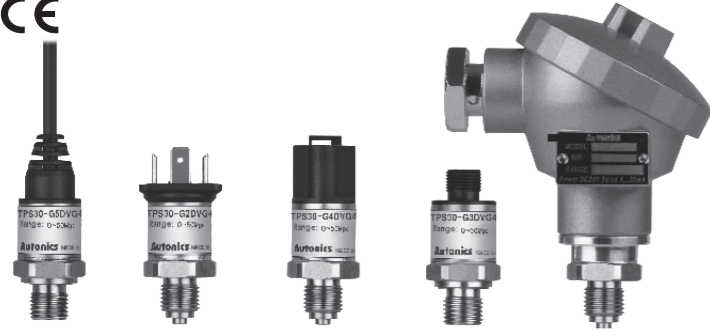


# Autonics Pressure Transmitter TPS30 SERIES

## INSTRUCTION MANUAL



Cable type    DIN43650-A    DT04-3P    M12    Head type

Connector type Connector type Connector type

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.

※ Safety considerations are categorized as follows.

⚠ **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.

※ The symbols used on the product and instruction manual represent the following

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

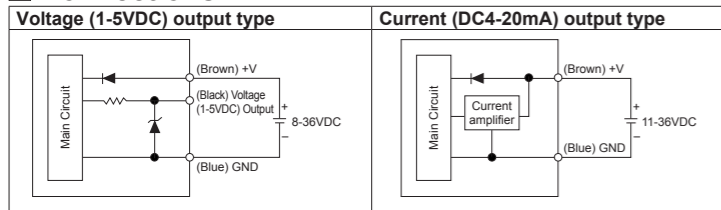
### ⚠ Warning

- 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.
- Do not use the unit where flammable or explosive gas, humidity, direct sunlight, radiant heat, vibration, and impact may be present.** Failure to follow this instruction may result in fire or explosion.
- Do not disassemble or modify the unit. Please contact us if necessary.** Failure to follow this instruction may result in fire.

### ⚠ Caution

- Do not apply beyond the rated pressure.** Failure to follow this instruction may result in product damage.
- Use the unit within the rated specifications.** Failure to follow this instruction may result in fire or shortening the life cycle of the unit.
- Fix the cable through the cable connection part.** Do not turn the cable of the unit. Failure to follow cause instruction may result in product damage.
- Keep dust and wire residue from flowing into the unit.** Failure may result in burn out of the unit.
- Check the polarity of the measurement terminals before wiring the unit.** Failure may result in burn out of the unit.
- Please contact us for using the unit to the corrosive detergent.** Failure to follow this instruction may result in shortening the life cycle of the unit or product damage.
- Do not use water or oil-based detergent when cleaning the unit. Use dry cloth to clean the unit.** Failure to follow this instruction may result in fire.
- Head type should use over Ø7mm cable for IP67 protection structure.**

### ■ 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.

### ■ Ordering Information

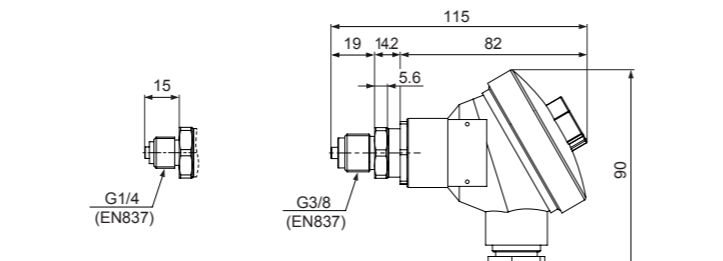
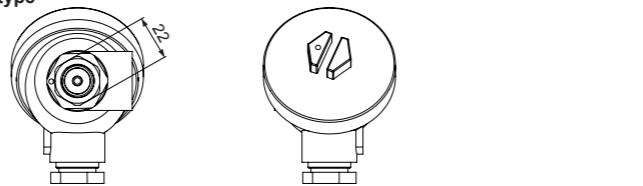
TPS30	-	G	2	9	V	G8	-	00	(0 to 0.5MPa)
①	②	③	④	⑤	⑥	⑦	⑧		

① Item	Description
TPS30	Pressure Transmitter
② Measurement pressure	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
③ Cable	
3	Gauge pressure
4	0 to 0.1MPa
4	0 to 0.2MPa
5	0 to 0.7MPa
6	0 to 1MPa
7	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
④ Pressure range	
F	Sealed gauge pressure*1
G	-0.1 to 0MPa
H	-0.1 to 0.1MPa
J	-0.1 to 1MPa
K	-0.1 to 2MPa
Z	Others
⑤ Output type	V Voltage (1-5VDC) output
A	Current (DC4-20mA) output
G8	G3/8 (PF)
G4	G1/4 (PF)
R2	R1/2 (PT)
ZZ*3	Others (option)
⑥ Pressure port	
00	Not used
21	"I" type 2m
2L	"L" type 2m
51	"I" type 5m
5L	"L" type 5m
⑦ Option (connector cable)*4	
⑧ User pressure range	User pressure range*5

