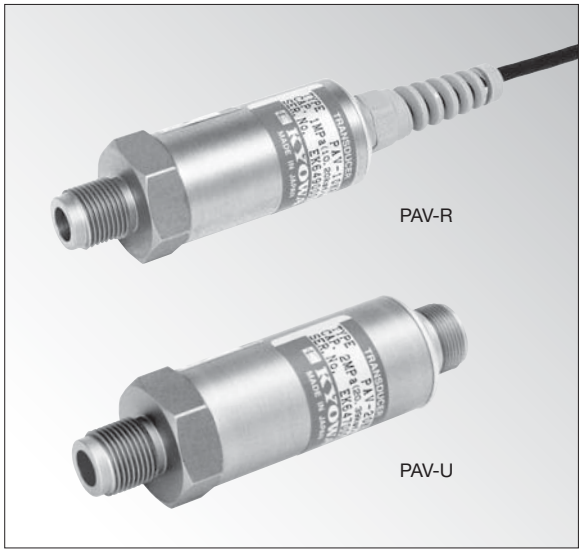


Connector plug



PAV-R,U

Voltage-Output Pressure Transducers



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

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 5V. 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 highly accurate

Specifications

Performance

Rated Capacity :	See table below.
Nonlinearity :	Within±0.2% RO
Hysteresis :	Within±0.2% RO
Rated Output :	0 to 5 V

Environmental Characteristics

Safe Temperature Range :	-20 to 80˚C
Compensated Temperature Range :	-20 to 70˚C
Temperature Effect on Zero Balance :	Within±0.03% RO/˚C
Temperature Effect on Output :	Within±0.02%/˚C

Electrical Characteristics

SN Ratio :	50 dB or moe
Load Resistance :	1 kΩ or more
Frequency Response (Built-in Amplifier) :	DC to 1 kHz
Power Supply :	12V DC (10.5 to 15 V), 30 mA
Cable : PAV-R : 4-conductor (0.18mm^2) vinyl shielded cable,	
4.6 mm diameter by 3 m long, bared at the tip	
PAV-U : 4-conductor (0.3mm^2) chloroprene shielded cable,	
7.6 mm diameter by 3 m long, bared at the tip	
(Shield wire is not connected to mainframe.)	

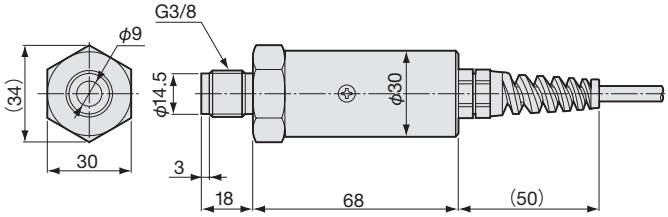
Mechanical Properties

Safe Overload Rating :	200%
Materials :	Case : SUS (metallic finish)
	Liquid-contacting part : SUS 630
Weight :	PAV-R: Approx. 200 g,PAV-U: Approx. 200 g
Protection Rating :	IP52 (JIS C 0920)
Mounting Screw :	G3/8, male

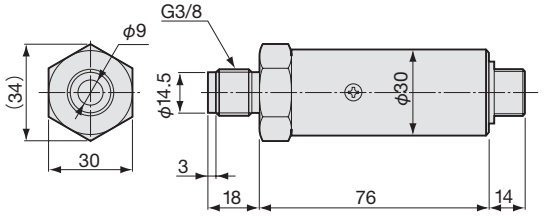
Standard Accessory Gasket (mild copper)

Cable-Integrated	Connector-Equipped	Rated Capacity
PAV-10KR	PAV-10KU	1MPa
——	PAV-50KU	5MPa
——	PAV-100KU	10MPa
——	PAV-200KU	20MPa
PAV-300KR	PAV-300KU	30MPa
——	PAV-500KU	50MPa

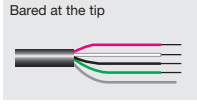
■Dimensions



PAV-R

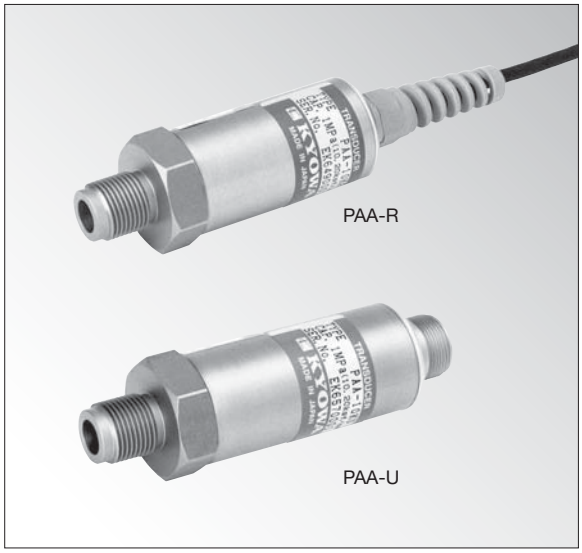


PAV-U



PAA-R,U

Current-Output Pressure Transducers



- Highly Resistant against Noise during Transmission
- 500 kPa to 50 MPa

Specifications

Performance

Rated Capacity :	See table below.
Nonlinearity :	Within±0.2% RO
Hysteresis :	Within±0.2% RO
Rated Output :	4 to 20 mA

Environmental Characteristics

Safe Temperature Range :	-20 to 80˚C
Compensated Temperature Range :	-20 to 70˚C
Temperature Effect on Zero Balance :	Within±0.03% RO/˚C
Temperature Effect on Output :	Within±0.02%/˚C

Electrical Characteristics

SN Ratio :	50 dB or more
Load Resistance :	0 to 500Ω
Frequency Response (Built-in Amplifier) :	DC to 1 kHz
Power Supply :	24V DC (21 to 30 V), 30 mA
Cable :	PAA-R : 4-conductor (0.18 mm²) vinyl shielded cable, 4.6 mm diameter by 3 m long, bared at the tip
	PAA-U : 4-conductor (0.3 mm²) chloroprene shielded cable, 7.6 mm diameter by 3 m long, bared at the tip
	(Shield wire is not connected to mainframe.)

