

# GT404



KONGSBERG



## PRESSURE TRANSMITTER

The KONGSBERG GT404 is a type approved pressure transmitter, specially designed for maritime applications and to measure the pressure on cargo lines/manifolds. The sensor is designed with a Teflon coated AISI 316 diaphragm to avoid building up of cargo residue and possible damage to the sensing element due to pressure shocks. The transmitter is available as an absolute type, sealed gauge or gauge type, with pressure ranges from 0,6 to 40 Bar.

### Principle of operation

The pressure sensing element is a dry, robust ceramic sensor, with an internal strain gauge Wheatstone-bridge. For each sensor, the characteristics of the strain gauge is digitized and stored at known applied pressure and temperature and kept in sensor memory for the sensor's lifetime. This digital calibration enables a possibility to linearize and temperature compensate each sensor uniquely, which again enables a high accuracy and temperature stability of each measurement.

The front membrane is made of stainless steel, coated with Teflon. The intermediate pressure transfer media is a mixture of water and glycol. The diameter of the active membrane is 59 mm. Between front membrane and sensor membrane there is a restrictor installed to prevent pressure shock to damage the sensing element.

### Installation

The transmitter consists of a sensing element together with an electronic unit encapsulated in the sensor body. The transmitter body is made of stainless steel AISI 316L.

Process connection is by a flange with OD 98 mm, and a diaphragm with an opening of 57 mm. Flange connection is made by 6 pcs M6 screws.

Electrical connection is by a cable gland on the connection box.

Minimum requirement is 2 x 0.5 mm<sup>2</sup> twisted pair cable with Cu-screen. The Cu-screen shall be grounded in the cable gland on the transmitter. On the monitoring side, the screen shall be grounded as near to the input channel in the monitoring cabinet/system as possible (see Figure 1).

Power supply to the transmitter is 24 VDC nominal, but the transmitter will tolerate a variation from 12 VDC to 32 VDC from the power source.

When used in hazardous areas as Intrinsic Safe apparatus, the power supply is restricted to 28 VDC. The allowable load is determined by the minimum power supply.

The KONGSBERG DZ-120 Transmitter Barrier matches the GT404 pressure transmitter perfectly, and allows the transmitter to be used in hazardous areas (for connection details, see Figure 2).

