



DIFFERENTIAL PRESSURE TRANSMITTER

The KONGSBERG GT420, GT422 and GT423 is a series of type approved differential pressure transmitters, specially designed for maritime applications, and suitable for submerged installations or installations in potentially wet areas. Typical applications are level measurements in tanks, leakage measurements, density measurements of a fluid and/or filtration monitoring.

Principle of operation

The pressure sensing element is a silicon sensor with stainless steel separating diaphragm. The sensor can be used for the majority of fluids and gases as the high-quality stainless steel process connection is resistant to most chemicals. An all welded mechanical assembly provides a high integrity pressure seal for pressure and vacuum applications. The long term stability of the sensor offers an excellent choice for use in applications where the location of sensor makes maintenance difficult due to limited access.

The transmitter comes with an overload capacity of more than six times for nominal ranges less than 25 bar, and with respective burst pressure of ten times the range (see Order Code). Overload capacity is important when measuring on small ranges where pressure peaks can occur.

Installation

The transmitter consists of a sensing element together with a signal converter unit encapsulated in a body made of stainless steel. All the mechanical parts exposed to the media are of same material.

Process connection is by two female connectors ISO228-G1/4A threads.

The electrical connection differ between the transmitter type:

- GT420: DIN EN 17301 power connector
- GT422: Connection box with cable gland
- GT423: Flanged PUR cable for watertight connection

Minimum cable requirement from the transmitter to monitoring system is 2 x 0.5 mm² twisted pair cable with Cu-screen. The Cu-screen shall be grounded at the transmitter side. 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 28VDC. The allowable load is determined by the minimum power supply.

The KONGSBERG DZ-110 Transmitter Barrier matches the GT42x pressure transmitters perfectly, and allows for use 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

