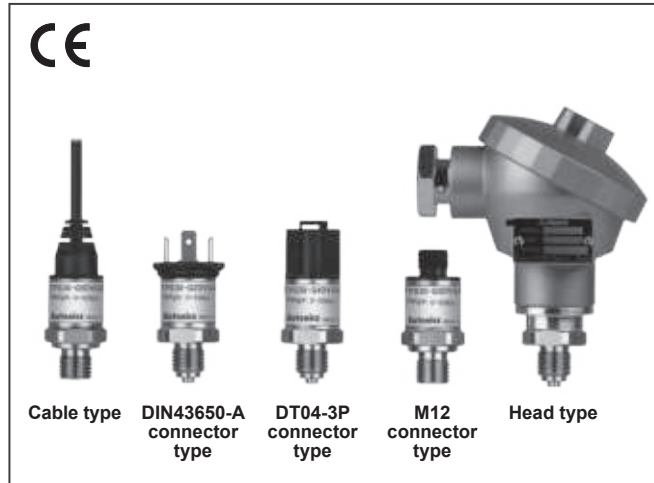


# TPS30 Series

## Features

- Robust build allows high or low pressure measurement in high and low temperature environments.  
: high pressure (0 to 60MPa), low pressure (0 to 2 MPa)  
: temperature range (-40 to 125°C) (may vary by model)
- For diverse applications including packaging machines, heavy machinery, factories, and shipbuilding.
- Pressure measurement of any gas, liquid, or oil.
- 316L stainless steel diaphragm for high corrosion resistance.
- Compact size allows easy installation in tight or limited spaces.
- 1ms high-speed response rate.
- Analog output: Voltage (1-5 VDC), Current (DC 4-20 mA)
- Built-in reverse polarity protection circuit.
- Various connector types  
: cable type, DIN43650-A connector type, DT04-3P connector type, M12 connector type, head type.
- Available thread sizes: G3/8, G1/4, R1/2
- Protection structure: IP67 (IEC standard)  
(except DIN43650-A connector type: IP65)



⚠ Please read "Safety Considerations" in operation manual before using this unit.

## Ordering Information

TPS30 — G 2 9 V G8 — 00 (0 to 0.5MPa)

①      ②   ③   ④   ⑤   ⑥      ⑦      ⑧

| ①Item                                   | Description                       |                                                     |                   |
|-----------------------------------------|-----------------------------------|-----------------------------------------------------|-------------------|
| TPS30                                   | Pressure Transmitter              |                                                     |                   |
| ②Measurement pressure                   | G                                 | Gauge pressure, sealed gauge pressure <sup>*1</sup> |                   |
|                                         | A                                 | Absolute pressure                                   |                   |
| ③Cable                                  | 1                                 | Head type                                           |                   |
|                                         | 2                                 | DIN43650-A connector type                           |                   |
|                                         | 3                                 | M12 connector type                                  |                   |
|                                         | 4                                 | DT04-3P connector type                              |                   |
|                                         | 5                                 | Cable type                                          |                   |
| ④Pressure range                         |                                   | 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 <sup>*2</sup>                   | 0 to 3.5MPa                                         | —                 |
|                                         | 9 <sup>*2</sup>                   | 0 to 5MPa                                           | —                 |
|                                         | A <sup>*2</sup>                   | 0 to 10MPa                                          | —                 |
|                                         | B <sup>*2</sup>                   | 0 to 20MPa                                          | —                 |
|                                         | C <sup>*2</sup>                   | 0 to 40MPa                                          | —                 |
|                                         | D <sup>*2</sup>                   | 0 to 50MPa                                          | —                 |
|                                         | E <sup>*2</sup>                   | 0 to 60MPa                                          | —                 |
|                                         |                                   | Sealed gauge pressure <sup>*1</sup>                 |                   |
|                                         | 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                            |                                                     |                   |
| ⑤Output type                            | V                                 | Voltage (1-5VDC) output                             |                   |
|                                         | A                                 | Current (DC4-20mA) output                           |                   |
| ⑥Pressure port                          | G8                                | G3/8 (PF)(EN387)                                    |                   |
|                                         | G4                                | G1/4 (PF)(EN387)                                    |                   |
|                                         | R2                                | R1/2 (PT)(DIN3852)                                  |                   |
|                                         | N4                                | NPT1/4 (DIN3852)                                    |                   |
|                                         | ZZ <sup>*3</sup>                  | Others (option)                                     |                   |
| ⑦Option (connector cable) <sup>*4</sup> | 00                                | Not used                                            |                   |
|                                         | 2I                                | "I" type 2m                                         |                   |
|                                         | 2L                                | "L" type 2m                                         |                   |
|                                         | 5I                                | "I" type 5m                                         |                   |
|                                         | 5L                                | "L" type 5m                                         |                   |
| ⑧User pressure range                    | User pressure range <sup>*5</sup> |                                                     |                   |

