

TPS20 SERIES MANUAL
PRESSURE TRANSMITTER

ISO-9001



TPS20G1
TPS20A1



TPS20G2
TPS20A2



TPS20G3
TPS20A3

Thank you for using KONICS products.

Please read "Caution for your safety" in operation manual before using.

Caution for your safety

*Please keep these instructions and review them before using this unit.

*Please observe follow for safety.

Warning Serious injury may result if instructions are not followed.

Caution Product may be damaged, or injury may result if instructions are not followed.

*The following is an explanation of the symbols used in the operation manual.

Injury or danger may occur under special conditions.

Warning

- In case of using this unit with machineries (Nuclear power control, medical equipment, vehicle, train, airplane, combustion apparatus, entertainment or safety device etc), it requires installing fail-safe device.**
It may result in serious damage, fire or human injury.
- Do not use this unit at place where there are flammable or explosive gas, humidity, direct ray the sun, radiant heat, vibration, impact etc.**
It may cause a fire or explosion.

Caution

- Do not apply beyond rated pressure.**
It may cause a damage to the product.
- Please observe the rated specification.**
It may shorten the life cycle of the product and cause a fire.
- Do not inflow dust or wire dregs into the unit.**
It may cause a damage to the product.
- Please wire properly after checking polarity of power.**
It may cause a damage to the product.
- Please discuss with our service center if using for the corrosive detergent.**
It may shorten the life cycle of the product and cause a damage to the product.

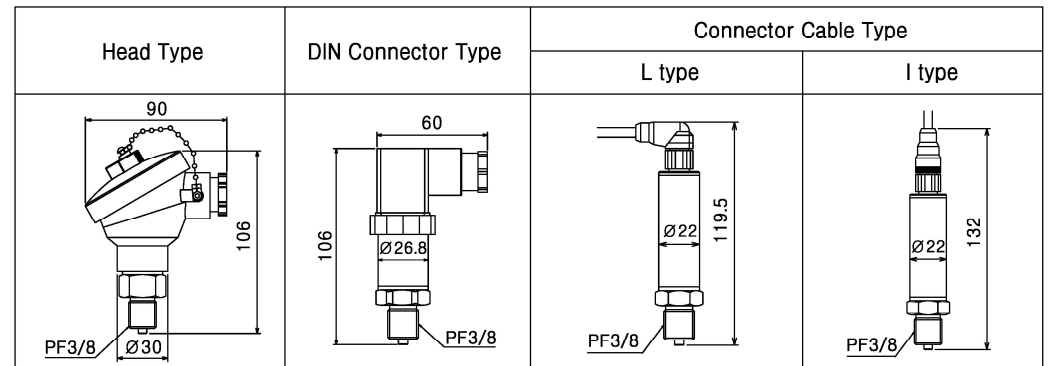
Introduction

TPS20 Series (electric pressure transmitter) as high accuracy/high reliable pressure transmitter using Stainless steel diaphragm, is able to measure whole scale, 0.2~350 Kg/cm² G and has absoult pressure, 0~30 Kg/cm² Abs type.

Specifications

Measuring range	-760 mmHg~0 to 30 kg/cm ² (Compound pressure) 0~0.2 to 350 kg/cm ² G (Gauge pressure) 0~1.0 to 30 kg/cm ² Abs (Absolute pressure)	
Allowable over pressure	300 % of max. Span	
Electric characteristic	Power supply	15~35 VDC
	Output	4~20 mA DC
	Load resistance	600 Ω Max
	Consumption power	0.5 W
Accuracy	± 0.3 % F.S (Linearity, Hysteresis, Repeatability)	
	Linearity	± 0.3 % F.S -10~50 °C ± 0.3 % F.S 50~70 °C ± 0.5 % F.S (except for -10~50 °C)
		Hysteresis
Using temp. / Humidity	-10~70 °C, 5~95 % R.H.	
Temperature Characteristic	Z e r o	± 0.03 % F.S
	S p a n	± 0.03 % F.S (25 °C STD.)
Response time	Less 100 ms	
Connection	PF 3/8 (STD.) (Option : PT 3/8, PT 1/2)	
Material	Element	Diaphragm : SUS 316 Sealing : SUS 316
	C a s e	O-ring : Fluorine rubber Connection : SUS 316
Range	Refer to Range Table	
Case protection	Weatherproof	
Weight	Approx. 320g (HEAD TYPE STD.)	

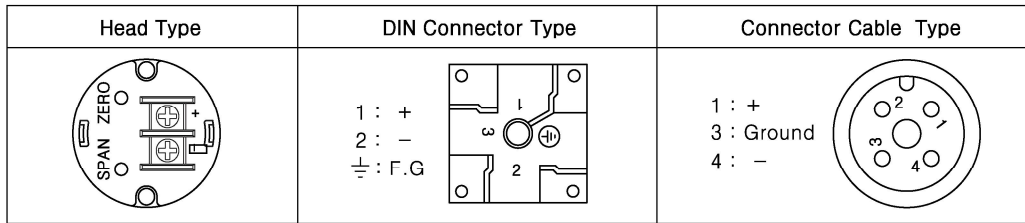
Dimensions



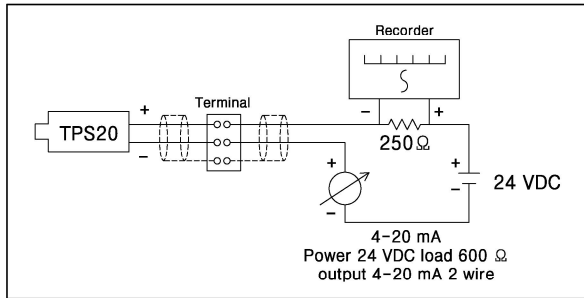
* Above connection is standard type. (PF 3/8)

