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TEAC

Pressure Transducer Instructions for Use

TP-AR(T)

CE UKCA

General pressure measurement type

Introduction

Thank you for purchasing a TP-AR(T) pressure transducer model.

Please read this document completely before using this transducer to realize its best performance and ensure safe and proper operation.

- Company names and product names in this document are the trademarks or registered trademarks of their respective owners.

Included accessories

If anything is missing or damaged, contact the retailer where you purchased the product.

Test report × 1
Instructions for Use (this document) × 1
Pressure input packing (copper) × 1
Drain valve × 1
Drain valve packings (PTFE) × 3
Rubber cap for screw × 1

- This product does not include cables. Please consult with our sales agents if you have any concerns.
  We can also recommend oil-resistant cables.

IMPORTANT SAFETY INSTRUCTIONS

⚠ WARNING

If something abnormal occurs

In the unlikely event that smoke, strange odors or sounds, or something else abnormal occurs, cut the power and confirm that smoke has stopped being emitted. Then, request repair from the retailer where you purchased the product.

Do not open the cover.

Never remove the cover from this unit. Doing so could cause malfunction. Request inspection and repair from the retailer where you purchased the product.

Do not alter this unit. Doing so could cause malfunction.

Do not put foreign objects or water, for example, into the unit.

Do not place a container that holds water, for example, on top of this unit. If liquid is spilled, for example, and enters the unit, this could cause malfunction.

Do not use the unit with any power supply voltage other than that specified.

Do not use the unit with any power supply voltage other than that specified. Doing so could cause malfunction.

⚠ CAUTION

Unsuitable installation locations

Do not place the unit in the following types of locations. Doing so could cause malfunction.

- Locations that are very humid or dusty
- Locations that are exposed to direct sunlight
- Outdoor locations where rain falls

When not using the unit for a long time

For safety, cut the power supply when not using this unit for a long time.

Regular inspections

- Inspect the product at regular intervals, and confirm that the pressure medium is not leaking and that the screw is not loose.
- Replace the packings regularly.

Do not operate a damaged unit.

Precautions for use

- This unit is not built to be water or splash resistant, and it cannot be used in conditions when the relative humidity is high. Moreover, use in atmospheres with corrosive gases should be avoided.
- Be careful to prevent water, oil and other substances from getting on the unit.
- Avoid use in conditions where condensation could occur.
- Connect cores to this unit after discharging (eliminating) static electricity from your body.
- If the surrounding temperature changes suddenly, the values output by this unit could become unstable, making accurate measurement impossible.

  (This could occur, for example, in a location blown by warm or cold air.)
- If a cable (sold separately) used with this product is connected, bent and shifted, keep the curvature of the bent part sufficient for the cable diameter. (Example: at least 60 mm for a Ø6 cable)
  Do not apply tension to the cable.
- Conduct pressure calibrations at regular intervals.
- This model is not explosion-proof.
- Do not use a flammable or corrosive gas or liquid as the pressure medium.

Procedures for installing to the measurement subject

Follow the procedures below to install the pressure transducer to the part to be measured.

Use the screw (G3/8) at the end of the pressure transducer for attachment. (The end screw is G1/2 for models with a rated capacity of 100 MPa.)

Refer to Figure 1 when preparing the installation aperture and to check the final state after installation.

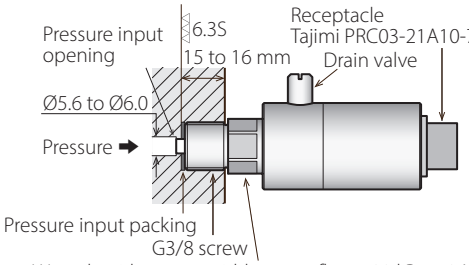


Figure 1

Tighten with a torque of 60–100 N·m. (100 N·m for 100MPa models.)

Drain valve operation

If air (vapor) builds up in the area that includes the measured side and the pressure transducer and this needs to be released, operate the drain valve on the pressure transducer. Follow these steps to do this.