Mechanical Properties

Safe Overload Rating :	200%
Materials :	Case : SUS (metallic finish)
	Liquid-contacting part : SUS 630
Weight :	PAA-R : Approx. 200g, PAA-U : Approx. 200g
Protection Rating :	IP52
Mounting Screw :	G3/8, male

Standard Accessory Gasket (mild copper)

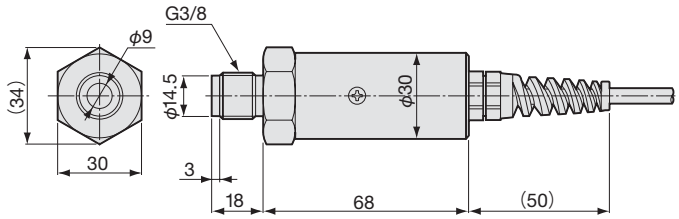
Cable-Integrated	Connector-Equpped	Rated Capacity
PAA-5KR	——	500kPa
PAA-10KR	PAA-10KU	1MPa
PAA-20KR	PAA-20KU	2MPa
——	PAA-50KU	5MPa
PAA-100KR	PAA-100KU	10MPa
PAA-200KR	PAA-200KU	20MPa
PAA-300KR	PAA-300KU	30MPa
PAA-500KR	PAA-500KU	50MPa

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

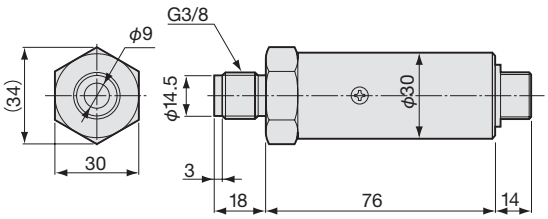
- Current output in a range of 4 to 20 mA
- Noise resistant
- High safe overload rating of 200%
- Suitable for industrial equipment/pressure control system
- Wide range of rated capacities

PAA-R/U pressure transducers have dedicated built-in amplifier and output current signals from 4 to 20mA. 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 highly accurate

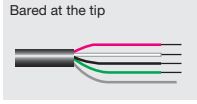
Dimensions



PAA-R

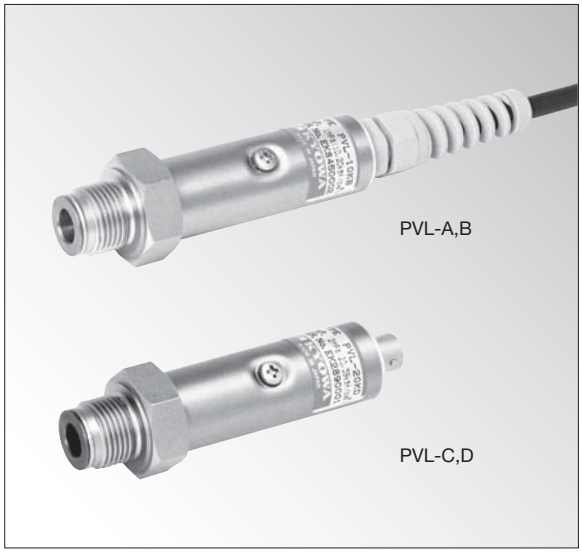


PAA-U



PVL

Voltage-Output Pressure Transducers



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

Specifications

Performance

Rated Capacity :	See table below.
Nonlinearity :	Within±0.5%RO(PVL-5 to 20 K)
	Within±0.3%RO(PVL-30 to 500 K)
Hysteresis :	Within±0.5%RO(PVL-5 to 20 K)
	Within±0.3%RO(PVL-30 to 500 K)
Rated Output :	PVL-A/C 1 to 5V,PVL-B/D 0 to 5V

Environmental Characteristics

Safe Temperature Range :	-20 to 70˚C
Compensated Temperature Range :	-10 to 60˚C
Temperature Effect on Zero Balance :	Within±0.05%RO/˚C(PVL-5 to 20 K)
	Within±0.03%RO/˚C(PVL-30 to 500 K)
Temperature Effct on Output :	Within±0.05%/˚C (PVL-5 to 20 K)
	Within±0.03%/˚C(PVL-30 to 500 K)

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
Power Supply :	12V DC(10.5 to 15V),30 mA or less
Cable :	PAL-A/B : 4-conductor(0.14 mm^2)chloroprene shielded cable
	6 mm diameter by 30 cm long.bared at the tip
	PAL-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 mainframe.)

Mechanical Properties

Safe Overload Rating :	150%
Material :	Case : SUS(metallic finish)
	Liquid-contacting part : SUS 630
Weight :	Approx.85g
Protection Rating :	IP52
Mounting Screw :	G3/8,male

Standard Accessory Gasket (mild copper)

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

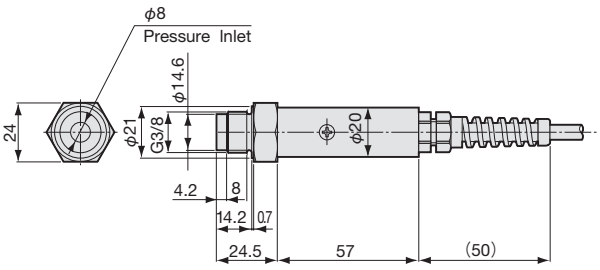
Excellent Noise Resistance Type with Built-in Amplifier

●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 0V output as true 0V (PVL-B/D)

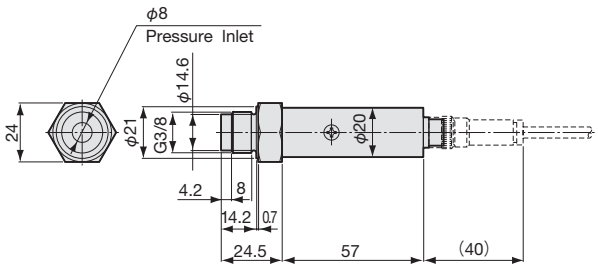
PVL series pressure transducers detect pressures by strain gage and then amplify these slight voltage signals by built-in amplifier. The pressure sensor part is simply integrated structure and has high reliability. Also, the amplifier is fully tuned. Therefore, PVL series not only provides high vibration resistance, environmental resistance and stability but also measure