(UNIT : mm)

Connections



External connections



Ordering code

TPS20 - G 1 1 F8 - 00

① ② ③ ④ ⑤ (Option)

① TPS20	TPS20	Pressure Transmitter		
② Pressure Type	G	Gauge		
	A	Absolute		
③ Connector Type * Cable selection : 2M, 5M (Separate goods)	1	Head Type		
	2	Din Connector Type		
	3	Connector Cable Type		
④ Pressure Range	1	0 - 0.2 kgf/cm ² (G)	C	0 - 200 kgf/cm ² (G)
	2	0 - 0.5 kgf/cm ² (G)	F	0 - 300 kgf/cm ² (G)
	3	0 - 1 kgf/cm ² (G, A)	H	0 - 350 kgf/cm ² (G)
	4	0 - 2 kgf/cm ² (G, A)	M	-760 mmHg - 0 kgf/cm ² (G)
	5	0 - 5 kgf/cm ² (G, A)	O	-760 mmHg - 1 kgf/cm ² (G)
	6	0 - 10 kgf/cm ² (G, A)	Q	-760 mmHg - 5 kgf/cm ² (G)
	7	0 - 20 kgf/cm ² (G, A)	V	-760 mmHg - 10 kgf/cm ² (G)
	8	0 - 30 kgf/cm ² (G, A)	X	-760 mmHg - 20 kgf/cm ² (G)
	9	0 - 50 kgf/cm ² (G)	Y	-760 mmHg - 30 kgf/cm ² (G)
	A	0 - 100 kgf/cm ² (G)	Z	Others
⑤ Process Connection	P2	PT 1/2		
	P8	PT 3/8		
	F8	PF 3/8 (Standard)		
	ZZ	Others		
Option (Connector Cable)	00	None		
	2I	"I" Type 2 M		* In case of ordering only cable code shall be 'TPS2I', 'TPS2L', 'TPS5I', 'TPS5L' etc.
	2L	"L" Type 2 M		
	5I	"I" Type 5 M		
	5L	"L" Type 5 M		

Mounting / Transportation / Storage / Repair

- 1) Mounting** When mounting this unit to pressure line, please use hexagon of connector instead of pipe wrench. Also please do not use it where sharp vibration occurs
- 2) Transportation** As precision instrument, because drop or shock may cause mechanical trouble, please be careful during transportation.
- 3) Storage** Please store it in the place without moisture, dust, vibration.
- 4) Repair** This unit is unnecessary for repair because detector has not the operating parts. Internal parts are usually clean but it shall need repair according to the using condition. Regular repair cycle should be done every year. In this case, please check as following clause.

- * Please check external connector damages.
- * Please check pressure connector, internal cleanness, corrosion.
- * After short circuit, please check isolated resistance between case and power supply.
- * Please check Zero/Span and linearity by using standard pressure equipment.
- * In case of disconnecting sensor in order for repair / checking, please operate as follows.
 - Please replace the used O-Ring.
 - Please be care of sensor diaphragm element in order to avoid from damages.

Diagnosis defect

Error situation	Diagnosis Clause
It is not outputting.	Does it power on? Is wiring (+,-) correct? Is not connection defective?
Output is strangely fluctuating.	Is power normally supplied? Is pressure correctly supplied? Is there any problem in pressure line?
Output value of zero point is largely different.	Is power normally supplied? Is load resistance of receiving instrument in excess of 600Ω? How about the transmitting distance to measuring point? Is the line resistance large? (Max. 600 Ω)

Caution for using

- The model is designed to use under the following environment conditions :
 - It shall be used indoor/outdoor
 - Altitude Max. 2000 m
 - Pollution Degree2
 - Installation Category II
 - Please use the terminal when connect the power source.
 - Please use separated line from high voltage line or power line in order to avoid inductive noise.
 - Please install power switch or circuit-breaker in order to cut power supply off.
 - The switch or circuit-breaker should be installed near by users.
 - Keep away from the high frequency instruments.
(High frequency welding machine & sewing machine, big capacitive SCR controller)
 - TPS 20 pressure transmitter, is not able to be repaired because it is produced as impossible for disassembly.
 - TPS 20 pressure transmitter, is fixed for mounting with bolt and nut at both sides of case plate.
If excessive pressure(approx. 300 kg/cm²) is applied, it may cause mechanical trouble.
 - Please tighten lever of electrical connection for weatherproof in order that water is entering into the cable.
 - In cleaning the unit, do not use water or an oil-based detergent.
- * It may cause malfunction if above instructions are not followed.
* Dimensions or specification from this manual can be changed without previous notice in order to improve the product.

Thank you for using our products.

We always promise you to supply high-technology and the best product in industrial measuring field.

KONICS Co.,Ltd.

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