1 Confirm that pressure is not being applied from the pressure medium on the pressure transducer.

2 Remove the drain valve from the pressure transducer or loosen the valve. Then, gradually increase the pressure from the pressure medium.

Doing this will cause the air (vapor) to be emitted along with the pressure medium from the hole in this transducer. Repeat this procedure multiple times.

ATTENTION

While increasing the pressure, keep it low so that it is not dangerous. Failure to follow this precaution could cause the pressure medium to gush out and be extremely dangerous.

3 When complete, use a flathead screwdriver or another tool to tightly close the drain valve.

The tightening torque is about 1 N·m. After using the drain valve, always confirm that this tightening has been done.

ATTENTION

If the tightening is loose, pressure could leak from this part and the drain valve could fly off, causing danger.

Using the transducer

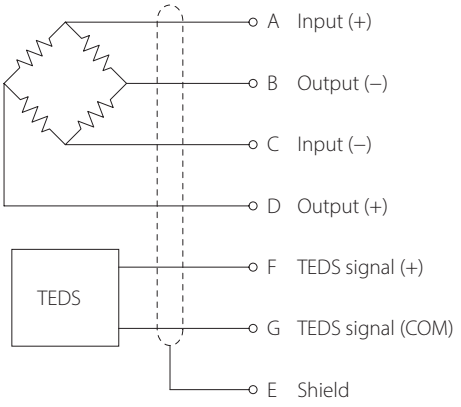
Use a cable to connect the pressure transducer to a strain amplifier or indicator, for example.

For TP-AR models, connect the plug (Tajimi PRC03-12A10-7M) at the end of the connection cable to the receptacle on the unit.

After completing measurement preparations, follow the operation procedures of the connected strain amplifier or indicator.

Electrical connections

- Connect as shown in the wiring diagram below. Incorrect connections could result in inability to balance and in errors occurring in the output voltage when loads are applied.



NDIS-compatible connector

- This unit has a built-in TEDS function.
  The F and G pins in the connector are wired for TEDS.

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- This unit does not support remote sense.
  See the operation manuals of indicators and strain amps that support remote sense for how to connect sensors with those units.
- The shield is not connected to the main body of this product. For this reason, if grounding is necessary because of external noise, for example, arrange to ground the shield to a part other than the body of this unit.

TEDS overview

TEDS (Transducer Electronic Data Sheet) is a memory chip that can electronically read and write sensor-specific data. The TEDS built into this unit has serial number, load cell rated output and manufacturer name data recorded on it. By connecting an indicator that supports TEDS, the TEDS data of the connected load cell will be automatically read and equivalent input calibration will be completed. (For details, read the operation manual of the connected indicator.)
Refer to the connection diagrams in "Electrical connections" as well as the operation manual for the indicator being connected for procedures to make connections.
TEAC indicators and signal conditioners that support TEDS include the TD-01 Portable, TD-700T, TD-260T, TD-9000T and TD-SC1. For details, inquire at the retailer where you purchased the unit. For details, inquire at the retailer where you purchased the unit.
Data recorded in TEDS are tested values from calibration conducted at room temperature during inspection before shipping from our company.
Load cell output will be affected by the environmental temperature where used, even when within the compensated temperature range established in the specifications. Although load cell output is calculated from the calibration value saved in TEDS, when the environmental temperature differs greatly from room temperature (18–28°C), the temperature impacts increase on the zero point and the output. For this reason, consideration of the effect on output voltage is necessary. Output voltage changes will be within the specification range as long as the unit is used at temperatures within the specification range.

