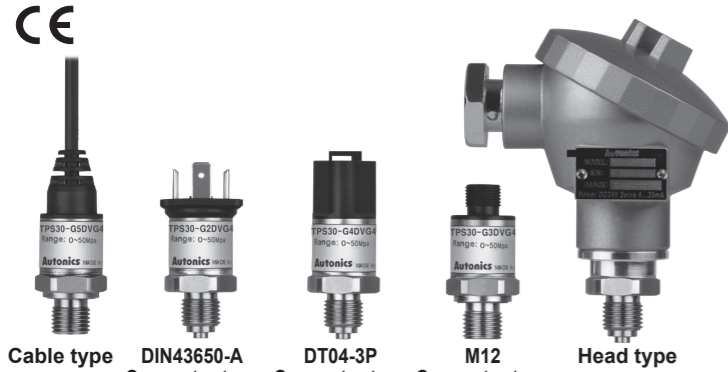


Autonics

Non-indicating Pressure Transmitters

TPS30 SERIES

INSTRUCTION MANUAL



Thank you for choosing our 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 his instruction may result in product damage.

2. **Use the unit within the rated specifications.**
Failure to follow his 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 cause instruction may result in product damage.

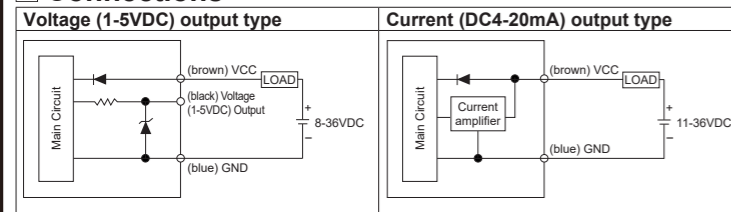
4. **Keep metal chip, dust, and wire residue from flowing into the unit.**
Failure to follow his instruction may result in fire or product damage.

5. **Check the polarity of the contact before wiring the unit.**
Failure to follow his 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 his 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 his instruction may result in fire.

■ Connections



※Cable color is only for cable type.

■ Troubleshooting

| Error | Troubleshooting |
|--------------------------------|--|
| No outputs | Check the power supply. Check the polarity (+, -) when wiring the 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 700Ω. (when supplying 24VDC) Check the measuring point and transmission distance. Check the line resistance is below 700Ω. |

※ 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).

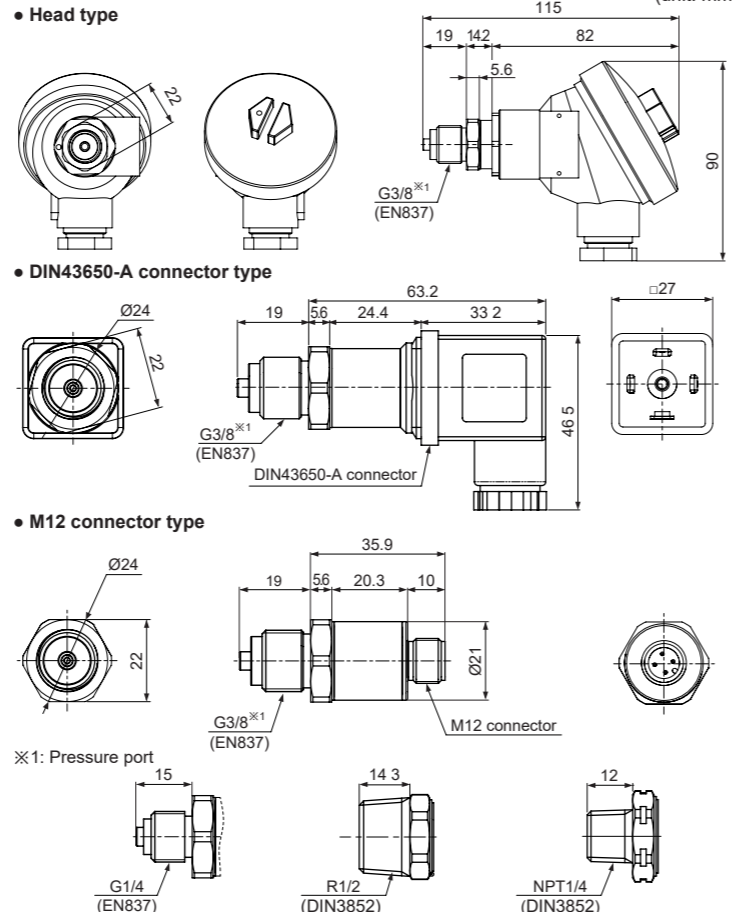
■ Ordering Information

TPS30 - G 2 9 V G8 - 00 (0 to 0.5MPa)