Model				Rated Capacity
Cable-Integrated		Connector-Equipped		
1 to 5V output	0 to 5V output	1 to 5V output	0 to 5V output	
——	PVL-5KB	PVL-5KC	PVL-5KD	500kPa
——	PVL-10KB	PVL-10KC	PVL-10KD	1MPa
——	PVL-20KB	PVL-20KC	PVL-20KD	2MPa
——	PVL-50KB	PVL-50KC	PVL-50KD	5MPa
——	PVL-100KB	PVL-100KC	PVL-100KD	10MPa
PVL-200KA	PVL-200KB	PVL-200KC	PVL-200KD	20MPa
——	PVL-300KB	——	PVL-300KD	30MPa
——	PVL-500KB	PVL-500KC	PVL-500KD	50MPa

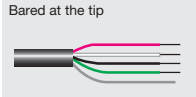
■Dimensions



PVL-A,B

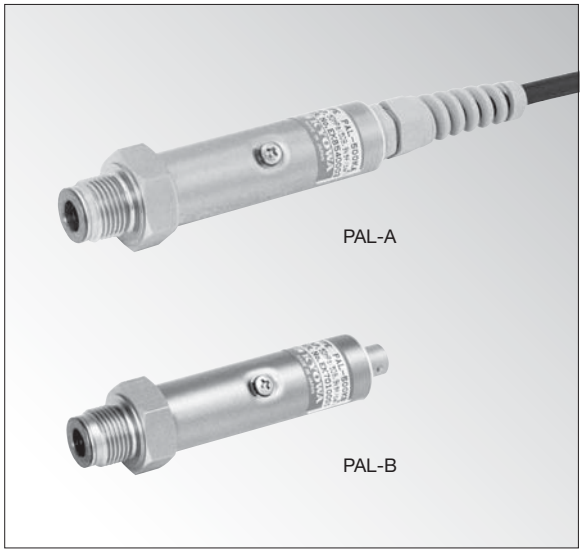


PVL-C,D



PAL

Current-Output Pressure Transducers



●Output 4 to 20mA ●500kPa to 50MPa

Specifications

Performance

Rated Capacity :	See table below.
Nonlinearity :	Within±0.5%RO(PVL-5 to 20 K)
	Within±0.3%RO(PVL-30 to 500 K)
Hysteresis :	Within±0.5%RO(PVL-5 to 20 K)
	Within±0.3%RO(PVL-30 to 500 K)
Rated Output :	4 to 20 mA

Environmental Characteristics

Safe Temperature Range :	-20 to 70˚C
Compensated Temperature Range :	-10 to 60˚C
Temperature Effect on Zero Balance :	Within±0.05%RO/˚C(PVL-5 to 20 KA)
	Within±0.03%RO/˚C(PVL-30 to 500 KA)
Temperature Effct on Output :	Within±0.05%/˚C (PVL-5 to 20 KA)
	Within±0.03%/˚C(PVL-30 to 500 KA)

Electrical Characteristics

SN Ratio :	50 dB or more
Load Resistance :	0 to 500Ω
Frequency Response (Built-in Amplifier) :	DC to 1 kHz
Power Supply : 24V DC(21 to 30V), 30 mA or less	
Cable : PAL-A : 4-conductor(0.14 mm²)chloroprene shielded cable,	
6 mm diameter by 30 cm long,bared at the tip	
PAL-B :4-conductor(0.18 mm²)vinyl shielded cable,	
4.6 mm diameter by 3 m long,bared at the tip	
(Shield wire Is not connected to mainframe)	

Mechanical Properties

Safe Overload Rating :	150%
Material :	Case : SUS(metallic finish)
	Liquid-contacting part : SUS 630
Weight :	Approx.85g
Protection Rating :	IP52
Mounting Screw :	G3/8,male

Standard Accessory Gasket (mild copper)

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

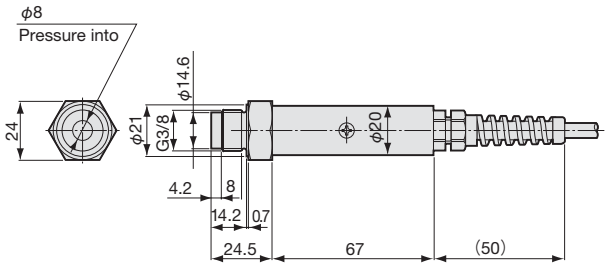
Excellent Noise Resistance Type with Built-in Amplifier

●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 ranges

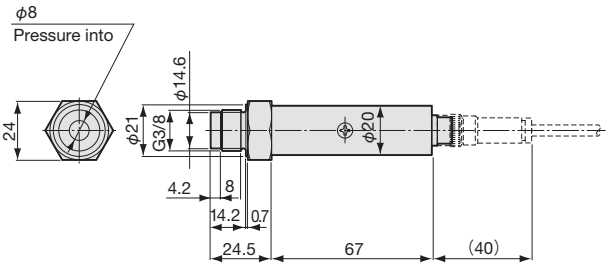
PAL series pressure transducers amplify deteced slight voltages by built-in amplifier and then transmit amplified signals in current. The pressure sensor part is simply integrated structure and has high reliability. Also, the amplifier is fully tuned. Therefore, PAL series not only provides high vibration resistance, environmental resistance and stability but also measure

Model		Rated Capacity
Cable-Integrated	Connector-Equipped	
PAL-5KA	PAL-5KB	500kPa
PAL-10KA	PAL-10KB	1MPa
PAL-20KA	PAL-20KB	2MPa
PAL-50KA	PAL-50KB	5MPa
PAL-100KA	PAL-100KB	10MPa
PAL-200KA	PAL-200KB	20MPa
PAL-300KA	PAL-300KB	30MPa
PAL-500KA	PAL-500KB	50MPa

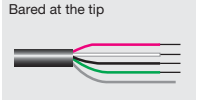
■Dimensions



PAL-A



PAL-B



PAG-A

Highly Stable Current-Output Pressure Transducers

- Excellent in Reliability, Stability and Noise Resistance
- 200 kPa

Specifications

Performance

Rated Capacity :	200kPa
Nonlinearity :	Within±0.1% RO
Hysteresis :	Within±0.2% RO
Rated Output :	4 to 20 mA

Environmental Characteristics

Safe Temperature Range :	-20 to 75˚C
Compensated Temperature Range :	-20 to 70˚C
Temperature Effect on Zero Balance :	Within±0.03% RO/˚C
Temperature Effect on Output :	Within±0.01%/˚C
Zero Stability :	±0.5% RO/year

Electrical Characteristics

SN Ratio :	60 dB or more
Load Resistance :	0 to 500Ω
Frequency Response (Built-in Amplifier) :	DC to 400 Hz +0.5, -3dB
Power Supply :	24V DC (21 to 30 V), 30 mA or less
Cable :	4-conductor (0.3 mm²) chloroprene shielded cable, 7.6 mm diameter by 5 m long, bared at the tip (3-wire) (Shield wire is not connected to mainframe.)