Handling after use

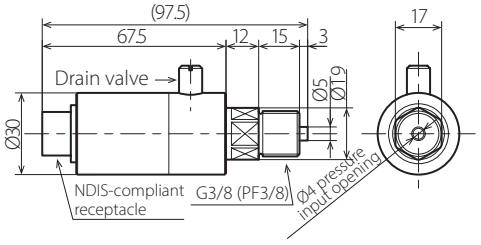
- When removing a pressure transducer for storage, clean it so that no pressure medium remains inside the transducer. When doing this, remove the drain valve and pull the transducer out of the pressure input. The hardening and accumulation of pressure medium in the transducer can be prevented by cleaning inside it with a suitable cleaning fluid. Compressed air can also be blown inside the pressure transducer, but only use compressed air that is below the rated capacity of the transducer.
- When storing the pressure transducer, cover its screw with the included rubber cap to protect it. Store the transducer in a dry place, and do not let oil or water get on it.
- When using the pressure transducer again, replace the drain valve packing with a spare if it has become deformed. (A deformed packing could allow pressure to leak.)

Specifications

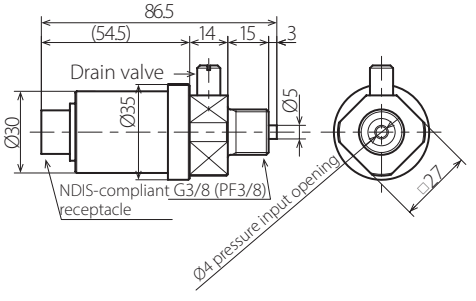
Rated capacity: 500 kPa, 1 Mpa, 2 Mpa, 5 Mpa, 10 Mpa, 20 Mpa, 30 Mpa, 50 Mpa, 100 MPa
Safe overload rating: 150% R.C.
Rated output: 1.5 mV/V ±1%
0.75 mV/V ±1% (500 kPa)
Linearity: 0.2% R.O.
Hysteresis: 0.2% R.O.
Repeatability: 0.3% R.O.
Safe excitation voltage: 10 V
Input terminal resistance: 400 Ω ±60 Ω
Output terminal resistance: 350 Ω ±3.5 Ω
Insulation resistance: 1000 MΩ (DC 50 V)
Compensated temperature range: −10 to 60°C
Permissible temperature range: −20 to 80°C
Temperature effect on zero balance: 0.2% R.O./10°C
Temperature effect on output: 0.2% R.C./10°C
Connector: NDIS-compliant receptacle
Cable: not included (sold separately)
Attachment screw: G3/8 (PF3/8)
G1/2 (PF1/2) (100MPa)
Body material: stainless steel
Environmental compliance: RoHS (10 substances)
Other: built-in TEDS

Dimensional drawings

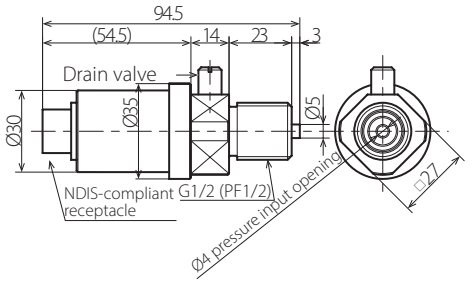
TC-AR(T)500kPa to TP-AR(T)10MPa



TC-AR(T)20MPa to TP-AR(T)50MPa



TP-AR(T)100MPa



Warranty explanation

- The warranty period for this device is one year from the date of purchase.
- Be aware that repairs will require payment in the following cases even during the warranty period.
  1) Malfunction or damage due to misuse
  2) Malfunction or damage caused by modifications or repairs conducted by any party other than our company or a service person designated by our company
  3) Malfunction or damage caused by dropping, transportation or similar handling after product delivery
  4) Malfunction or damage caused by fire, earthquake, water, lightning or other natural disaster
  5) Malfunction or damage caused by external factors, including power supplies and equipment environmental conditions, that deviate from the operation requirements of this product
  6) Malfunction or damage if the product was not purchased from our company or an agent designated by our company
- We offer paid service after the conclusion of the warranty period. For details, please contact the retailer where you purchased the unit.
- Be aware that our company will bear no responsibility for any secondary damages resulting from the operation of this device or related to data.
- Information is given about products in this manual only for the purpose of example and does not indicate any guarantees against infringements of third-party intellectual property rights and other rights related to them. TEAC Corporation will bear no responsibility for infringements on third-party intellectual property rights or their occurrence because of the use of these products.

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