<sup>\*1</sup>: The pressure is sealed gauge pressure. The unit is sealed structure. It is based on atmospheric pressure 101.3kPa (1.013bar).

<sup>\*2</sup>: G1/4 is the standard pressure port. For the other pressure ranges, G3/8, R1/2 are standard pressure ports.

<sup>\*3</sup>: The option ports are sold separately. In case of large amount ordering, contact the Autonics for manufacturing the requested pressure port.

<sup>\*4</sup>: Only for M12 connector type.

<sup>\*5</sup>: Write the desired pressure range and it is the default of user pressure range. (select "Z" at ④Pressure range)

# Pressure Transmitter

## Specifications

|                                    |                                                                                                                                                                                              |                |                                                                                                                                                                            |          |          |                                     |              |              |              |              |                                                                            |          |         |         |         |         |         |
|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------|-------------------------------------|--------------|--------------|--------------|--------------|----------------------------------------------------------------------------|----------|---------|---------|---------|---------|---------|
| Series                             | TPS30                                                                                                                                                                                        |                |                                                                                                                                                                            |          |          |                                     |              |              |              |              |                                                                            |          |         |         |         |         |         |
| Pressure type                      | Gauge pressure, absolute pressure                                                                                                                                                            |                |                                                                                                                                                                            |          |          | Sealed gauge pressure <sup>※1</sup> |              |              |              |              | 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 (inappropriate to corrosion environment for stainless steel 316L)                                                                                                           |                |                                                                                                                                                                            |          |          |                                     |              |              |              |              |                                                                            |          |         |         |         |         |         |
| Power supply                       | · Voltage output type: 8-36VDC $\equiv$ (ripple P-P: max. 10%) · Current output type: 11-36VDC $\equiv$ (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 $\equiv$ · Current output type: DC4-20mA                                                                                                                       |                |                                                                                                                                                                            |          |          |                                     |              |              |              |              |                                                                            |          |         |         |         |         |         |
| Compensation temperature           | -10 to 80°C                                                                                                                                                                                  |                |                                                                                                                                                                            |          |          |                                     |              |              |              |              | 0 to 80°C                                                                  |          |         |         |         |         |         |
| Accuracy                           | Max. $\pm 0.5\%$ F.S. (including linearity, hysteresis, reproducibility)                                                                                                                     |                |                                                                                                                                                                            |          |          |                                     |              |              |              |              |                                                                            |          |         |         |         |         |         |
| Linearity                          | Max. $\pm 0.2\%$ F.S.                                                                                                                                                                        |                |                                                                                                                                                                            |          |          |                                     |              |              |              |              |                                                                            |          |         |         |         |         |         |
| Hysteresis                         | Max. $\pm 0.2\%$ F.S.                                                                                                                                                                        |                |                                                                                                                                                                            |          |          |                                     |              |              |              |              |                                                                            |          |         |         |         |         |         |
| Temp. Zero Shift                   | Max. $\pm 0.1\%$ F.S./10°C (standard), max. $\pm 0.25\%$ F.S./10°C (max.)                                                                                                                    |                |                                                                                                                                                                            |          |          |                                     |              |              |              |              |                                                                            |          |         |         |         |         |         |
| Temp. Span Shift                   | Max. $\pm 0.1\%$ F.S./10°C (standard), max. $\pm 0.25\%$ F.S./10°C (max.)                                                                                                                    |                |                                                                                                                                                                            |          |          |                                     |              |              |              |              |                                                                            |          |         |         |         |         |         |