Mechanical Properties

Safe Overload Rating :	150%
Material :	Case: SUS (metallic finish), SUS 630
Weight :	Approx. 270 g
Protection Rating :	IP52
Mounting Screw :	G3/8, male

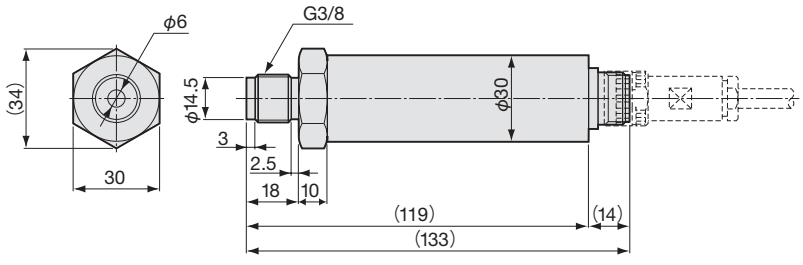
Standard Accessory Gasket (mild copper)

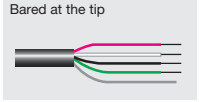
Excellent Reliability, Resolution and Stability

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

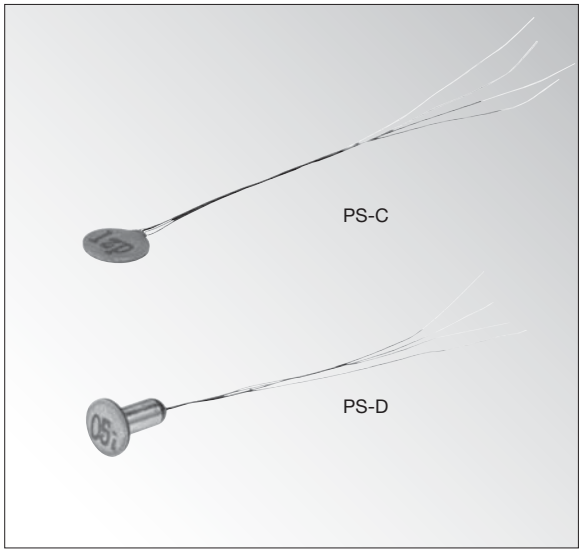
PAG-A series pressure transducers are stable and their sensor part is designed to be highly stable. Also, inert gas is sealed hermetically in sensor part, ensuring excellent reliability and stability for long-term. The built-in amplifier is composed of highly-selected reliable components and be fully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

Dimensions





PS
Miniature Pressure Sensors



Ultra-Thin and Compact Design and Wide Range of Rated Capacities

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 distibuted pressure measurement by using multiple units.

Note
(1) Copper alloy is used for sensing element. Avoid measuing corresive liquids or gases.
(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.

●For Distributed Pressure Measurement
●50 kPa to 7 MPa

Specifications

Performance

Rated Capacity :	See table below.
Nonlinearity :	Within±1% RO
Hysteresis :	Within±1% RO
Rated Output :	0.25 mV/V (500μm/m) or more (PS-05KC/D)
	0.5 mV/V (1000μm/m) or more (PS-1KC/D)
	0.85 mV/V (1700μm/m)±30% (PS-2KC/D)
	1 mV/V (2000μm/m)±20% (PS-5 to 70KC/D)
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 ±1%.	

Environmental Characteristics

Safe Temperature Range :	-20 to 70˚C
Compensated Temperature Range :	0 to 50˚C
Temperature Effect on Zero Balance :	Within±0.8% RO/˚C (PS-05KC/D)
	Within±0.4% RO/˚C (PS-1KC/D)
	Within±0.3% RO/˚C (PS-2KC/D)
	Within±0.2% RO/˚C (PS-5 to 70KC/D)
Temperature Effect on Output :	Within±0.3%/˚C (PS-05 to 2KC/D)
	Within±0.2%/˚C (PS-5to 70KC/D)

Electrical Characteristics

Safe Excitation Voltage :	3V AC or DC
Recommended Excitation Voltage :	1 to 2V AC or DC
Input Resistance :	350Ω±10%
Output Resistance :	350Ω±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 mainframe.)	

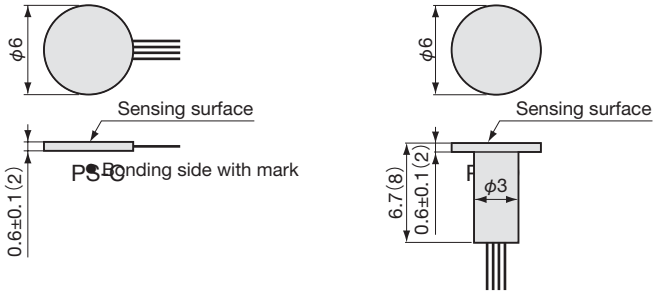
Mechanical Properties

Safe Overload Rating :	150% (100% with PS-70KC/D M2)
Materials :	Metallic finish
Weight :	Approx. 0.5g±20% (including cable)
Dedicated Adhesive :	RC-19 (Request when ordering, charge-free)

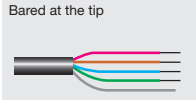
Model		Rated Capacity	Natural Frequency (Approx.)
Cable Direction to Sensing Surface			
Horizontal	Vertical		
PS-05KC	PS-05KD	50kPa	10kHz
PS-1KC	PS-1KD	100kPa	10kHz
PS-2KC	PS-2KD	200kPa	14kHz
PS-5KC	PS-5KD	500kPa	20kHz
PS-10KC	PS-10KD	1MPa	37kHz
PS-20KC M2	PS-20KD M2	2MPa	46kHz
—	PS-30KD M2	3MPa	58kHz
PS-50KC M2	PS-50KD M2	5MPa	71kHz
PS-70KC M2	PS-70KD M2	7MPa	86kHz

