

# Autonics

## Non-indicating Pressure Transmitters

# TPS20 SERIES

### INSTRUCTION MANUAL



Head type      DIN connector type      Connector cable type

Thank you for choosing Autonics product.

Please read the following safety considerations before use.

### ■ Safety Considerations

⊗ Please observe all safety considerations for safe and proper product operation to avoid hazards.

⚠ symbol represents caution due to special circumstances in which hazards may occur.

**Warning** Failure to follow these instructions may result in serious injury or death.

**Caution** Failure to follow these instructions may result in personal injury or product damage.

### ⚠ Warning

- 1. Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)**  
Failure to follow this instruction may result in personal injury, fire or economic loss.

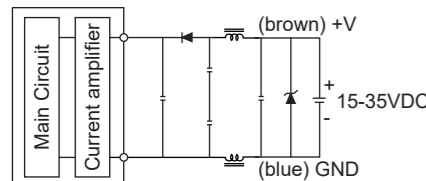
- 2. Do not use the unit in the place where flammable/explosive/corrosive gas, high humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.**  
Failure to follow this instruction may result in explosion or fire.

- 3. Do not disassemble or modify the unit.**  
Failure to follow this instruction may result in fire or electric shock.

### ⚠ Caution

- 1. Do not apply beyond the rated pressure.**  
Failure to follow this instruction may result in product damage.
- 2. Use the unit within the rated specifications.**  
Failure to follow this instruction may result in fire or product damage.
- 3. Fix the cable through the cable connection part and do not turn the cable of the unit.**  
Failure to follow this instruction may result in product damage.
- 4. Keep metal chip, dust, and wire residue from flowing into the unit.**  
Failure to follow this instruction may result in fire or product damage.
- 5. Check the polarity of the contact before wiring the unit.**  
Failure to follow this instruction may result in product damage by a fire.
- 6. This product is designed to detect the pressure of noncorrosive fluid. Do not use for corrosive fluid.**  
Failure to follow this instruction may result in product damage.
- 7. Use a dry cloth to clean the unit, and do not use water or organic solvent.**  
Failure to follow this instruction may result in fire.

### ■ Connections



⊗ The above specifications are subject to change and some models may be discontinued without notice.  
⊗ Be sure to follow cautions written in the instruction manual and the technical descriptions (catalog, homepage).

### ■ Ordering Information

TPS20 - G 1 5 F8 (0 to 5kgf/cm<sup>2</sup>)

① Item	Description		
① Item	TPS20	Pressure Transmitter	
② Measurement pressure	G	Gauge pressure	
	A	Absolute pressure	
	1	Head type	
③ Cable	2	DIN connector type	
	3	Connector cable type	
		Gauge pressure	Absolute pressure
④ Pressure range	1	0 to 0.2kgf/cm <sup>2</sup>	—
	2	0 to 0.5kgf/cm <sup>2</sup>	—
	3	0 to 1kgf/cm <sup>2</sup>	0 to 1kgf/cm <sup>2</sup>
	4	0 to 2kgf/cm <sup>2</sup>	0 to 2kgf/cm <sup>2</sup>
	5	0 to 7kgf/cm <sup>2</sup>	0 to 7kgf/cm <sup>2</sup>
	6	0 to 10kgf/cm <sup>2</sup>	0 to 10kgf/cm <sup>2</sup>
	7	0 to 20kgf/cm <sup>2</sup>	0 to 20kgf/cm <sup>2</sup>
	8	0 to 35kgf/cm <sup>2</sup>	0 to 35kgf/cm <sup>2</sup>
	9	0 to 70kgf/cm <sup>2</sup>	—
	A	0 to 100kgf/cm <sup>2</sup>	—
	C	0 to 200kgf/cm <sup>2</sup>	—
	F	0 to 300kgf/cm <sup>2</sup>	—
	H	0 to 350kgf/cm <sup>2</sup>	—
	O	-760mmHg to 0kgf/cm <sup>2</sup>	—
	Q	-760mmHg to 1kgf/cm <sup>2</sup>	—
	V	-760mmHg to 10kgf/cm <sup>2</sup>	—
	X	-760mmHg to 20kgf/cm <sup>2</sup>	—
Y	-760mmHg to 35kgf/cm <sup>2</sup>	—	
Z	Others	—	
⑤ Pressure port	P2	PT 1/2 (with adapter)	—
	P8	PT 3/8 (with adapter)	—
	F8	PF 3/8 (Standard)	—
	ZZ	Others	—
⑥ User pressure range	User pressure range <sup>*1</sup>		