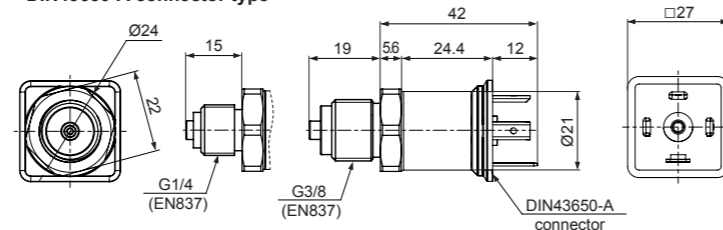
- ※1: The pressure is sealed gauge pressure. The unit is sealed structure. It is based on atmospheric pressure 101.3kPa (1.013bar).
- ※2: G1/4 is the standard pressure port. For the other pressure ranges, G3/8, R1/2 are standard pressure ports.
- ※3: The option ports are sold separately. In case of large 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 ⑥ Pressure range)

### ■ Dimensions

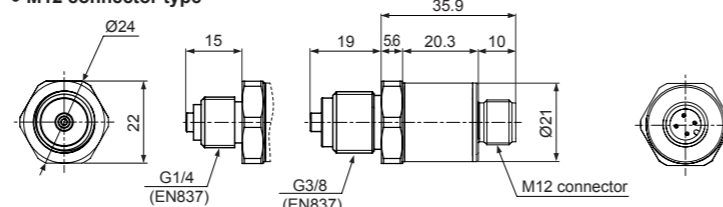
#### • Head type



#### • DIN43650-A connector type



#### • M12 connector type



### ■ 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																
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 Voltage output temp. Current output temp. Ambient humidity Fluid temp. Vibration Shock Tightening torque Protection structure Material Connection Approval Weight*2																
*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.																	
※ Environment resistance is rated at no freezing or condensation.																	

### ■ Connector

#### • Voltage output type

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

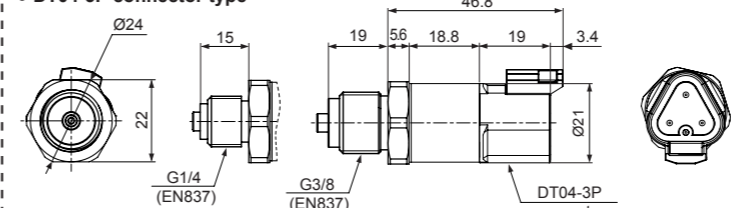
#### • Current output type

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

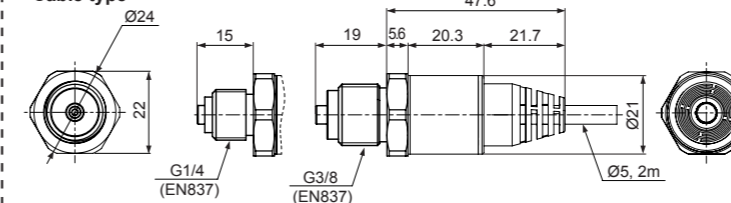
※ In case of head type, remove the top cover.



#### • DT04-3P connector type

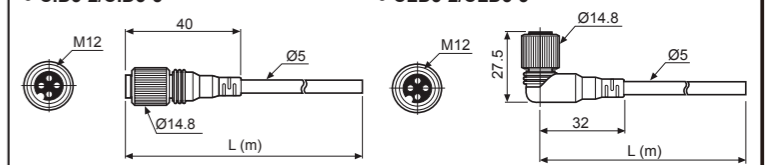


#### • Cable type



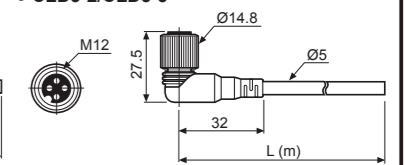
### ■ Connection Cable (sold separately)

#### • CID3-2/CID3-5



※ "L" Standard cable length is 2m, 5m.  
※ Only for M12 connector.

#### • CLD3-2/CLD3-5



### ■ Cautions During Use

- 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.
    - 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. (at 500VDC, over 100MΩ)
    - Check zero, span adjustment and linearity by pressure standards.
  - 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.
  - 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.
  - Installation environment.
    - Indoor / Outdoor
    - Pollution Degree 2
    - Altitude max. 2,000 m
    - Installation Category II
- ※ Failure to follow these instructions may result in product damage.

### ■ Major Products

■ Photoelectric Sensors	■ Temperature Controllers	■ Recorders	■ Thyristor Units
■ Fiber Optic Sensors	■ Temperature/Humidity Transducers	■ Indicators	■ Pressure Transmitters
■ Door Sensors	■ SSRs/Power Controllers	■ Converters	■ Temperature Transmitters
■ Door Side Sensors	■ Counters	■ Controllers	
■ Area Sensors	■ Timers		
■ Proximity Sensors	■ Panel Meters		
■ Pressure Sensors	■ Tachometers/Pulse(Rate)Meters		
■ Rotary Encoders	■ Display Units		
■ Connectors/Sockets	■ Sensor Controllers		
■ Switching Mode Power Supplies			
■ Control Switches/Lamps/Buzzers			
■ I/O Terminal Blocks & Cables			
■ Stepper Motors/Drivers/Motion Controllers			
■ Graphic Logic Panels			
■ Field Network Devices			
■ Laser Marking System(Fiber, Co., Nd: YAG)			
■ Laser Welding/Soldering System			

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