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

■Dimensions

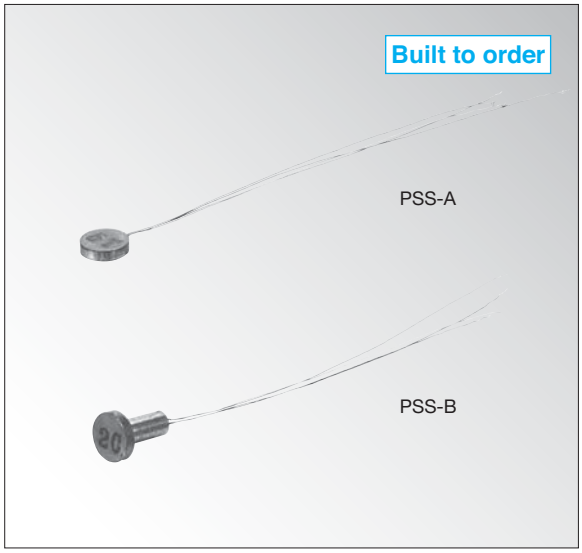


Figures in parentheses are for 2 to 7MPa.



PSS

Miniature Pressure Sensors



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 measuing corresive liquids or gases.
(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.

●For Distributed Pressure Measurement
●20 to 100 kPa

Specifications

Performance

Rated Capacity :	See table below.
Nonlinearity :	Within±1% RO
Hysteresis :	Within±1% RO
Rated Output :	1 mV/V (2000μm/m) or more
	0.75 mV/V (1500μm/m) or more (PSS-02KAF/BF)
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 ±1%.	

Environmental Characteristics

Safe Temperature Range :	-20 to 70˚C
Compensated Temperature Range :	0 to 50˚C (noncondensing wth PSS-AF/BF)
Temperature Effect on Zero Balance :	Within±0.8% RO/˚C (PSS-05 & 1KAE/BE)
	Within±0.6% RO/˚C (PSS-02KAF/BF)
Temperature Effect on Output :	Within±0.3%/˚C
	Within±0.5%/˚C (PSS-02KAF/BF)

Electrical Characteristics

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

Mechanical Properties

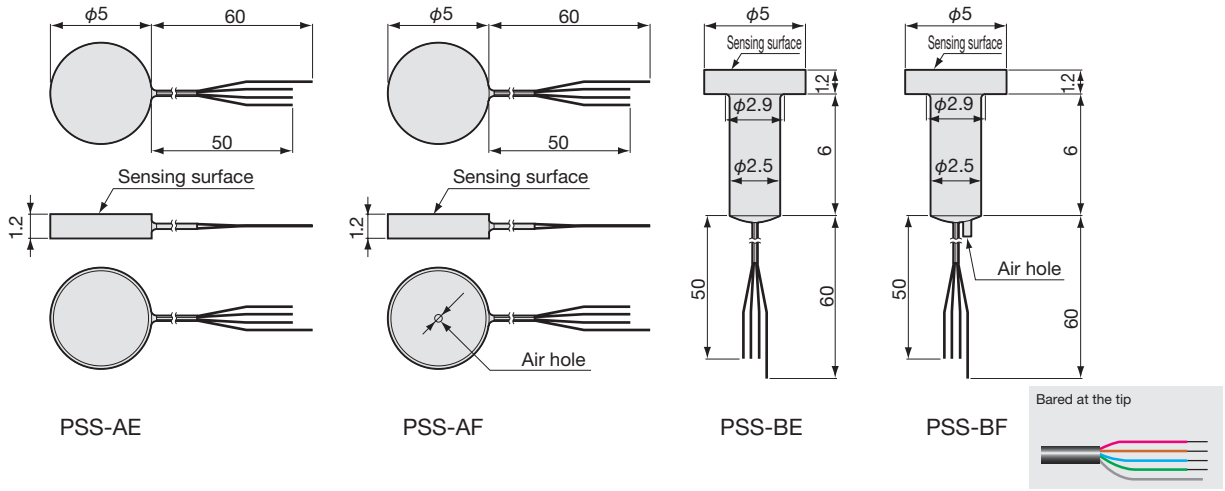
Safe Overload Rating :	150%
Weight :	PSS-A: Approx. 0.15 g
	PSS-B: Approx. 0.3 g
Dedicated Adhesive :	RC-19 (Request when ordering, charge-free)

Model		Rated Capacity	Natural Frequency (Approx.)	Remarks
Cable Direction to Sensing Surface				
Horizontal	Vertical			
PSS-05KAE	PSS-05KBE	50kPa	18kHz	Sealed type
PSS-1KAE	——	100kPa	31kHz	
PSS-02KAF	PSS-02KBF	20kPa	6kHz	Atmospheric

To Ensure Safe Usage

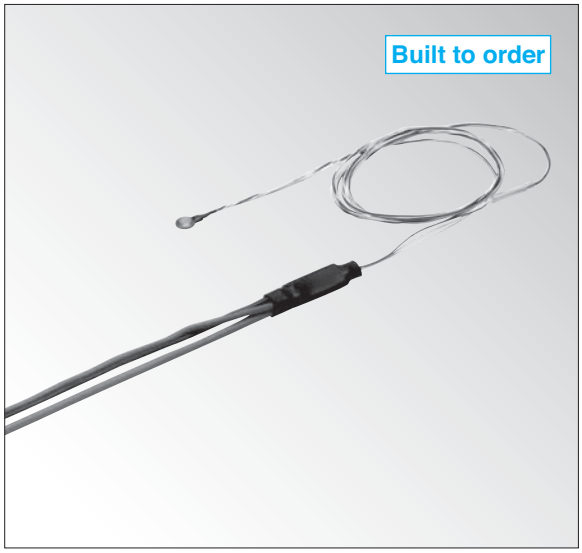
High-carrier-based dynamic strain amplifier DPM-602,603,612,613,712,713,752,912,913 or 952 may not satisfy the specified rated output in some rare case. Request us to calibrate the transducer in combination with the strain amplifier. Or, if possible, use dynamic strain amplifier DPM-601,611,711,751,911 or 951 or signal conditioner CDV-700A.