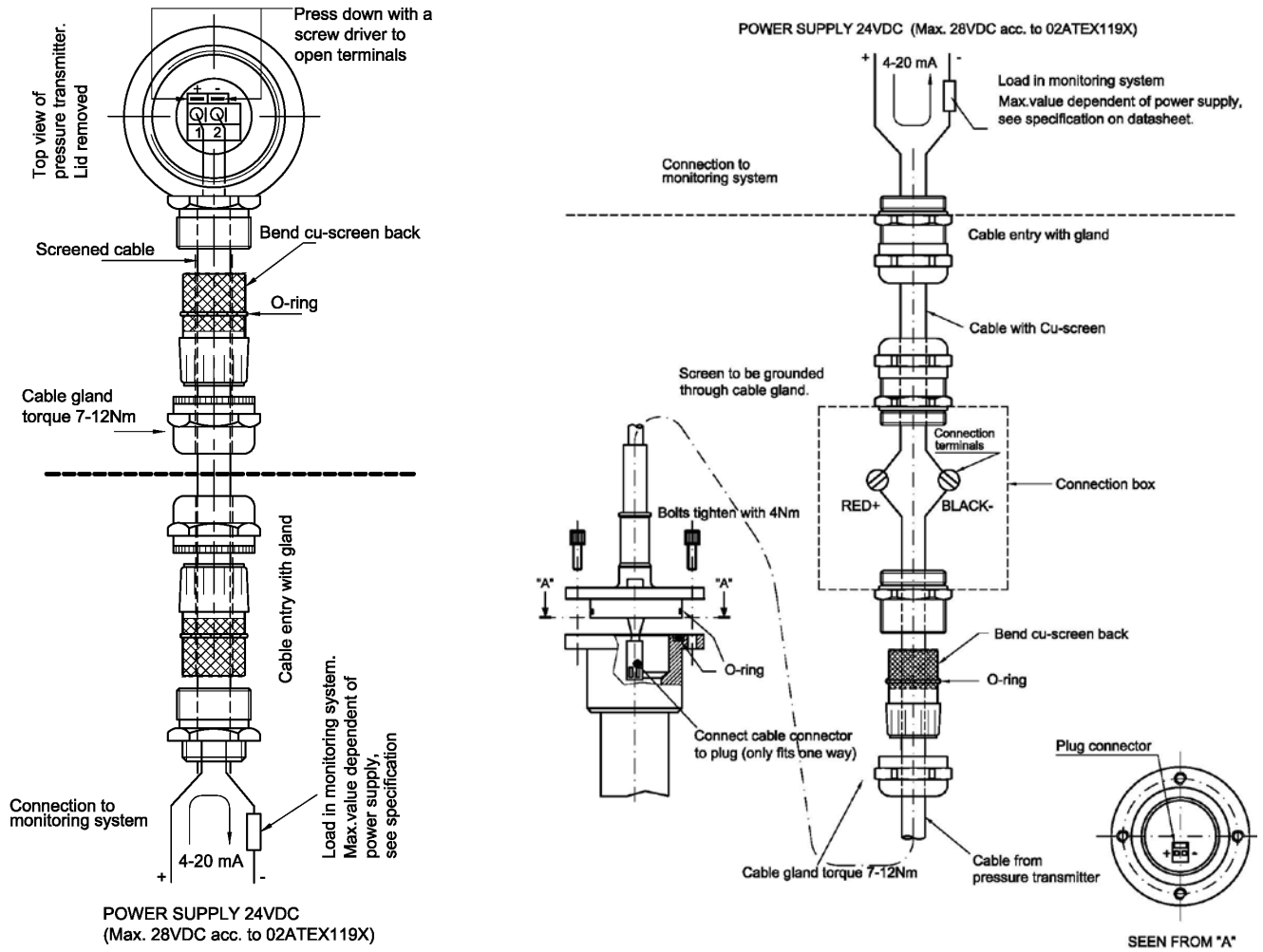


Figure 1: Electrical and mechanical installation of GT422 and GT423

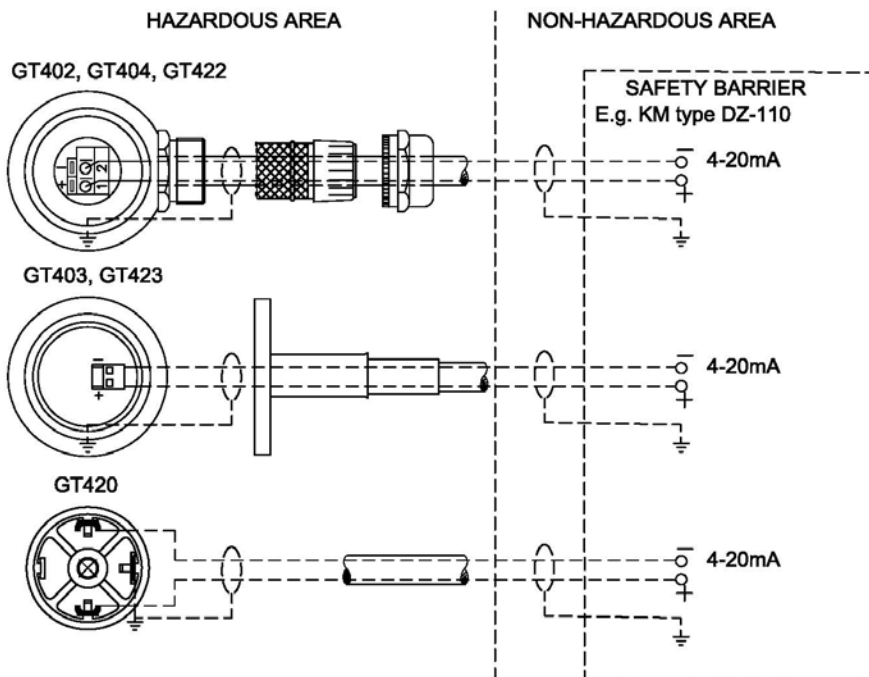


Figure 2. Connection diagram for Ex area installation

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.
- GT423 is delivered with a PUR-cable end up to 60 meters, with up to 102 μH inductance and up to 7.2 nF capacitance. The inductance and capacitance of the cable length that comes with the transmitter shall be added to L_i : 4 μH and C_i : 22 nF of the transmitter.

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

ORDER CODE

GT4 2 x x x x xxx x x x xxx

OUTPUT SIGNAL
2 = 4-20mA differential

DESIGN
0 = General use, engine room, IP66
2 = General use dry area, IP66
3 = General use wet area, IP66

ACCURACY
(incl. Linearity, hysteresis and repeatability)
A = 0,25 % FRO 0,005%FRO/°C 0 to 60°C
C = 0,50 % FRO 0,060%FRO/°C 0 to 60°C
D = 0,90 % FRO 0,010%FRO/°C 0 to 60°C

ELECTRICAL AND CABLE CONNECTION
0 = Flanged with 5mm cable
2 = M16 cable gland for diameter 6-10mm
3 = M20 cable gland for diameter 7-12mm
4 = M20+ cable gland for diameter 10-14mm
5 = M25 cable gland for diameter 13-18mm

INPUT AND ZERO POINT
G = Gauge (differential pressure)

PRESSURE RANGE in Bar

Range	Max. Meas. Press.	Overload both side
0,1 ^{a)}	5	7,5
0,16 ^{a)}	5	7,5
0,2 ^{a)}	5	7,5
0,4 ^{a)}	5	7,5
0,6	5	7,5
1	5	7,5
1,6	10	15
2,5	10	15
4	30	45
6	30	45
10	30	45
16	100	120
25	100	120