| ① Item | ② Description | ③ Cable | ④ Pressure range | ⑤ Output type | ⑥ Pressure port | ⑦ Option (connector cable)※4 | ⑧ User pressure range |
|--------|---|---------|-------------------------|---------------|-----------------|------------------------------|-----------------------|
| TPS30 | Pressure Transmitter | | | | | | |
| G | Gauge pressure, sealed gauge pressure※1 | | | | | | |
| A | Absolute pressure | | | | | | |
| 1 | Head type | | | | | | |
| 2 | DIN43650-A connector type | | | | | | |
| 3 | M12 connector type | | | | | | |
| 4 | DT04-3P connector type | | | | | | |
| 5 | Cable type | | | | | | |
| | | | Gauge pressure | | | | Absolute pressure |
| 3 | | | 0 to 0.1MPa | | | | 0 to 0.1MPa |
| 4 | | | 0 to 0.2MPa | | | | 0 to 0.2MPa |
| 5 | | | 0 to 0.7MPa | | | | 0 to 0.7MPa |
| 6 | | | 0 to 1MPa | | | | 0 to 1MPa |
| 7 | | | 0 to 2MPa | | | | 0 to 2MPa |
| 8※2 | | | 0 to 3.5MPa | | | | — |
| 9※2 | | | 0 to 5MPa | | | | — |
| A※2 | | | 0 to 10MPa | | | | — |
| B※2 | | | 0 to 20MPa | | | | — |
| C※2 | | | 0 to 40MPa | | | | — |
| D※2 | | | 0 to 50MPa | | | | — |
| E※2 | | | 0 to 60MPa | | | | — |
| | | | Sealed gauge pressure※1 | | | | |
| F | | | -0.1 to 0MPa | | | | |
| G | | | -0.1 to 0.1MPa | | | | |
| H | | | -0.1 to 0.7MPa | | | | |
| J | | | -0.1 to 1MPa | | | | |
| K | | | -0.1 to 2MPa | | | | |
| Z | | | Others | | | | |
| V | Voltage (1-5VDC) output | | | | | | |
| A | Current (DC4-20mA) output | | | | | | |
| G8 | G3/8 (PF) (EN837) | | | | | | |
| G4 | G1/4 (PF) (EN837) | | | | | | |
| R2 | R1/2 (PT) (DIN3852) | | | | | | |
| N4 | NPT1/4 (DIN3852) | | | | | | |
| ZZ※3 | Others (option) | | | | | | |
| 00 | Not used | | | | | | |
| 2I | "I" type 2m | | | | | | |
| 2L | "L" type 2m | | | | | | |
| 5I | "I" type 5m | | | | | | |
| 5L | "L" type 5m | | | | | | |
| | | | User pressure range※5 | | | | |

※1: The pressure is sealed gauge pressure. The unit is sealed structure. It is based on atmospheric pressure 101.3kPa (1.013bar).
※2: G1/4 is the standard pressure port.
For the other pressure ranges, G3/8, R1/2 are standard pressure ports.
※3: The option ports are sold separately. In case of large amount ordering, contact the Autonics for manufacturing the requested pressure port.
※4: Only for M12 connector type.
※5: Write the desired pressure range and it is the default of user pressure range. (select "Z" at ④Pressure range)