Dimensions



PSM-AB

Miniature Pressure Sensors



●KYOWA's Smallest Pressure Sensors
●100 & 200 kPa

Specifications

Performance

Rated Capacity :	See table below.
Nonlinearity :	Within±1% RO
Hysteresis :	Within±1% RO
Rated Output :	0.275μmV/V (550μm/m) ±25% (PSM-1KAB)
	0.38μmV/V (760μm/m) ±25% (PSM-2KAB)
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 Range :	-20 to 70˚C
Compensated Temperature Range :	0 to 50˚C
Temperature Effect on Zero Balance :	Within±1% RO/˚C (PSM-1KAB)
	Within±0.5% RO/˚C (PSM-2KAB)
Temperature Effect on Output :	Within±0.3%/˚C

Electrical Characteristics

Safe Excitation Voltage :	5V±0.1V AC or DC
Recommended Excitation Voltage :	2V±0.1V AC or DC
Input Resistance :	350Ω±1%
Output Resistance :	350Ω±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 mainframe.)	

Mechanical Properties

Safe Overload Rating : 150%	
Weight :	Approx. 0.5 g (including cable but not bridge adapter)
Protection Rating :	IP61 (excluding bridge adapter)

Model	Rated Capacity	Natural Frequency(Approx.)	Remarks
PSM-1KAB	100kPa	3kHz	Bridge adapter
PSM-2KAB	200kPa	3kHz	Attached standard

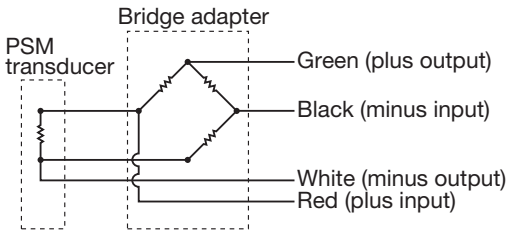
Ultra-Small Sized Pressure Transducers with Strong Fluorocarbon Resin Cable

●Bridge adapter Standard Accessories

PSM-AB series is the smallest pressure sensor in Kyowa products designed based on integration of sensor element and diaphragm. This sensor adopts I-gage 3-wire system and configures a full bridge in a bridge adaptor. In addition, this sensor is installed by adhesives. Developed mainly for gas pressure measurement, PSM-AB series can measure more transducers.

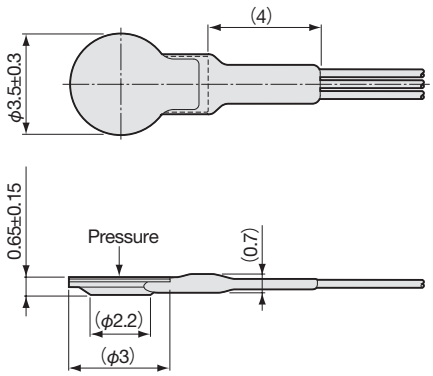
Note
(1) Copper alloy is used for sensing element. Avoid measuing corresive liquids or gases.
(2) The mainframe has been assembled using an epoxy adhesive. Do not therefore use the transducer to measure organic solvent. (eg. Toluene, ketone and others)

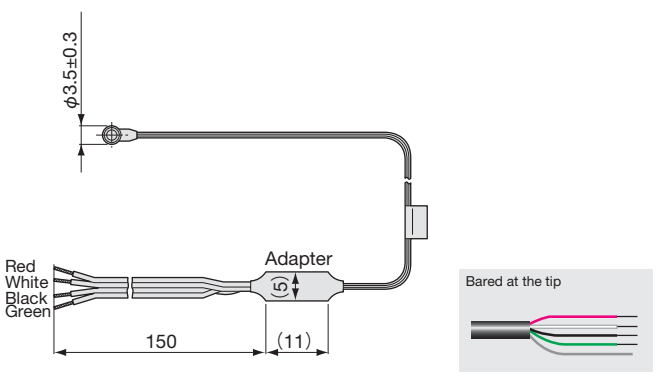
■Circuit Diagram



PSM-AB (4-gage Method)

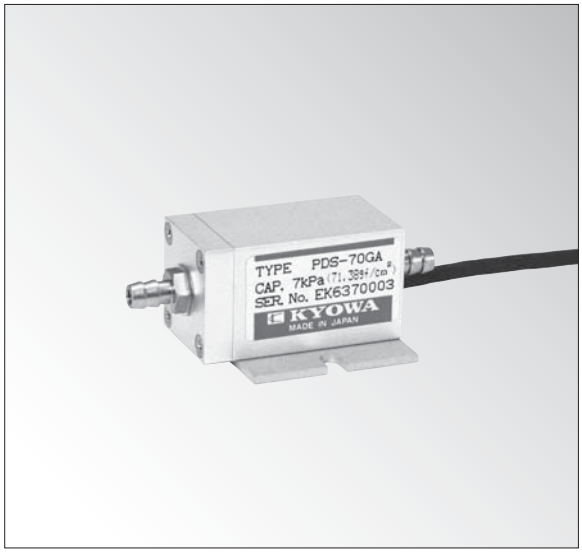
■Dimensions





PDS-A

Minute Differential Pressure Transducers



●For Wind Pressure Measurement ●1 to 7 kPa

For Wind Pressure Measurement

- ● High frequency response
- ● Highly accurate
- ● High sensitivity
- ● Noise resistant
- ● Compact and 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 signal conditioners.