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

# DRAWINGS AND INSTALLATION

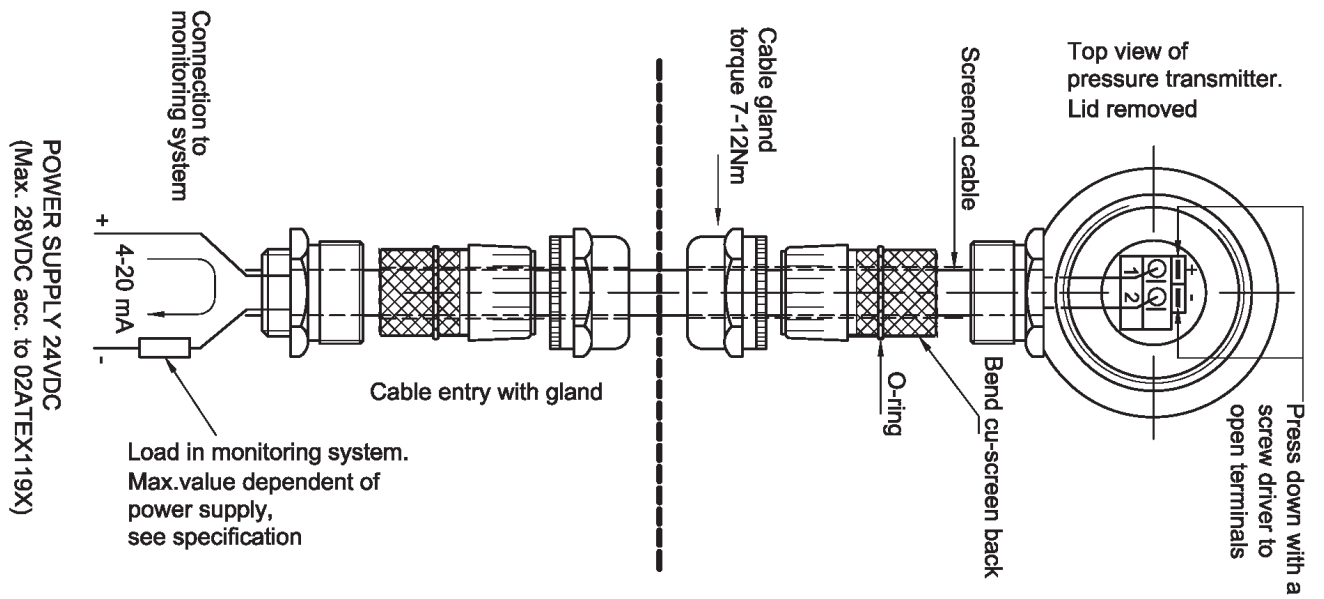


Figure 1: Electrical and mechanical installation of GT404

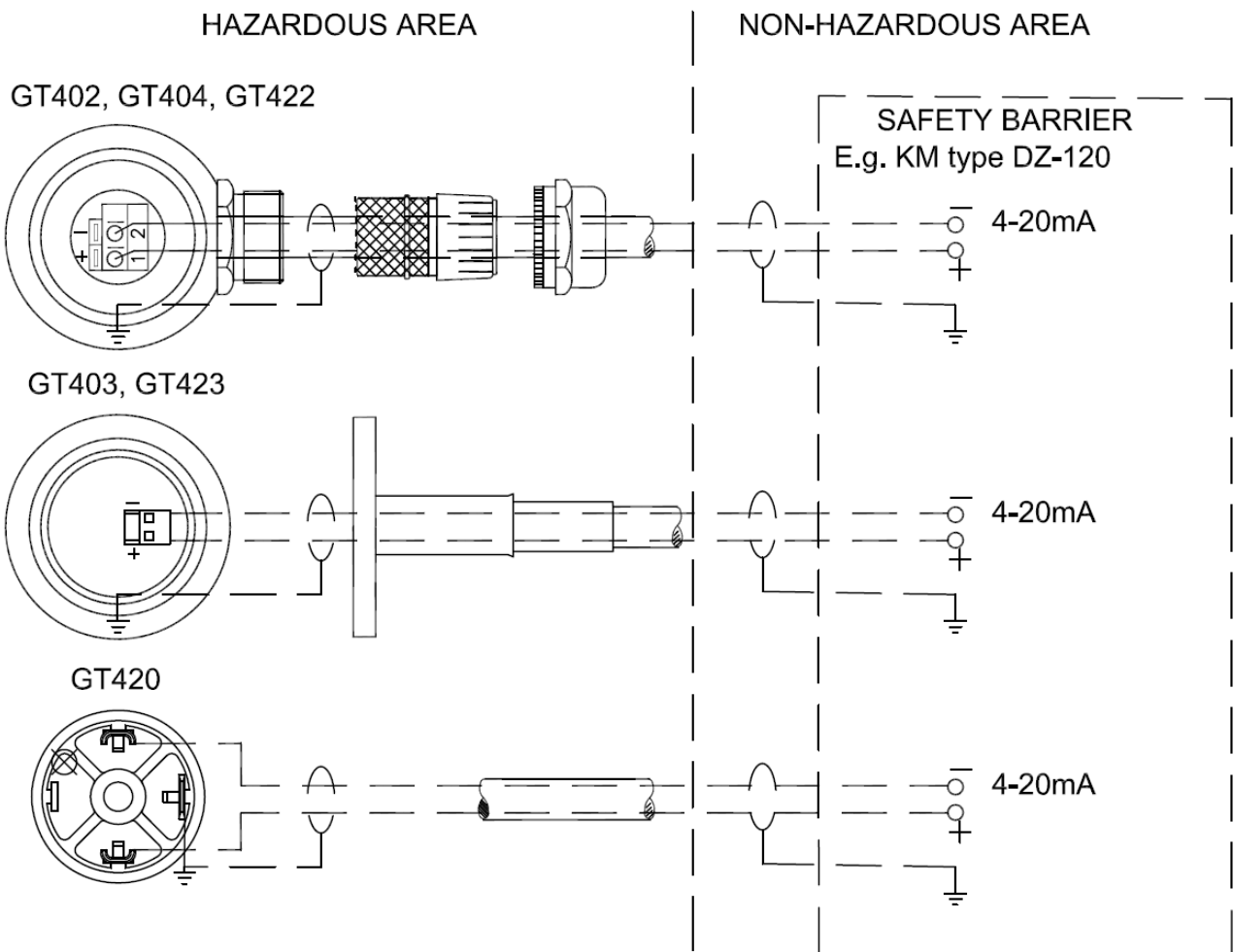


Figure 2: Connection diagram for Ex-area installations

# SPECIAL CONDITIONS FOR SAFE USE

The system must be depressurized before assembly of the pressure transmitters.