| Temperature characteristics        | —                                                                                                                                                                                            |                |                                                                                                                                                                            |          |          |                                     |              |              |              |              | -25 to 100°C: max. $\pm 1.5\%$ F.S.<br>-40 to 125°C: max. $\pm 2.5\%$ F.S. |          |         |         |         |         |         |
| Load resistance                    | Current output type: max. 700 $\Omega$ (supplying 24VDC)                                                                                                                                     |                |                                                                                                                                                                            |          |          |                                     |              |              |              |              |                                                                            |          |         |         |         |         |         |
| Dielectric strength                | 500VAC 50/60Hz for 1 minute                                                                                                                                                                  |                |                                                                                                                                                                            |          |          |                                     |              |              |              |              |                                                                            |          |         |         |         |         |         |
| Insulation resistance              | Over 100M $\Omega$ (at 500VDC megger)                                                                                                                                                        |                |                                                                                                                                                                            |          |          |                                     |              |              |              |              |                                                                            |          |         |         |         |         |         |
| Environment                        | Ambient temp.                                                                                                                                                                                | Voltage output | · Head type, DIN43650-A connector type, M12 connector type, DT04-3P connector type: -40 to 125°C, storage: -40 to 125°C<br>· Cable type: -40 to 80°C, storage: -40 to 80°C |          |          |                                     |              |              |              |              |                                                                            |          |         |         |         |         |         |
|                                    |                                                                                                                                                                                              | Current output | · Head type, DIN43650-A connector type, M12 connector type, DT04-3P connector type: -40 to 85°C, storage: -40 to 125°C<br>· 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                                                                                                                                                                           |                |                                                                                                                                                                            |          |          |                                     |              |              |              |              | 20g, 20 to 2,000Hz                                                         |          |         |         |         |         |         |
| Shock                              | 100g/6ms                                                                                                                                                                                     |                |                                                                                                                                                                            |          |          |                                     |              |              |              |              | 500g/1ms                                                                   |          |         |         |         |         |         |
| Tightening torque                  | Max. 10N·m                                                                                                                                                                                   |                |                                                                                                                                                                            |          |          |                                     |              |              |              |              |                                                                            |          |         |         |         |         |         |
| Protection structure               | · Head type, M12 connector type, DT04-3P connector type, cable type: IP67 (IEC standard)<br>· DIN43650-A connector type: IP65 (IEC standard)                                                 |                |                                                                                                                                                                            |          |          |                                     |              |              |              |              |                                                                            |          |         |         |         |         |         |
| Material                           | Stainless steel 316L (head part of head type: aluminium diecasting), connector: polybutylene terephthalate G30, water-proof rubber: silicon                                                  |                |                                                                                                                                                                            |          |          |                                     |              |              |              |              |                                                                            |          |         |         |         |         |         |
| Connection                         | · Voltage output type: +, -, Vout · Current output type: +, -                                                                                                                                |                |                                                                                                                                                                            |          |          |                                     |              |              |              |              |                                                                            |          |         |         |         |         |         |
| Approval                           | CE                                                                                                                                                                                           |                |                                                                                                                                                                            |          |          |                                     |              |              |              |              |                                                                            |          |         |         |         |         |         |
| Weight <sup>※2</sup>               | · Head type: approx. 330g (approx. 250g)<br>· DIN43650-A connector type, M12 connector type, DT04-3P connector type: approx. 130g (approx. 50g)<br>· 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 parenthesis is for unit only.

※Environment resistance is rated at no freezing or condensation.