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

Specifications

Performance

Rated Capacity :	See table below.
Nonlinearity :	Within±0.5% RO (within±0.7% with 25GA)
Hysteresis :	Within±0.3% RO
Rated Output :	±7 to 23 mV (PDS-10GA)
	±13 to 23 mV (PDS-25 to 70GA)
Rated Output Accuracy :	±1.0% RO (PDS-10 & 25GA)
	±1.5% RO (PDS-50GA),±2.0% RO (PDS-70GA)

Environmental Characteristics

Safe Temperature Range :	-20 to 70˚C
Safe Humdity Range :	20 to 85% RH (0 to 50˚C)
Compensated Temperature Range :	0 to 50˚C
Temperature Effect on Zero Balance :	Within±0.1% RO/˚C (PDS-10GA)
	Within±0.08% RO/˚C (PDS-25 to 70GA)
Temperature Effect on Output :	Within±0.1%/˚C (PDS-10GA)
	Within±0.08%/˚C (PDS-25 to 70GA)
Pressure Medium :	General air (non-corrosive gas)

Electrical Characteristics

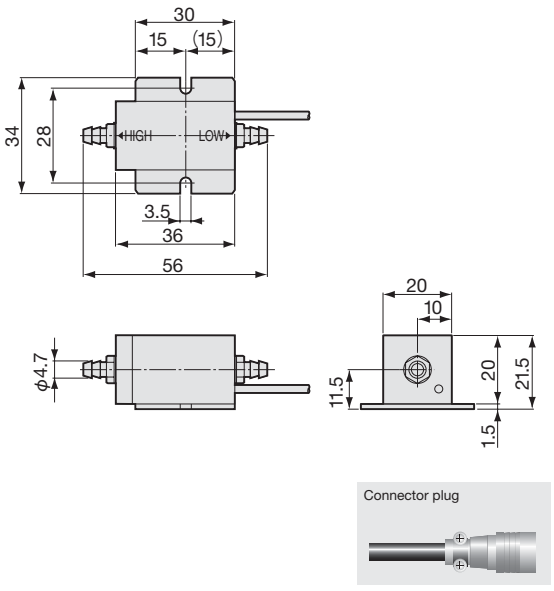
Initial Unbalance :	Within ±10 mV
Bridge Output Resistance :	2 to 6 kΩ
Power Supply :	10V DC (9.5 to 15 V), 5 mA or less
	(Bridge power supply of signal conditioner can be used.)
Cable :	PDS-A : 4-conductor (0.05 mm²) chloroprene shielded cable,
	3 mm diameter by 3 m long, terminated with connector plug
	(Shield wire is not connected to mainframe.)

Mechanical Properties

Safe Overload Rating :	300% (600% with PDS-10GA)
Maximum Line Pressure :	100 kPa
Natural Frequency :	Approx. 1.7 kHz
Weight :	Approx. 40 g
Posture Effect :	Zero drift within±0.3%(±0.8% with 10GA) when inclined
	by 90˚ referring to horizontal condition
Internal Volume :	High side : Approx. 0.2 x 10^{-6} m³ (0.2 mL)
	Low side : Approx. 1 x 10^{-6} m³ (1 mL)
Pressure Connection :	4.7 mm diameter volute joint

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

Dimensions



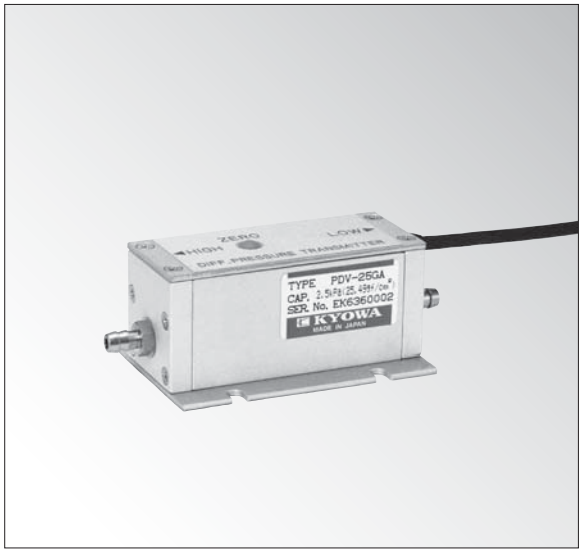
To Ensure Safe Usage

- ●Avoid dew condensation or freeze, because thess 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.
- ●Signal conditioners CDV-700A and instrumentation amplifiers WGA-900A,650B/710C with built-in bridge power supply of 10V DC are available for PDS-A series. In the case of WGA-650B or 710C, connection cable N-70 is required.

※If dimensions of the pressure connection are desired to change, contact us.

PDV-A

Minute Differential Pressure Transducers



●For Wind Pressure Measurement
●1 to 7 kPa

Specifications

Performance

Rated Capacity :	See table below.
Nonlinearity :	Within±0.5% RO (within±0.7% with 25GA)
Hysteresis :	Within±0.3% RO
Rated Output :	±5V (PDV-10 to 70GA)
Rated Output Accuracy :	±1.0% RO (PDV-10 & 25GA)
	±1.5% RO (PDV-50GA)
	±2.0% RO (PDV-70GA)

Environmental Characteristics

Safe Temperature Range :	-20 to 70˚C
Safe Humdity Range :	20 to 85% RH (0 to 50˚C)
Compensated Temperature Range :	0 to 50˚C
Temperature Effect on Zero Balance :	Within±0.1% RO/˚C (PDV-10GA)
	Within±0.08% RO/˚C (PDV-25 to 70GA)
Temperature Effect on Output :	Within±0.1%/˚C (PDV-10GA)
	Within±0.08%/˚C (PDV-25 to 70GA)
Pressure Medium :	General air (non-corrosive gas)

Electrical Characteristics

Load Resistance :	5 kΩ or more (PDV-A)
Bridge Output Resistance :	2 to 6 kΩ (PDV-A)
Power Supply :	PDV-A : 12V DC (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 Overload Rating :	300% (600% with PDV-10GA)
Maximum Line Pressure :	100 kPa
Natural Frequency :	Approx. 1.7 kHz
Weight :	Approx. 100 g
Posture Effect :	Zero drift within±0.3%(±0.8% with 10GA)
	when inclined by 90˚referring to horizontal condition
	Internal Volume
High side :	Approx. 0.2 x 10^{-6} m^3 (0.2 mL)
Low side :	Approx. 1 x 10^{-6} m^3 (1 mL)
Pressure Connection :	4.7 mm diameter volute joint

Corrosion Resistance with Built-in Variable Damping Mechanism

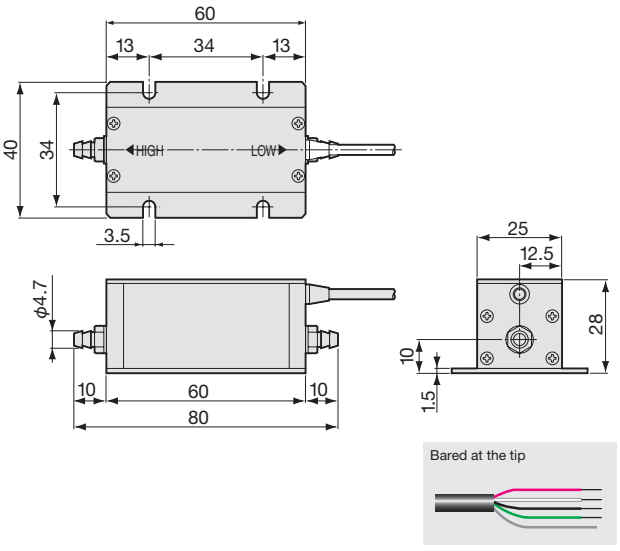
●High frequency response ●Noise resistant
●Highly accurate ●Voltage output of 5 V (PDV-A)
●High sensitivity ●Compact and lightweight

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 singal 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.