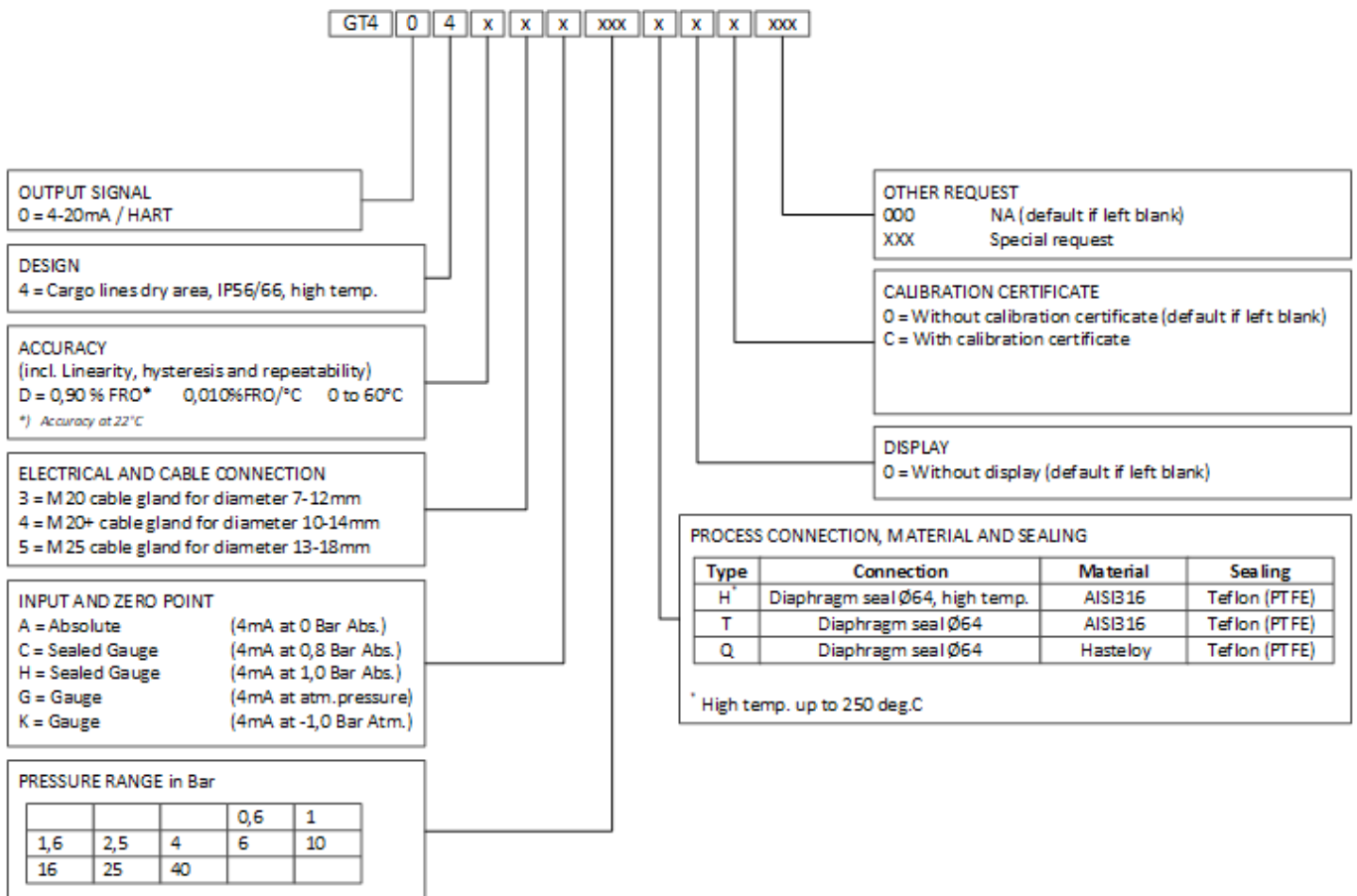


Compliance with the Essential Health and Safety Requirements has been assured by compliance with:  
CENELEC EN 60079-0 : 2012 and CENELEC EN 60079-11 : 2012

- The stated input values  $U_i$ ,  $I_i$  and  $P_i$  are to be regarded as individual maximum values. It is a precondition that the diode safety barrier in the supply circuit has a linear resistive output characteristic.
- When installing titanium sensors, special caution must be taken to avoid ignition hazard due to impact or friction.