A. Recorders

B. Indicators

C. Converters

D. Controllers

E. Thyristor Power Controllers

F. Pressure Transmitters

G. Temperature Transmitters

H. Accessories

TPS30

TPS20

KT-302H

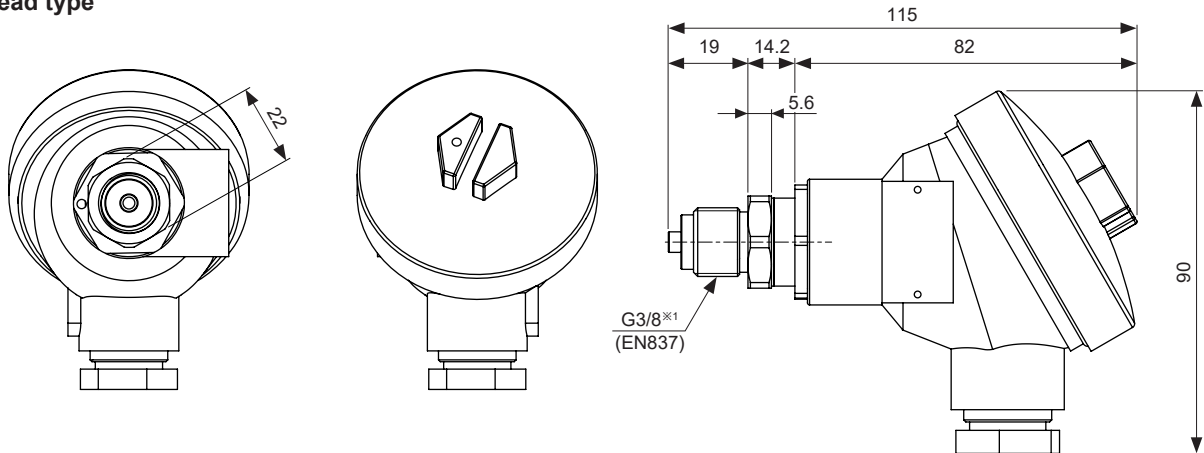
PTF30

# TPS30 Series

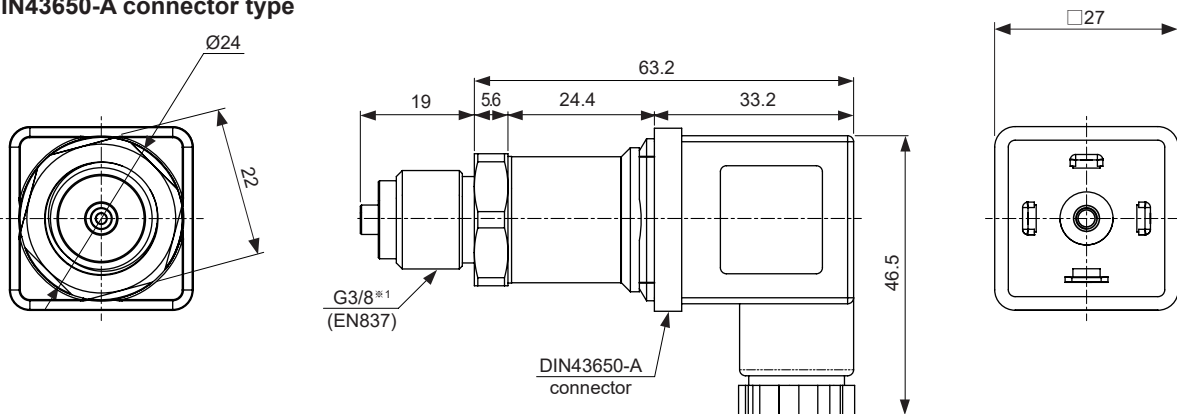
## Dimensions

(unit: mm)

