



KONGSBERG

GT301

Pressure Transmitter

Features

- Membrane made of 96 % alumina ceramics.
- No oil filling in element
- Rugged construction
- Process connection of AISI 316 L
- DIN 175301-801 connector
- Accuracy 0.5 %

Description

Application and general description

The GT301 Pressure Transmitter is a transmitter for use in engine rooms and other similar applications. It can be mounted directly on the measuring point. It can also be mounted side by side on a valve rack. Rack mounting saves space and facilitates maintenance. The transmitter is available as gauge and sealed gauge. With pressure ranges up to 100 bar, and a 2-wire connection, 4 to 20 mA output signal.

Mechanical design

The transmitter consists of a sensing element together with an electronic unit encapsulated in the sensor body. The pressure transmitter has a flange connection with an O-ring seal, and electrical connection is a standard DIN connector. The process connection is made of AISI316 steel, and body with connector is made of PA and reinforced PBT. See Fig. 2.

Pressure sensing capsule

The pressure transmitter is built around a dry, robust sensor element, made of ceramic, with internal strain gauge. The signal given by this strain gauge is then digitized and stored together with known applied pressure and temperature. All this together forms a unique tabular for each sensor, which is kept in sensor memory for the



sensor's lifetime. This digital compensation gives a possibility for linearization and temperature compensation of each transmitter uniquely, based on each element's character. This enables a much higher accuracy and temperature stability than with former analogue sensors.

As the 96 % alumina membrane is resistant to most chemicals, the process medium is in direct contact with the measuring membrane, thus there is no need for costly de-coupling in the form of a filling liquid and second membrane. A filling liquid and a second membrane can be a source of errors. This is why dry capsule sensors have superior specifications compared to wet capsule. On some measuring points in the engine room, e.g. fuel oil inlet, there may be high pressure transients. For those applications, the R-version of the GT301 can be delivered with the built-in restriction absorber.

Electrical description

The pressure transmitter is connected to a 24 V power supply, 4 to 20 mA 2-wire connection.

Installation

The GT301 series can be connected directly to the measuring point with example a control valve in front. Alternatively several transmitters can be mounted side by side on a rack with built in valves.

Power supply

Power supply to the transmitter is 24 VDC nominal, and can vary from 12 to 32 V. The allowable load resistance is determined by the minimum power supply, see Fig. 1.

Electrical connection

A Cu-screened cable, with intact screen, must always be used from the transmitter to the monitoring system where the Cu-screen must be grounded at the monitoring side. Minimum cross cable is $2 \times 0.5 \text{ mm}^2$. Terminate + (plus) to terminal 1 and – (minus) to terminal 2, see Fig. 3.

Kongsberg Maritime can deliver detailed installation instructions and necessary installation material for various installations.

Technical specifications

Power supply:	24 VDC (12 to 32 VDC depending on load resistance)
Output signal:	4 to 20 mA
Load resistance:	0 to 1020 ohm depending upon power supply
Transmitter output current:	$3.8 \text{ mA} \leq I_{\text{out}} \leq 21.6 \text{ mA}$
Output current with Transmitter fault:	$I_{\text{out}} \leq 3.6 \text{ mA}$
Accuracy*:	0.5 % of FRO**
Temperature drift: Compensated	0.05 % of FRO /°C (0 to +60 °C)
temperature range:	0 to +60 °C
Long term drift:	$\leq 0.3\%$ /year as % of nom. range
Performance degradation during immunity test:	$\leq 0.5\%$ of Full Range Output
Operating ambient temperature:	-25°C to +85 °C
Storage temperature:	-45°C to +100 °C
Weight:	0.3 kg
Protection grade:	IP56

Materials	
Pressure connection:	AISI 316
Membrane:	96% alumina ceramics
Gasket:	Viton

*) Accuracy included non-linearity, hysteresis and reliability at 22°C.