^{a)} Only with accuracy of 0,9 % FRO

CABLE OR OTHER REQUEST

P05	5m PUR cable, 2-wire with flange
P10	10m PUR cable, 2-wire with flange
P15	15m PUR cable, 2-wire with flange
P20	20m PUR cable, 2-wire with flange
P25	25m PUR cable, 2-wire with flange
P30	30m PUR cable, 2-wire with flange
P35	35m PUR cable, 2-wire with flange
P40	40m PUR cable, 2-wire with flange
P45	45m PUR cable, 2-wire with flange
P50	50m PUR cable, 2-wire with flange
P60	60m PUR cable, 2-wire with flange
000	NA (default if left blank)
XXX	Special request

Material of flange according to material in sensor.

CALIBRATION CERTIFICATE
0 = Without calibration certificate (default if left blank)
C = With calibration certificate
A = Inmetro certification + calibration certificate
M = Inmetro certification

DISPLAY
0 = Without display (default if left blank)

PROCESS CONNECTION, MATERIAL AND SEALING

Type	Connection	Material	Sealing
B	ISO 228-G1/4	AISI316	AISI316

FEATURES

- Accuracy of 0.25 % FRO
- Pressure ranges up to 25 Bar
- HART compatible
- Body of AISI 316
- Rugged construction
- Ex certification II 1 G Ex ia IIC T5

TECHNICAL SPECIFICATIONS

Measuring range:	0.1 to 25 bar
Accuracy*:	See order code
Temperature drift:	See order code
Long term drift:	< 0.3% /year as % of nom. range
Output signal:	4 to 20 mA
Output current:	3.8 mA < I_o < 21.6 mA
Output current at fault:	$I_o \leq 3.6$ 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
Certificate reference:	02ATEX119X IECEX NEM 12.0008X NCC14.02980X (Inmetro)
Environmental standards:	IACS E10 CISPR 22
Operating temperature:	-45°C to +85 °C
Storage temperature:	-50°C to +100 °C

Materials

Body:	AISI 316
Membrane:	AISI 316
Gasket:	No gasket

Protection grade:	IP66
Weight:	0.45 kg

Safety data:

Max. input voltage:	$U_i = 28$ VDC
Max. input power:	$P_i = 0.85$ W
Max. input current:	$I_i = 150$ mA
Max. internal capacitance:	$C_i = 22$ nF
Max. internal inductance:	$L_i = 4\mu$ H

Safety data PUR-cable (only GT423):

Max. internal capacitance:	$C_i = 120$ nF/km
Max. internal inductance:	$L_i = 1.7$ mH/km

Type approvals	ABS, BV, CCS, DNV-GL, LRS, NK, RINA, RMRS
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* Accuracy included non-linearity, hysteresis and reliability at 22°C.

Specifications subject to change without any further notice.

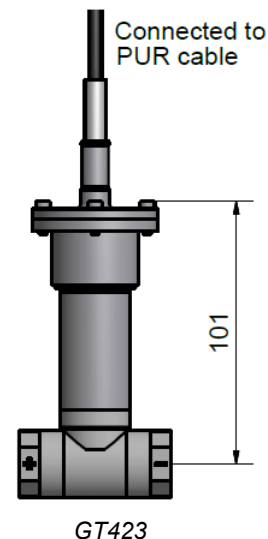
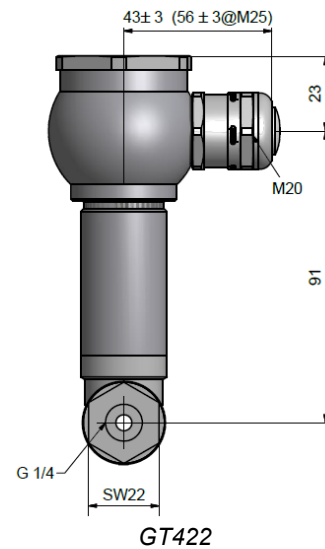
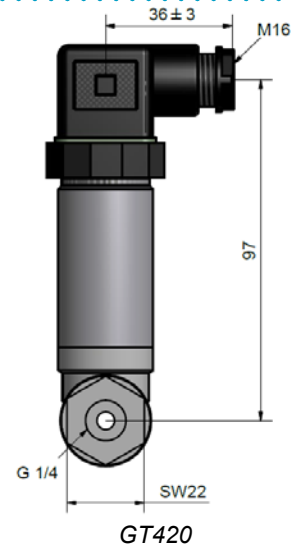


Figure 3. Dimensional sketches of the GT420, GT422 and GT423 with PUR cable differential pressure transmitters.