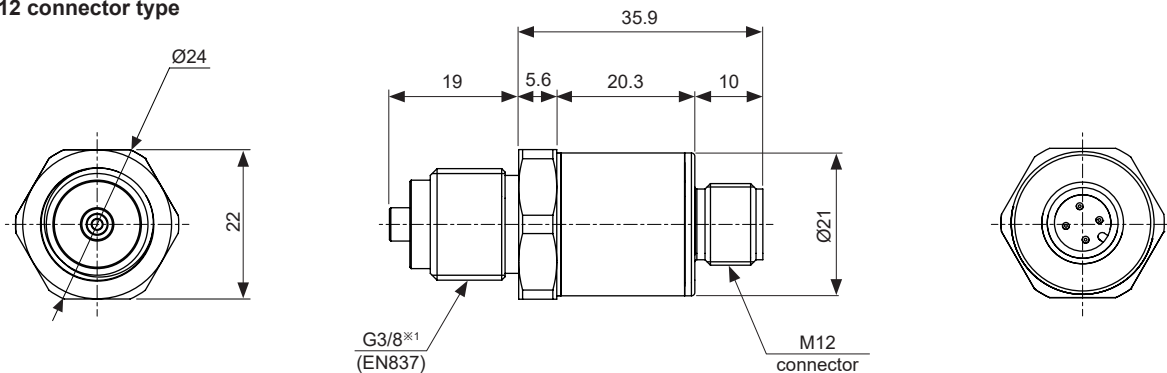
### ● Head type



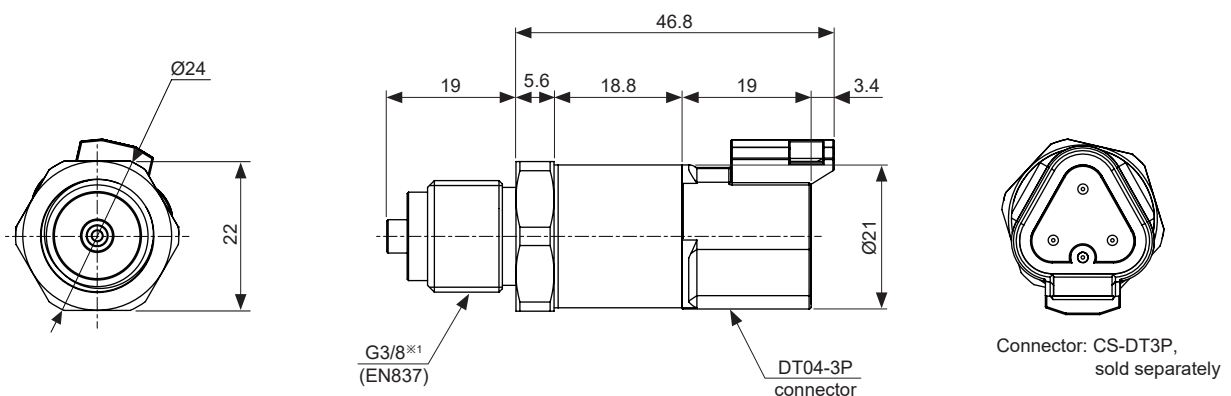
### ● DIN43650-A connector type



### ● M12 connector type



### ● DT04-3P connector type

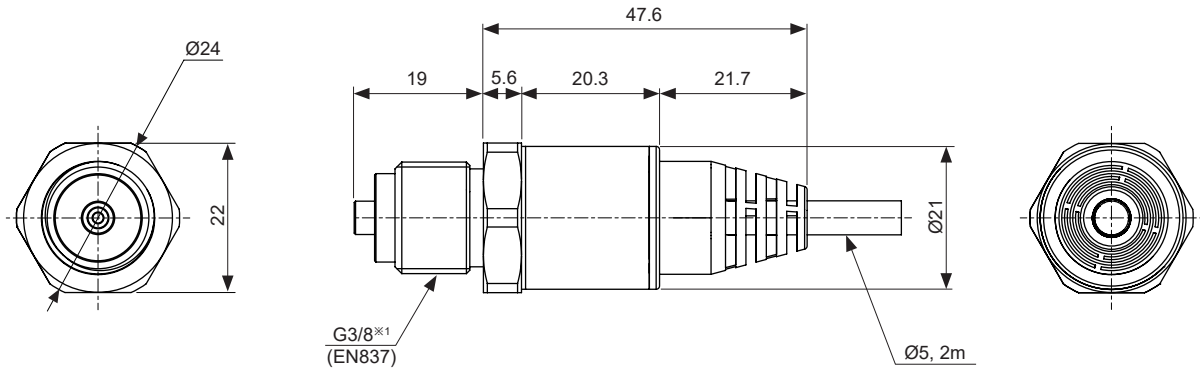


# Pressure Transmitter

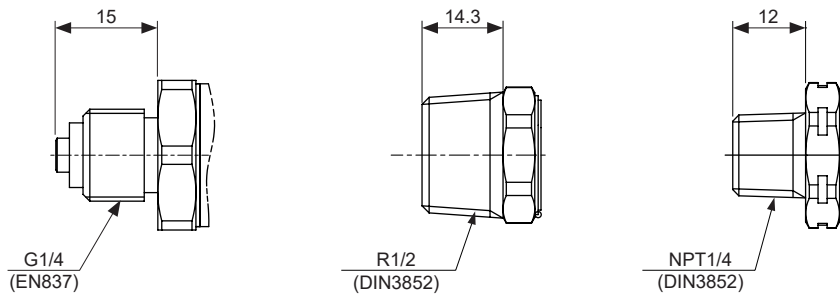
## Dimensions

### ● Cable type

(unit: mm)