***) FRO = Full Range Output

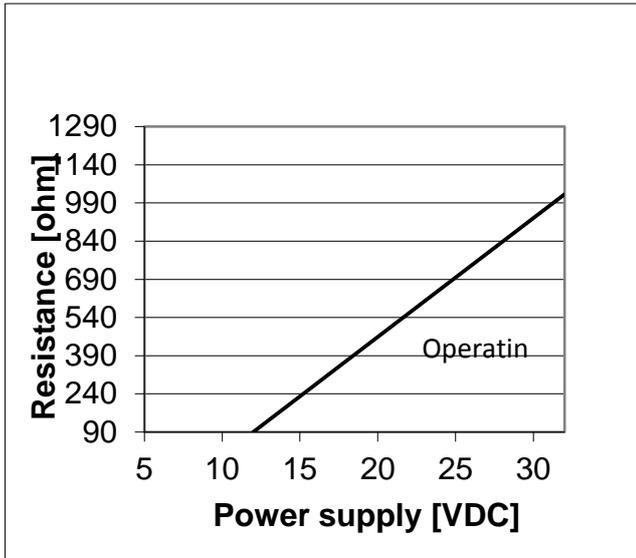


Fig. 1: Load vs. power supply

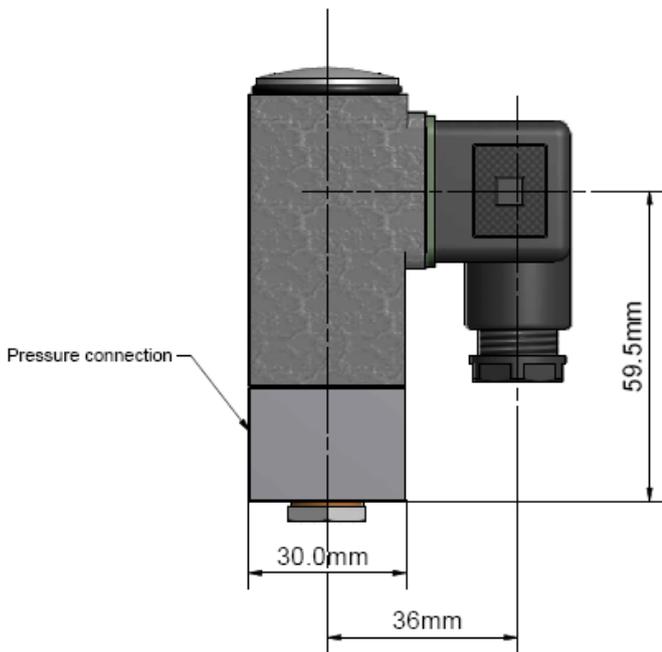


Fig. 2: GT301 Pressure Transmitter

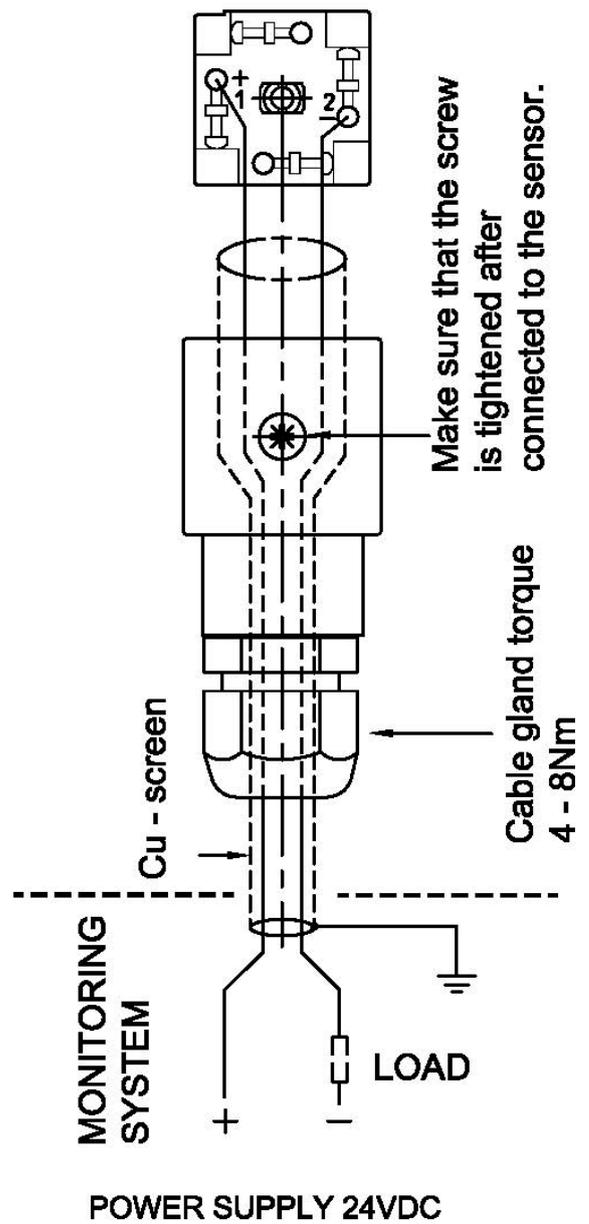


Fig. 3: GT301 Pressure Transmitter, electrical connections