■ Dimensions



■ Specifications

| Series | TPS30 | | | | | | | | | | | | | | | | |
|------------------------------------|--|--|-----------|----------|----------|--------------|-------------------------|--------------|--------------|--------------|-----------|----------------|---------|---------|---------|---------|---------|
| Pressure type | Gauge pressure, absolute pressure | | | | | | Sealed gauge pressure※1 | | | | | Gauge pressure | | | | | |
| Rated pressure range (MPa) | 0 to 0.1 | 0 to 0.2 | 0 to 0.7 | 0 to 1 | 0 to 2 | -0.1 to 0 | -0.1 to 0.1 | -0.1 to 0.7 | -0.1 to 1 | -0.1 to 2 | 0 to 3.5 | 0 to 5 | 0 to 10 | 0 to 20 | 0 to 40 | 0 to 50 | 0 to 60 |
| Expanded analog output range (MPa) | 0 to 0.11 | 0 to 0.22 | 0 to 0.77 | 0 to 1.1 | 0 to 2.2 | -0.1 to 0.01 | -0.1 to 0.12 | -0.1 to 0.78 | -0.1 to 1.11 | -0.1 to 2.21 | 0 to 3.85 | 0 to 5.5 | 0 to 11 | 0 to 22 | 0 to 44 | 0 to 55 | 0 to 66 |
| Max. pressure range (MPa) | 0.6 | 0.6 | 3 | 3 | 3 | 0.6 | 0.6 | 3 | 3 | 3 | 10 | 20 | 50 | 80 | 120 | 120 | 120 |
| Burst pressure (MPa) | 0.6 | 0.6 | 3 | 3 | 3 | 0.6 | 0.6 | 3 | 3 | 3 | 15 | 30 | 75 | 120 | 160 | 160 | 160 |
| Measured materials | Liquid, gas, oil | | | | | | | | | | | | | | | | |
| Power supply | Voltage output type: 8-36VDC= (ripple P-P: max. 10%) Current output type: 11-36VDC= (ripple P-P: max. 10%) | | | | | | | | | | | | | | | | |
| Permissible voltage range | 90 to 110% of rated voltage | | | | | | | | | | | | | | | | |
| Current consumption | Voltage output type: max. 20mA Current output type: max. 30mA | | | | | | | | | | | | | | | | |
| Response time | Max. 1ms | | | | | | | | | | | | | | | | |
| Protection circuit | Reverse polarity protection circuit | | | | | | | | | | | | | | | | |
| Output type | Voltage output type: 1-5VDC= Current output type: DC4-20mA | | | | | | | | | | | | | | | | |
| Compensation temperature | -10 to 80°C 0 to 80°C | | | | | | | | | | | | | | | | |
| Accuracy | Max. ±0.5% F.S. (including linearity, hysteresis, reproducibility) | | | | | | | | | | | | | | | | |
| Linearity | Max. ±0.2% F.S. | | | | | | | | | | | | | | | | |
| Hysteresis | Max. ±0.2% F.S. | | | | | | | | | | | | | | | | |
| Temp. Zero Shift | Max. ±0.1% F.S./10°C (standard), max. ±0.25% F.S./10°C (max.) | | | | | | | | | | | | | | | | |
| Temp. Span Shift | Max. ±0.1% F.S./10°C (standard), max. ±0.25% F.S./10°C (max.) | | | | | | | | | | | | | | | | |
| Temperature characteristics | -25 to 100°C: max. ±1.5% F.S. / -40 to 125°C: max. ±2.5% F.S. | | | | | | | | | | | | | | | | |
| Load resistance | Current output type: max. 700Ω (supplying 24VDC) | | | | | | | | | | | | | | | | |
| Dielectric strength | 500VAC 50/60Hz for 1 minute | | | | | | | | | | | | | | | | |
| Insulation resistance | Over 100MΩ (at 500VDC megger) | | | | | | | | | | | | | | | | |
| Environment | Ambient temp. | Voltage output type: Head type, D N43650-A connector type, M12 connector type, DT04-3P connector type: -40 to 125°C, storage: -40 to 125°C Cable type: -40 to 80°C, storage: -40 to 80°C | | | | | | | | | | | | | | | |
| | Current output | Head type, D N43650-A connector type, M12 connector type, DT04-3P connector type: -40 to 85°C, storage: -40 to 125°C Cable type: -40 to 80°C, storage: -40 to 80°C | | | | | | | | | | | | | | | |
| | Ambient humidity | 35 to 85%RH | | | | | | | | | | | | | | | |
| Fluid temp. | -40 to 125°C | | | | | | | | | | | | | | | | |
| Vibration | 10g, 20 to 2,000Hz | | | | | | | | | | | | | | | | |
| Shock | 100g/6ms 20g, 20 to 2,000Hz 500g/1ms | | | | | | | | | | | | | | | | |
| Tightening torque | Max. 10N·m | | | | | | | | | | | | | | | | |
| Protection structure | Head type, M12 connector type, DT04-3P connector type, cable type: IP67 (IEC standard) DIN43650-A connector type: IP65 (IEC standard) | | | | | | | | | | | | | | | | |
| Material | Stainless steel 316L (head component of head type: aluminium diecasting), connector: Polybutylene terephthalate G30, water-proof rubber: Silicon | | | | | | | | | | | | | | | | |
| Connection | Voltage output type: +, -, Vout Current output type: +, - | | | | | | | | | | | | | | | | |
| Approval | CE | | | | | | | | | | | | | | | | |
| Weight※2 | Head type: approx. 330g (approx. 250g) | | | | | | | | | | | | | | | | |
| | DIN43650-A connector type, M12 connector type, DT04-3P connector type: approx. 130g (approx. 50g) Cable type: approx. 200g (approx. 120g) | | | | | | | | | | | | | | | | |