※1: Pressure port



A. Recorders

B. Indicators

C. Converters

D. Controllers

E. Thyristor Power Controllers

F. Pressure Transmitters

G. Temperature Transmitters

H. Accessories

TPS30

TPS20

KT-302H

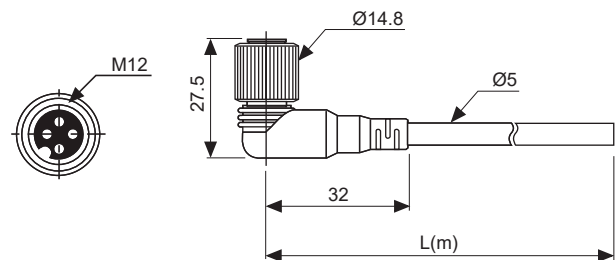
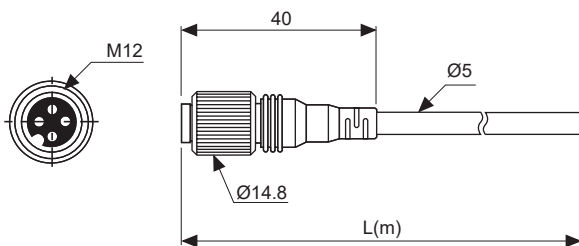
PTF30

## Connection Cable (Sold Separately)

### ● CID3-2/CID3-5

### ● CLD3-2/CLD3-5

(unit: mm)



| Model  | L(m) | Material |
|--------|------|----------|
| CID3-2 | 2    | PVC      |
| CID3-5 | 5    |          |

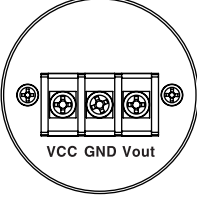
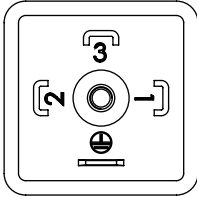
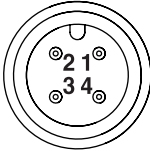
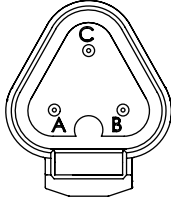
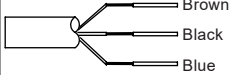

| Model  | L(m) | Material |
|--------|------|----------|
| CLD3-2 | 2    | PVC      |
| CLD3-5 | 5    |          |

※Only for M12 connector.

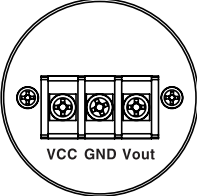
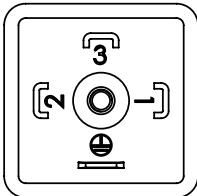
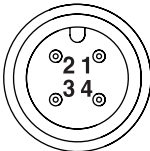
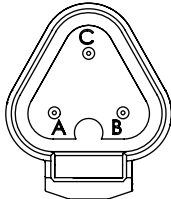
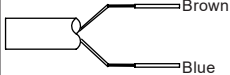