\* 1: Write the desired pressure range and it is the default of user pressure range. (Select "Z" at ④ Pressure range)  
\* For ordering cable, order as CID3-2, CID3-5, CLD3-2, CLD3-5. (Sold separately)

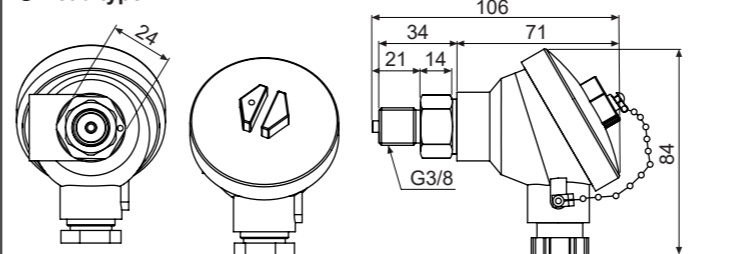
### ■ Specifications

Series	TPS20		
Pressure type	Gauge pressure	Absolute pressure	Compound pressure
Rated pressure range	0 to 0.2 to 350 kg/cm <sup>2</sup>	0 to 1.0 to 35 kg/cm <sup>2</sup>	-760 mmHg to 0 to 35 kg/cm <sup>2</sup>
Max. pressure range	300% of max. span		
Measured materials	Liquid, Gas, Oil (except corrosive environment of Stainless steel type 316)		
Power supply	15-35VDC=		
Permissible voltage range	90 to 110% of rated voltage		
Current consumption	Max. 50mA		
Response time	Max. 100 ms		
Protection circuit	Reverse polarity protection circuit		
Current output	DC4-20 mA		
Linearity	±0.3% F.S. (-10 to 50 °C), ±0.5% F.S. (50 to 70 °C)		
Hysteresis	±0.3% F.S.		
Temp. Zero Shift	±0.03% F.S.		
Temp. Span Shift	±0.03% F.S. (at 25 °C)		
Load resistance	Max. 600 Ω		
Insulation resistance	Over 100MΩ (at 500VDC megger)		
Dielectric strength	500VAC 50/60Hz for 1 minute		
Vibration	1.5mm amplitude at frequency of 10 to 55Hz (for 1 min) in each X, Y, Z direction for 2hours		
Shock	95m/s <sup>2</sup>		
Tightening torque	Industrial plug over 5N		
Pressure port	PF 3/8(standard), PT 3/8, PT 1/2		
Environ-ment	Ambient temp.	-10 to 70 °C, storage: -10 to 70 °C	
	Ambient humid.	5 to 95% RH, storage: 5 to 95% RH	
Materials	Sealing, Diaphragm, Connection: Stainless steel type 316, O-ring: fluoro rubber		
Connection	+, -		
Case structure	Drip-proof structure		
Approval	CE		
Weight <sup>*1</sup>	Approx. 350 g (approx. 320 g) (based on head type)		

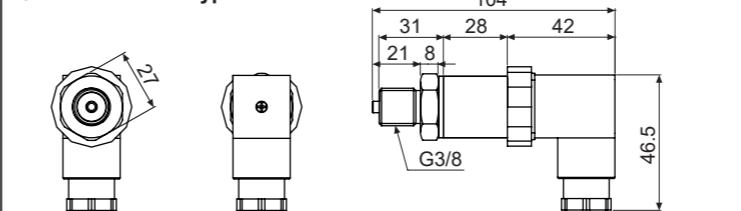
\* 1: The weight includes packaging. The weight in paranthesis is for unit only.  
\* F.S.(Full Scale): It is rated pressure range.  
\* Environment resistance is rated at no freezing or condensation.