For details about safe installation and various solutions for different applications, see the GT400 Series Pressure Sensor Applications Guidelines 369048.

## ORDER CODE



## FEATURES

- Accuracy 0.90% of FRO\*\*
- Temperature drift < 0.01 % of FRO\*\*/°C
- Wide Teflon coated SS membrane facing cargo
- Rugged pressure sensing capsule
- HART compatible
- Body of AISI 316 L
- Rugged construction

## TECHNICAL SPECIFICATIONS

Measuring range:	0.6 to 40 bar
Accuracy*:	0.90% FRO
Temperature drift:	< 0.01 % of FRO**/°C
Compensated temperature range:	0 to 60°C
Long term drift:	< 0.3% /year (% of nom. range)
Output signal:	4 to 20 mA with HART
Output current:	3.8 mA < I <sub>o</sub> < 21.6 mA
Output current at fault:	I <sub>o</sub> ≤ 3.6 mA
Power supply:	24 VDC (12 to 32 VDC depending on load resistance)
Load resistance:	0 to 1150 ohm depending upon power supply
Ex classification:	@II 1 G Ex ia IIC T5 Ga
Ex certification:	NEMKO 02ATEX119X IECEX NEM 12.0008X
Environmental standards:	IACS E10 CISPR 22
Operating temperature:	- 45 °C to + 85 °C
Storage temperature:	- 50 °C to +100 °C
<b>Materials</b>	
Body:	AISI 316 L
Membrane:	AISI 316 L coated with Teflon
Gasket:	Silicon coated with Teflon
Protection grade:	IP 56 for gauge IP 66/67
Weight:	1.5 kg
Cable gland:	M20, M20+ or M25

### Safety data sensor:

Max. input voltage:	U <sub>i</sub> = 28 VDC
Max. input power:	P <sub>i</sub> = 0.85 W
Max. input current:	I <sub>i</sub> = 150 mA
Max. internal capacitance:	C <sub>i</sub> = 30 nF
Max. internal inductance:	L <sub>i</sub> = Negligible

Type approvals: MR (EU mutual recognition), NK, CCS, ABS

\* Including non-linearity, hysteresis and repeatability at 22 °C.  
\*\* FRO = Full Range Output

Specifications subject to change without any further notice.

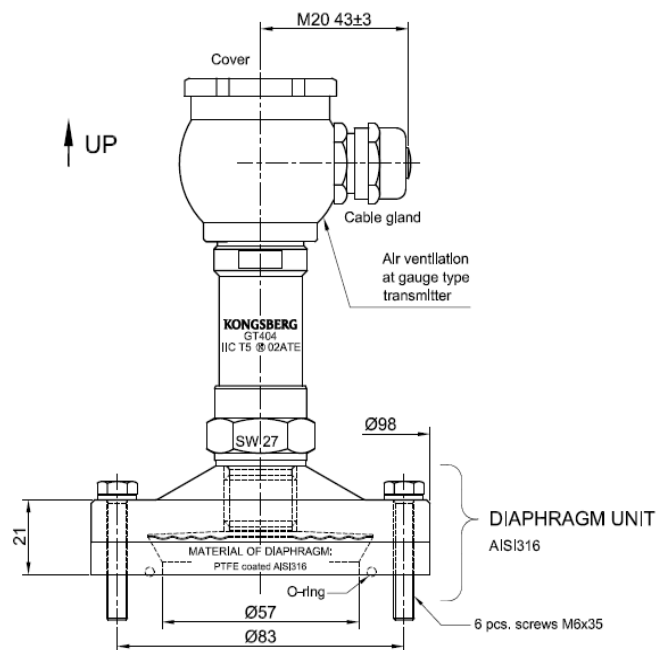


Figure 3: Dimensional sketch of GT404