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

■Dimensions



To Ensure Safe Usage

●Avoid dew condensation or freeze, because thess 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.

PD-A

Differential Pressure Transducers

※ TEDS-installed versions can be manufactured. Inquiries are welcome.

Wide Line Pressure Margin and Highly Accurate

PD-A series pressure transducers can measure slight differential pressures highly accrately. They are suitable for long-term measurements and measurements requiring high accuracy. Furthermore, they can be used 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 measuing corresive liquids or gases.

- Usable at Max. Line Pressure of 2.94 MPa
- 10 to 200 kPa

Specifications

Performance

Rated Capacity :	See table below.
Nonlinearity :	Within±0.3% RO
Hysteresis :	Within±0.2% RO
Rated Output :	1.5 mV/V (3000μm/m)±1%

Environmental Characteristics

Safe Temperature Range :	-10 to 70˚C
Compensated Temperature Range :	0 to 60˚C
Temperature Effect on Zero Balance :	Within±0.05% RO/˚C (PD-100GA)
	Within±0.01% RO/˚C (PD-200GA to 2KA)
Temperature Effect on Output :	Within±0.5%/˚C (PD-100GA)
	Within±0.03%/˚C (PD-200GA to 2KA)

Electrical Characteristics

Safe Excitation Voltage :	15V AC or DC
Recommended Excitation Voltage :	1 to 10V AC or DC
Input Resistance :	350Ω±1%
Output Resistance :	350Ω±1%
Cable :	4-conductor (0.3 mm²) chloroprene shielded cable,
	7.6 mm diameter by 5 m long, terminated with connector plug
	(Shield wire is connected to mainframe.)

Mechanical Properties

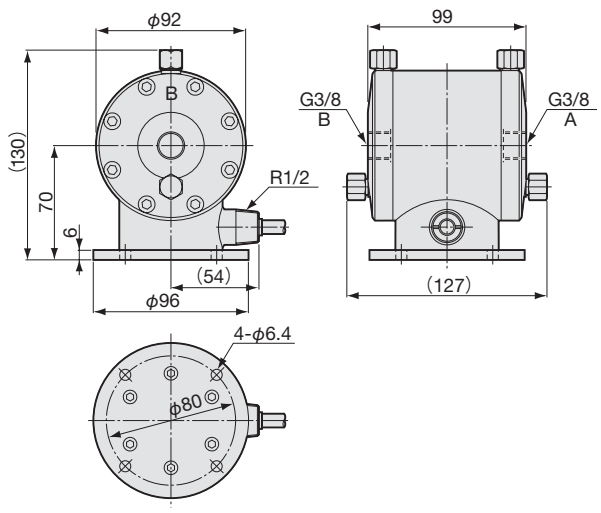
Safe Overload Rating :	Differential Pressure 200% (PD-100 & 200GA)
	150% (PD-500GA & 1KA)
	125% (PD-2KA)
Maximum Line Pressure :	2.94 MPa
Natural Frequency :	See table below.
Weight :	Approx. 5 kg

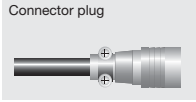
※To use for gas, contact us.

When A side is a high pressure plus output
B side is a high pressure minus output.
(Refer to A,B Dimensions)

Model	Rated Capacity	Natural Frequency (Approx.)
PD-100GA	10kPa	60Hz
PD-200GA	20kPa	110Hz
PD-500GA	50kPa	230Hz
PD-1KA	100kPa	400Hz
PD-2KA	200kPa	700Hz

Dimensions





PDU-A

Stainless Steel Differential Pressure Transducers

※TEDS-installed versions can be manufactured. Inquiries are welcome.

Corrosion Resistant Built-in Variable Damping Mechanism

●Overload protection mechanism

Note: Copper alloy is used for sensing element. Avoid measuing corresive liquids or gases.

●Usable at Max. Line Pressure of 30 MPa
●50 kPa to 2 MPa

Specifications

Performance

Rated Capacity :	See table below.
Nonlinearity :	Within±0.2% RO (PDU-A-50 to 500KP)
	Within±0.25% RO (PDU-A-1 & 2MP)
Hysteresis :	Within±0.2% RO (PDU-A-50 to 500KP)
	Within±0.25% RO (PDU-A-1 & 2MP)
Repeatability :	0.1% RO or less
Rated Output :	1.5 mV/V (3000μm/m) ±0.5%

Environmental Characteristics

Safe Temperature Range :	-30 to 90˚C
Compensated Temperature Range :	-20 to 80˚C
Temperature Effect on Zero Balance :	Within±0.02% RO/˚C (PDU-A-50 & 100KP)
	Within±0.01% RO/˚C (PDU-A-200KP to 2MP)
Temperature Effect on Output :	Within±0.02%/˚C(PDU-A-50 & 100KP)
	Within±0.01%/˚C (PDU-A-200KP to 2MP)

Electrical Characteristics

Safe Excitation Voltage :	15V AC or DC
Recommended Excitation Voltage :	1 to 10V AC or DC
Input Resistance :	350Ω±1%
Output Resistance :	350Ω±1%
Cable :	4-conductor (0.3 mm^2) chloroprene shielded cable,
	7.6 mm diameter by 5 m long, terminated with connector plug
	(Shield wire is connected to mainframe.)

Mechanical Properties

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

※To use for gases, contact us.

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

■Dimensions