※1: The sensor is sealed structure. It is based on atmospheric pressure 101.3kPa (1.013bar).

※2: The weight includes packaging. The weight in parentheses is for unit only.

■ Connector

• Voltage output type

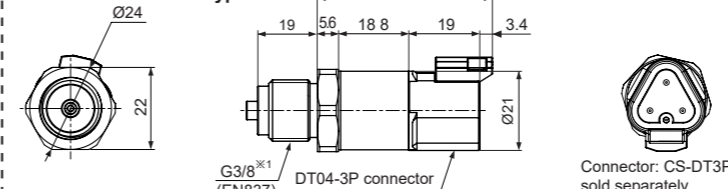
| Pin type | Head type | DIN43650-A connector type | M12 connector type | DT04-3P connector type | Cable type |
|----------|-----------|---------------------------|--------------------|------------------------|------------|
| Function | Pin | | | | |
| + | + | 1 | 1 | A | Brown |
| - | - | 2 | 3 | C | Blue |
| Vout | Vout | 2, 3 | 4 | B | Black |
| N.C | — | 3 | 2 | — | — |

• Current output type

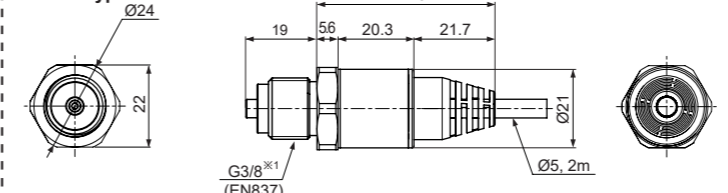
| Pin type | Head type | DIN43650-A connector type | M12 connector type | DT04-3P connector type | Cable type |
|----------|-----------|---------------------------|--------------------|------------------------|------------|
| Function | Pin | | | | |
| + | + | 1 | 1 | A | Brown |
| - | - | 2 | 3 | C | Blue |
| N.C | Vout | 2, 3 | 2, 4 | B | — |

※In case of head type, remove the top cover.

• DT04-3P connector type

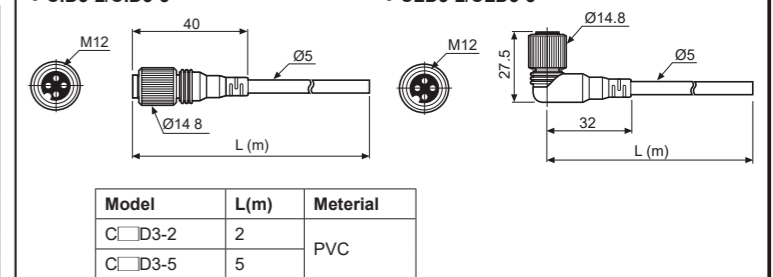


• Cable type



■ Connection Cable (sold separately)

• CID3-2/CID3-5



※ Only for M12 connector.

■ Cautions during Use

- Follow instructions in 'Cautions during Use'. Otherwise, it may cause unexpected accidents.
- 8-36VDC, 11-36VDC 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/cm²), 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