Piezo Pressure Sensor Type 0312 | Quick Installation Guide

TERRATRANSFER

SCOPE OF DELIVERY

- 1× TerraTransfer Piezo Pressure Sensor Type 0312, vented hydrostatic submersible probe
- 1× sealed, vented signal cable, typ. 10 m (alternative length on request)

TECHNICAL SPECIFICATIONS

The following values apply unless otherwise agreed in writing.

Type
Piezoresistive pressure sensor · oil-filled stainless-steel cell, laser-welded

Pressure ranges (see nameplate)
5 · 10 · 20 · 30 · 100 mH_2O (gauge with capillary)

Overpressure resistance
4× nominal pressure range

Long-term stability
typ. ±0.1 % FS per year (for ranges < 1.5 bar: ±3 mbar)

Current consumption — SDI-12 Low-Power
Measurement: <4 mA for approx. 300 ms
Standby between measurements: <0.015 mW

Current consumption — SDI-12 Continuous mode
constant current draw: <4 mA

Operating temperature diaphragm/pressure cell
compensated: –5 … +50 °C (non-freezing)
operating: –20 … +85 °C (non-freezing)

Operating temperature electronics
–40 … +85 °C

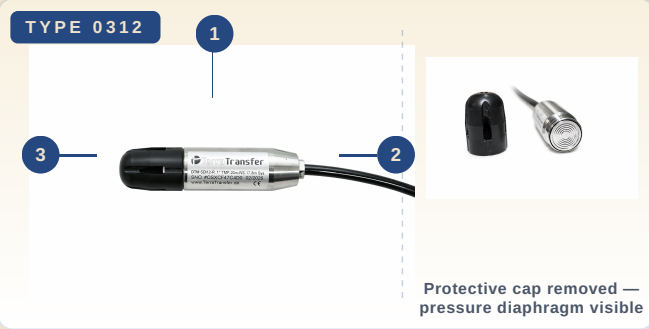
Diaphragm · Housing
Stainless steel AISI 316 Ti (DIN 1.4571), corrosion-resistant

O-ring · Protective cap · Cable
FKM · POM · open strands with vent capillary

Dimensions · Weight
approx. 100 × 25 mm (3.94″ × 0.98″) · 160 g

Compliance
CE · RoHS

MAIN COMPONENTS



1. TerraTransfer Piezo Pressure Sensor (AISI 316 Ti, piezoresistive)
2. Vented signal cable with vent capillary
3. Protective cap (pre-installed, tool-free removal)

SDI-12 WIRING

1 Yellow	2 White	3 Green
SDI-12 GND	VCC · Supply (DC)	SDI-12 DATA

SUPPLY & PROTECTION

- Supply voltage: **2.8 V … 16 V (DC)**.
- The power input is protected against reverse polarity by an internal protection diode.

CONFIGURATION SOFTWARE

The Piezo Pressure Sensor Type 0312 is configured locally via **Bluetooth Low Energy (BLE)**. TerraTransfer recommends **SDI12Term** or **BlueShell** as the operating tool. SDI-12 commands can be sent to the sensor either via the cable bus or directly over BLE.

COMMISSIONING IN 6 STEPS

1. Enable Bluetooth on the PC or mobile device.
2. Launch the operating tool (SDI12Term or BlueShell).
3. BLE range typ. ≈ 2 m. For installed sensors, the SDI-12 line is the preferred command interface.
4. Select the sensor from the device list — the connection is established automatically.
5. Enter the BLE PIN (see enclosed FAT inspection report).
6. After successful authentication, measurement values and parameters are available in the tool.

SDI-12 COMMANDS

The command set follows the **SDI-12 Standard V1.3**:

- **aAn!** — Change address from *a* to *n* (**?** accepted as wildcard).
- **aI!** — Identify node.
- **aM!** (also **aMC!**) — Start measurement. D command returns up to **2 values**: (a) pressure · (b) temperature.
- **aM1!** (also **aMC1!**) — Start measurement. D command returns up to **3 values**: (a) pressure · (b) temperature · (c) supply voltage.
- **aD0!** — Reads 1–3 measurement values; always after an M command.

INTERNAL SENSOR ERROR CODES

- **1101 / 1102** — no response
- **1103** — timeout
- **1104** — sensor busy
- **1105** — memory error
- **1106** — no calibration coefficients

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INSTALLATION INSTRUCTIONS

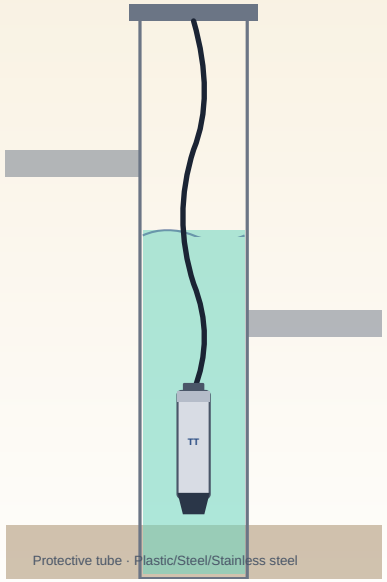
- Mount the sensor **de-energised** during installation — do not apply mechanical forces to the probe.
- Make the electrical connection according to the cable markings or nameplate.
- Avoid kinks in the cable.
- Observe the minimum bending radius — for vented capillary cables at least **15× cable diameter**.
- Avoid potential differences between measurement and connection point (prevent ground loops).
- For cable lengths exceeding **50 m**, additionally use a steel wire rope with strain clamps for strain relief.
- The metal diaphragm is very thin (approx. 20 µm) — **do not use sharp or hard objects** near the diaphragm area.
- PUR cable jacket is **UV-resistant** — suitable for exposed outdoor installation.
- Max. cable operating temperature **+95 °C** (PUR jacket); capillary pressure stability reduced above approx. **80 °C** — avoid use in hot media.
- PUR jacket is **not resistant** to organic solvents (acetone, toluene, chlorinated hydrocarbons, etc.); resistant to seawater, glycol mixtures and dilute acids/alkalis.

POSITIONING

1. Preferably **vertical**, pressure transducer facing down.
2. Recommendation: guide or protective tube made of plastic, steel, or stainless steel.

INTERFERENCE AND PRESSURE SPIKES

For stable measurements, do **not** install the sensor in the immediate vicinity of motors, pumps, valves, heat sources, or other sources of interference that may generate vibrations or pulsating pressure spikes.



NO SHARP OBJECTS

Protect the pressure diaphragm from sharp and hard tools.

SAFETY INSTRUCTIONS

1. **Installation guide:** Read this guide completely before installation.
2. **Support:** Contact the manufacturer or specialist dealer for questions about the content.
3. **Intended use:** Hydrographic or environmental pressure measurement.
4. **Ex protection:** Do not use in potentially explosive atmospheres.
5. **Warranty:** Unauthorised modifications will void the warranty.
6. **Electrical standards:** Comply with applicable electrical safety standards.
7. **Regulations:** Observe health, safety, and environmental regulations.
8. **Water safety:** Provide life jackets when working near water and inspect them before use.

For detailed safety information see the user manual at www.terratransfer.de