# TPS30 Series

## Connector

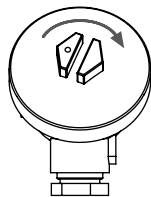
### ● Voltage output type

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

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



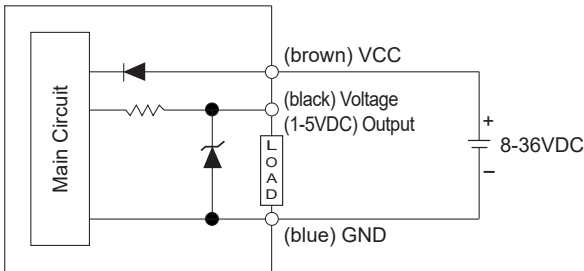
## Troubleshooting

| Error                          | Troubleshooting                                                                                                                                                                                                                          |
|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| No outputs                     | Check the power supply.<br>Check the polarity (+, -) when wiring the cable.<br>Check the connection part.                                                                                                                                |
| Abnormally fluctuating output  | Check the power supply.<br>Check the supplied pressure.<br>Check the pressure line.                                                                                                                                                      |
| Out of zero point output value | Check the power supply.<br>Check the load resistive value of current output type for a receiver is over 700Ω. (when supplying 24VDC)<br>Check the measuring point and transmission distance.<br>Check the line resistance is below 700Ω. |

# Pressure Transmitter

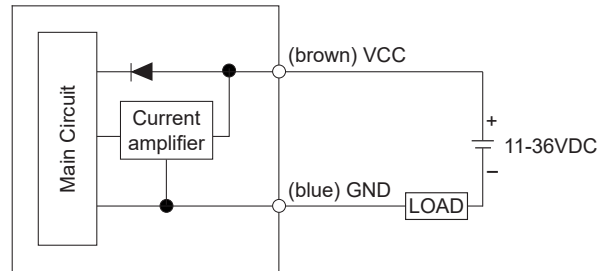
## Connections

### ● Voltage (1-5VDC) output type

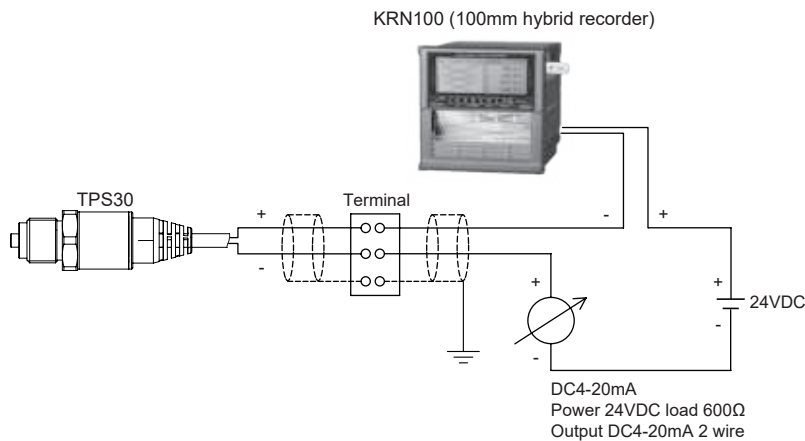


※Cable color is only for cable type.

### ● Current (DC4-20mA) output type



### ● Example of external connections



## Proper Usage

- 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.
- The unit is manufactured with precisely. If you drop or shock the unit, it may lose the function. Please treat the unit carefully.
- 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.
  - ① Check the broken status of outside.
  - ② Check the pressure slot, cleanliness inside, and corrosion state.
  - ③ Short each terminal and check the insulation resistance between the case and power. (at 500VDC, over 100MΩ)
  - ④ Check zero, span adjustment and linearity by pressure standards.
- When removing a sensor for maintenance, follow the below instructions.
  - ① Replace an O-ring which is used once.
  - ② Be sure that diaphragm part is not damaged.
- Connect the power with the crimp terminals.
- Switch or circuit breaker should be installed nearby users for convenient control.
- Do not use the unit near the high frequency instruments (high frequency welding machine & sewing machine, large capacity SCR controller).
- 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.
- Do not pull the cables with over 30N of tension force.
- Tighten the cable connection part firmly not to enter water to the cable.
- This product may be used in the following environments.
  - ① Indoors / Outdoors
  - ② Altitude max. 2,000m
  - ③ Pollution degree 2
  - ④ Installation category II

|                                |
|--------------------------------|
| A. Recorders                   |
| B. Indicators                  |
| C. Converters                  |
| D. Controllers                 |
| E. Thyristor Power Controllers |
| F. Pressure Transmitters       |
| G. Temperature Transmitters    |
| H. Accessories                 |

|         |
|---------|
| TPS30   |
| TPS20   |
| KT-302H |
| PTF30   |