### ■ Dimensions

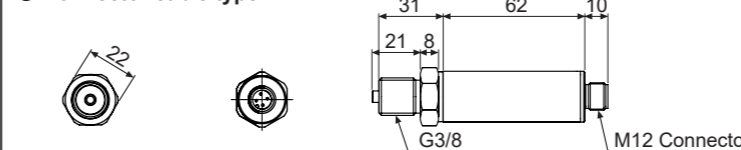
#### ◎ Head type



#### ◎ DIN connector type



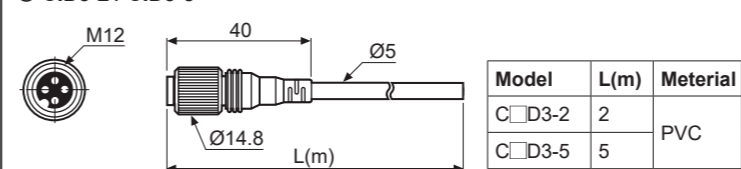
#### ◎ Connector cable type



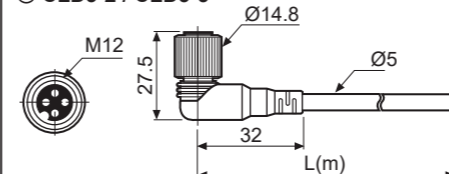
\* The standard pressure port for above is G3/8.

### ■ Connection Cable (sold separately)

#### ◎ CID3-2 / CID3-5



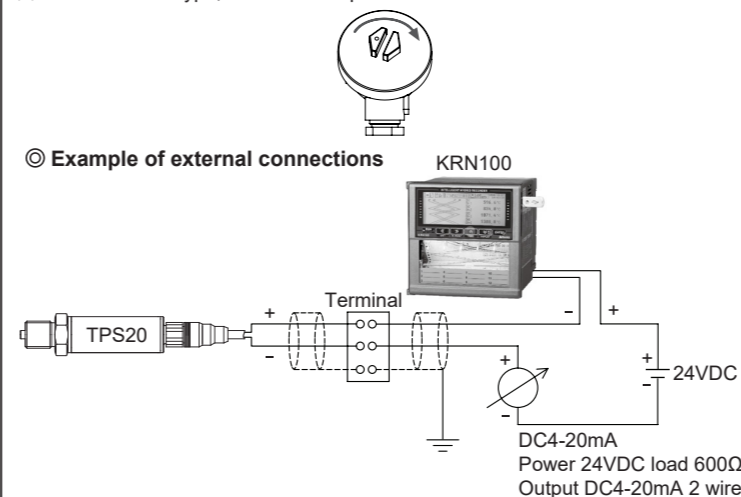
#### ◎ CLD3-2 / CLD3-5



### ■ Connections

Head type	DIN connector type	Connector cable type
Pin	Pin	Pin
1	1	1
2	2	2
3	3	3
4	4	4
Function	Function	Function
+	+	+
-	-	-
N-C	N-C	N-C
F.G.	F.G.	F.G.

\* In case of head type, remove the top cover.



### ■ Troubleshooting

Error	Troubleshooting
No outputs	Check the power supply. Check the polarity (+, -) when wiring cable. Check the connection part.
Abnormally fluctuating output	Check the power supply. Check the supplied pressure. Check the pressure line.
Out of zero point output value	Check the power supply. Check the load resistive value of current output type for a receiver is over 600Ω. Check the measuring point and transmission distance. Check the line resistance is below 600Ω.

### ■ Cautions during Use

- Follow instructions in 'Cautions during Use'. Otherwise, It may cause unexpected accidents.
- 15-35VDC power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
- When installing the unit on pipe line, use the hexagon part of connections not to turn the unit with a pipe wrench. Do not use the unit with strong vibrations.
- Store the unit at the place without moisture, dust, and vibration.
- This product which does not have drive part at sensing part does not need to repair it. Even though inside of pressure pipe is normally clean, it needs to take maintenance once a year as below instructions.
  - Check the broken status of outside.
  - Check the pressure slot, cleanliness inside, and corrosion state.
  - Short each terminal and check the insulation resistance between the case and power.
- When removing a sensor for maintenance, follow the below instructions.
  - Replace an O-ring which is used once.
  - Be sure that diaphragm part is not damaged.
- Switch or circuit breaker for supplying or cutting off the power should be installed nearby users for convenient control.
- The unit cannot be repaired due to disassembled structure.
- The unit is fixed with bolt and nut at the both sides of case. Do not press excessive load (approx. 300kg/cm<sup>2</sup>), or it may cause damage to the unit.
- This unit may be used in the following environments.
  - Indoor / Outdoor (in the environment condition rated in 'Specifications')
  - Altitude max. 2,000 m
  - Pollution Degree 2
  - Installation Category II